As confidentially submitted to the Securities and Exchange Commission on May 21, 2021 as Amendment No. 1 to the confidential draft registration statement submitted on April 16, 2021. This draft registration statement has not been filed publicly with the Securities and Exchange Commission and all information contained herein remains confidential.

Registration No. 333-

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

GRAPHITE BIO, INC.
(Exact name of Registrant as specified in its charter)

Delaware	**2836**	**84-4867570**
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification No.)

279 East Grand Avenue, Suite 430
South San Francisco, CA 94080
(650) 484-0886
(Address, including zip code and telephone number, including area code, of Registrant's principal executive offices)

Josh Lehrer, M.D.
Chief Executive Officer
279 East Grand Avenue, Suite 430
South San Francisco, CA 94080
(650) 484-0886
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

Mitchell S. Bloom **Maggie Wong** **Shoaib Ghias** **Goodwin Procter LLP** **Three Embarcadero Center, Floor 28** **San Francisco, CA 94111** **(415) 733-6000**	**Josh Lehrer, M.D.** **Chief Executive Officer** **279 East Grand Avenue, Suite 430** **South San Francisco, CA 94080** **(650) 484-0886**	**Charles S. Kim** **Kristin VanderPas** **Dave Peinsipp** **Denny Won** **Cooley LLP** **4401 Eastgate Mall** **San Diego, CA 92121** **(858) 550-6000**

Approximate date of commencement of proposed sale to the public: As soon as practicable after the effective date of this registration statement.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933 check the following box. ☐

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☐ Accelerated filer ☐ Non-accelerated filer ☒ Smaller reporting company ☒

Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act. ☐

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	**Proposed Maximum Aggregate Offering Price(1)**	**Amount of Registration Fee(2)**
Common Stock, par value $0.00001 per share	$	$

(1) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(o) under the Securities Act. Includes the offering price of any additional shares that the underwriters have the option to purchase, solely to cover over-allotments.

(2) Calculated pursuant to Rule 457(o) under the Securities Act based on an estimate of the proposed maximum aggregate offering price.

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the Registration Statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

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The information in this preliminary prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell these securities and is not soliciting an offer to buy these securities in any jurisdiction where such offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED , 2021.

Shares

Common Stock

This is an initial public offering of shares of common stock by Graphite Bio, Inc.

We are offering shares of our common stock. Prior to this offering, there has been no public market for our common stock. It is currently estimated that the initial public offering price per share will be between $ and $. We have applied to list our common stock on the Nasdaq Global Market under the symbol "GRPH."

We are an emerging growth company under the federal securities laws and, as such, have elected to comply with certain reduced public company reporting requirements.

Investing in our common stock involves a high degree of risk. See the section titled "Risk Factors" beginning on page 15.

	Per Share	Total
Initial public offering price	$	$
Underwriting discounts and commissions(1)	$	$
Proceeds, before expenses, to us	$	$

(1) See the section titled "Underwriting" for additional disclosure regarding the estimated underwriting discounts and commissions and estimated offering expenses.

We have granted the underwriters the right to purchase up to an additional shares of common stock solely to cover over-allotments, if any.

The underwriters expect to deliver the shares against payment in New York, New York on , 2021.

Neither the Securities and Exchange Commission nor any other regulatory body has approved or disapproved of these securities or passed upon the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offense.

Morgan Stanley **BofA Securities** **Cowen** **SVB Leerink**

, 2021

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We and the underwriters have not authorized anyone to provide you with any information other than that contained in this prospectus, any amendment or supplement to this prospectus or in any free writing prospectus prepared by or on behalf of us or to which we have referred you. We and the underwriters take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We are not making an offer to sell, and seeking offers to buy, these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus is accurate only as of the date on the front cover of this prospectus, regardless of the time of delivery of this prospectus or any sale of shares of our common stock. Our business, financial condition, results of operations and prospects may have changed since that date.

For investors outside of the United States: We have not, and the underwriters have not, done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than the United States. Persons outside of the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the shares of common stock and the distribution of this prospectus outside of the United States.

Through and including , 2021 (the 25th day after the date of this prospectus), all dealers effecting transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to the dealers' obligation to deliver a prospectus when acting as underwriters and with respect to their unsold allotments or subscriptions.

PROSPECTUS SUMMARY

This summary highlights information contained elsewhere in this prospectus and does not contain all of the information that you should consider in making your investment decision. Before investing in our common stock, you should carefully read this entire prospectus, including our financial statements and the related notes included elsewhere in this prospectus. You should also consider, among other things, the matters described in the sections titled "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations," and "Business." Unless otherwise stated, all references to "us," "our," "Graphite," "we," the "Company" and similar designations refer to Graphite Bio, Inc.

Overview

We are a clinical-stage, next-generation gene editing company harnessing high efficiency targeted gene integration to develop a new class of therapies to potentially cure a wide range of serious and life-threatening diseases. We are pioneering a precision gene editing approach to achieve one of medicine's most elusive goals: to precisely "find & replace" any gene in the genome. Our next-generation gene editing platform allows us to precisely correct mutations, replace entire disease-causing genes with normal genes, or insert new genes into predetermined, safe locations. We believe our approach could enable broad applications to transform human health, including directly correcting mutations, engineering cells to permanently deliver therapeutic proteins, and precisely engineering effector cells to treat or cure a wide range of serious genetic and other diseases, including cancer, autoimmune and neurodegenerative diseases.

Our lead product candidate GPH101 is a highly differentiated approach with the potential to directly correct the mutation that causes sickle cell disease (SCD) and restore normal adult hemoglobin (HgbA) expression. Curing sickle cell disease by correcting the disease-causing point mutation to normal is viewed as the gold-standard for curing SCD and has been the dream of treating physicians for generations. We have received clearance of our Investigational New Drug (IND) and we intend to enroll the first patient in a Phase 1/2 clinical trial of GPH101 in . We are also advancing our research programs and pipeline of potentially one-time curative therapies for a wide range of genetic and other serious diseases and intend to file an IND for a second program by .

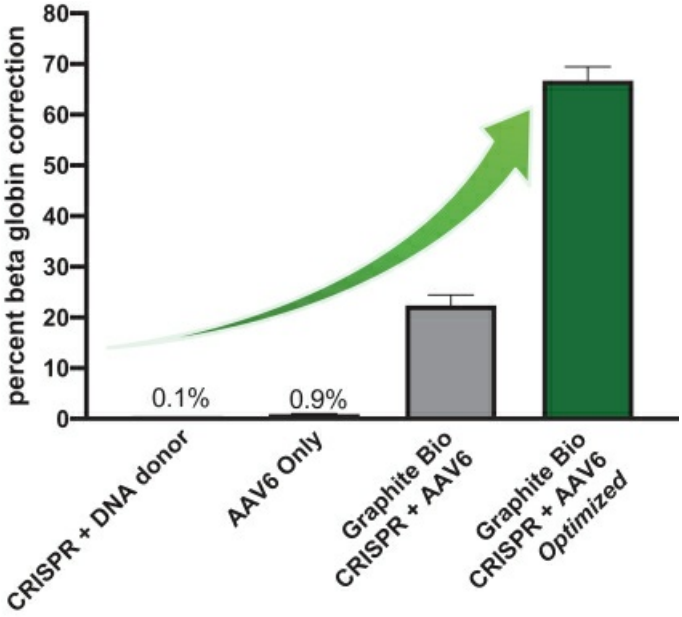
Our technology builds on first-generation proven CRISPR technology to achieve high rates of targeted gene integration. Our platform technology includes patent rights and proprietary technology exclusively licensed from The Board of Trustees of the Leland Stanford Junior University (Stanford) and developed in the Stanford laboratories of two of our scientific founders, both pioneers in gene therapy and gene editing: Matthew Porteus, M.D., Ph.D., and Maria Grazia Roncarolo, M.D. Dr. Porteus is considered to be one of the founders of the field of gene editing and was a scientific founder of CRISPR Therapeutics AG. He was the first to demonstrate that an engineered nuclease could be used to correct genes by harnessing precision cellular DNA repair machinery. Dr. Roncarolo is a pioneer in multipotent hematopoietic stem cell (HSC) gene therapy and her work led to the first approved HSC gene therapy product. She established and is Director of the Stanford Center for Definitive and Curative Medicine to treat patients with currently incurable diseases through the development of innovative stem cell- and gene-based therapies. Drs. Porteus and Roncarolo, both practicing physicians, came together with the conviction that targeted gene integration could lead to an entirely new class of potentially curative therapies.

Our approach has broad therapeutic applications and has enabled high efficiency targeted gene integration in a wide range of primary human cell types. In our initial programs, we apply our approach *ex vivo* in a patient's own HSCs, which are reinfused after gene integration (autologous HSCT). HSCs are multipotent stem and progenitor cells that can give rise to all cells of the blood and immune system and have proven their curative potential across dozens of diseases as demonstrated by allogenic HSC transplant (allo-HSCT).

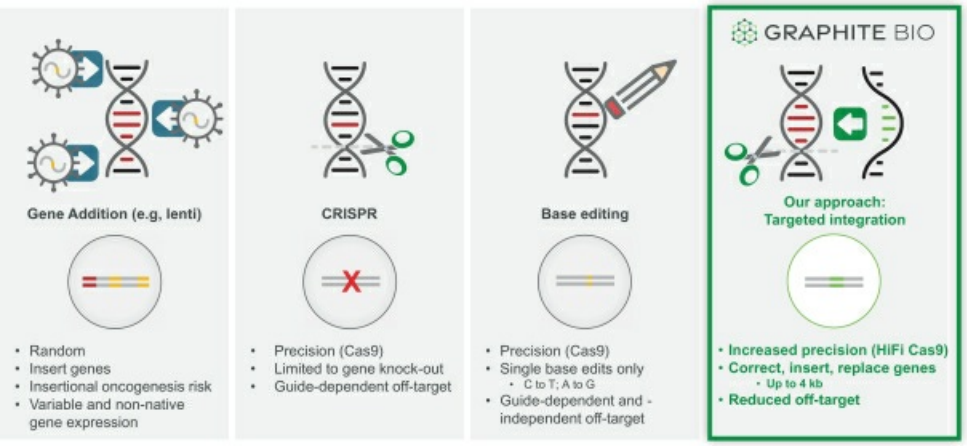
Our approach can be thought of as "find & replace," using CRISPR to find a target gene and homology directed repair (HDR) to replace DNA in the target gene with DNA copied from a template. We create a precise incision in a target gene using a modified, high fidelity CRISPR-based nuclease and then induce conditions in target cells that overwhelmingly favor HDR, a natural and precise cellular DNA repair process. Using a non-integrating AAV6 vector, we deliver a donor DNA template strand to the target gene which is copied via HDR to create a new coding strand. We then apply our HSC biology expertise to optimally engineer and manufacture HSCs, a historically intractable cell type for harnessing HDR. Using our next-generation gene editing approach, we have achieved gene integration efficiencies in excess of estimated curative thresholds and demonstrated preclinical proof-of-concept across multiple diseases models. Beyond GPH101, our pipeline includes multiple programs including our first gene replacement program, GPH201 for X-linked severe combined immunodeficiency syndrome (XSCID), a rare, life-threatening disease where multiple mutations in a single gene prevent normal immune system function, and our first targeted gene insertion program, GPH301 for Gaucher disease, and multiple additional programs in both HSCs and other cell types.

Our approach differs from first generation gene and base editing technologies due to:

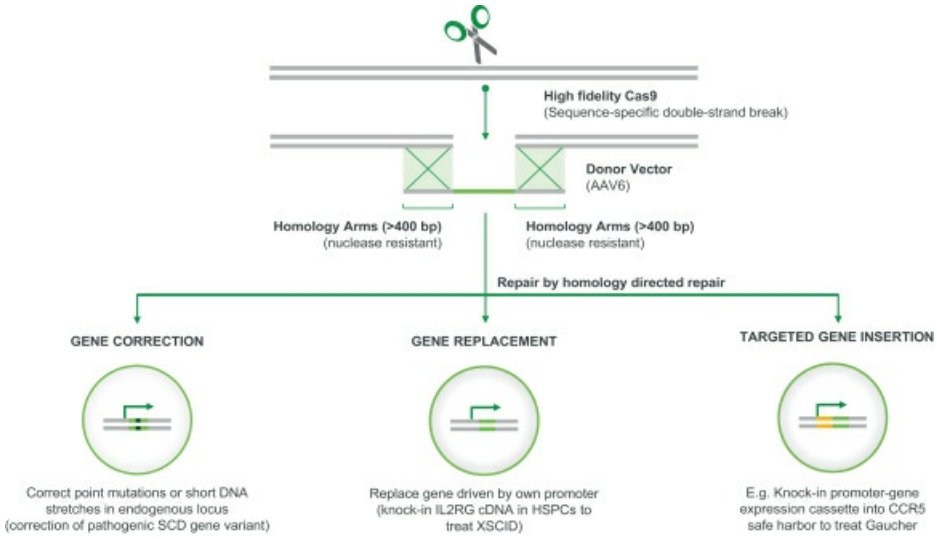
- **Direct targeting and correction of genetic lesions:** We harness HDR to replace the disease-causing mutation or the entire disease-causing gene with the normal, wild-type genetic sequence. This is in contrast to first generation gene editing approaches that have focused on knocking-out genes.
- **Efficiency of targeted gene integration:** In our GPH101 sickle cell gene correction program, we have demonstrated up to approximately 70% gene correction efficiency in hematopoietic stem and progenitor cells (HSPCs) in *ex vivo* studies. In gene replacement and targeted gene insertion applications, we have consistently demonstrated efficiencies of approximately 30-50% in HSPCs across a range of gene targets and templates. We believe these efficiencies are above the estimated curative threshold for a broad array of indications, including SCD. Prior to the development of our gene integration platform efficiencies using HDR in HSPCs were approximately 10%.



- **Breadth of applications:** We can replace genes of up to 4 kilobases (kb) allowing us to correct not only single point mutations but also multiple mutations within the same gene, and to address gene deletions. We can also precisely insert genes under control of a native promoter for naturally regulated expression, into a safe harbor location under the control of an exogenous promoter, or under the control of a lineage specific cellular promoter. For gene insertion, we are initially applying our technology for permanent therapeutic protein production in HSCs. We believe our approach has many additional applications such as engineering effector cells and expressing therapeutic proteins in non-HSC cell types.
- **Uniquely suited to expand the patient population eligible for potential one-time curative HSC therapies:** We believe that the high efficiency and precision of our targeted gene integration platform could potentially reduce threshold bone marrow engraftment levels. This could potentially obviate the need for full chemotherapeutic myeloablative bone marrow conditioning (the current standard for allo-HSCT and most gene editing and gene therapy approaches in development). In addition, our approach is designed to avoid the theoretical risk of insertional oncogenesis from integrating viral vectors. Insertional oncogenesis is an increased risk of cancer that can arise from the insertion of a functional gene near a gene that is important for cell growth or division, which can result in uncontrolled cell division, leading to increased risk of cancer. Our approach also incorporates a high fidelity CRISPR-based nuclease for potentially improved safety. Pairing these advantages with targeted and safer bone marrow conditioning could bring HSC-based curative therapies to much larger numbers of patients.



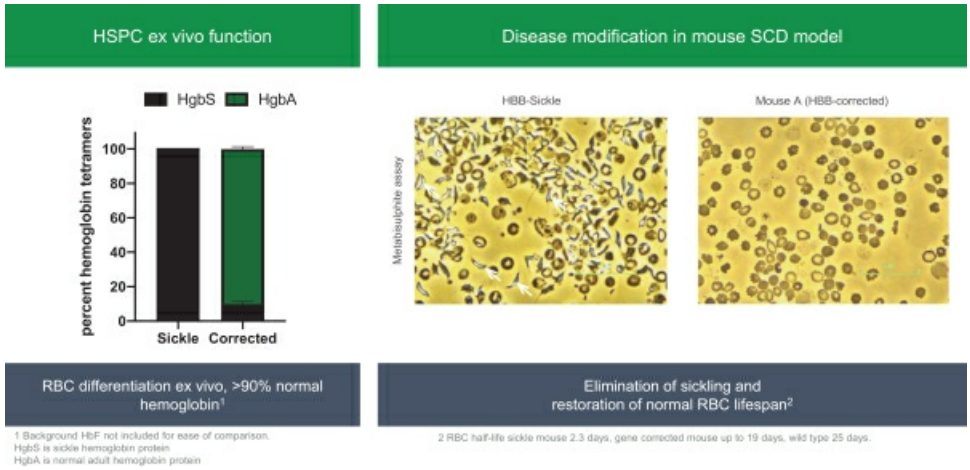
We are applying our technology in three settings: Gene Correction, Gene Replacement, and Targeted Gene Insertion.



Gene Correction

Our approach is designed to allow us to precisely correct pathogenic genes by directly targeting and correcting the specific disease-causing mutation to restore the normal, wild-type sequence.

We are developing GPH101, our lead product candidate for SCD, which is designed to directly correct the genetic mutation responsible for SCD. The mortality and morbidity associated with SCD, all caused by a single mutation, has made curing SCD a dream of many clinicians. Multiple genetic therapies are in development to address SCD, but due to technical limitations, these therapies are primarily focused on expressing alternate hemoglobin genes such as fetal hemoglobin or a transgenic hemoglobin. Our approach is the first in industry to directly remove the SCD-causing mutation and restore the natural genetic sequence to thereby restore normal adult hemoglobin expression. We have optimized our process to correct the majority of HSPCs. Of the remaining cells, which are not corrected, many contain two INDEL sickle globin alleles (knockout alleles). These knockout stem cells are not able to produce sickle red blood cells, and have the effect of increasing the proportion of functional stem cells which have been corrected. This increases our confidence in our ability to exceed the 20% predicted curative threshold in patients. Under IND-enabling GMP manufacturing conditions, we precisely corrected the SCD mutation in over 55% of treated cells, which we believe can achieve the threshold required to cure patients (estimated to be engraftment of 20% corrected cells). These treated HSPCs are fully functional and can engraft *in vivo* in a humanized mouse, and can produce functionally normal red blood cells expressing normal adult hemoglobin *ex vivo*. Furthermore, we have demonstrated in a mouse model of SCD that our approach significantly increased normal adult hemoglobin (HgbA) expression, extended red blood cell (RBC) lifespan from two days in sickle mice to up to 19 days in gene corrected mice, and eliminated RBC sickling. We believe this data supports the curative potential of our approach. We have received clearance of our IND and intend to enroll the first patient in a Phase 1/2 trial of GPH101 in .



Gene Replacement

Our gene replacement approach is designed to allow us to replace dysfunctional genes with a new normal copy of an entire gene at its normal location in the chromosome.

We are developing GPH201 for the treatment of XSCID, a rare, life-threatening disease where multiple mutations in a single gene (IL2RG) prevent normal immune system function. In preclinical studies, we demonstrated that GPH201 treatment of HPSCs from healthy donors led to a consistent rate of IL2RG gene replacement of greater than 40%. Furthermore, treatment of HSPCs from an XSCID patient led to a significant increase in the number of T cells and natural killer (NK) cells, in *in vitro* differentiation assays and in a mouse model, consistent with a reversal of the XSCID phenotype. We believe our gene replacement approach leading to normal regulated expression of the IL2RG gene could be an optimal cure for XSCID. We believe that the survival advantage of the progeny of gene edited cells combined with our high efficiency of gene replacement could enable patients to benefit from GPH201 without undergoing chemotherapy-based conditioning. We have an agreement with Jasper Therapeutics, Inc. (Jasper) to investigate the potential use of JSP191, Jasper's clinical-stage non-genotoxic HSC targeted antibody-based bone-marrow conditioning (non-genotoxic HSC targeted conditioning) regimen, with GPH201. Under the agreement, we and Jasper will each retain commercial rights to our respective technologies. We believe that GPH201 will generate preliminary data on combining our autologous HSC therapies with non-genotoxic HSC targeted conditioning, and our clinical experience could accelerate our ability to use non-genotoxic HSC targeted conditioning with our other product candidates.

Targeted Gene Insertion

Our technology is designed to enable the targeted insertion of entire gene cassettes into chosen chromosomal locations. We believe that this could have broad therapeutic applications by allowing for permanent production of therapeutic proteins and enzymes, in specific cell lineages, and from targeted genomic locations. This prevents the variability in gene expression, and the potential risk of insertional oncogenesis which are limitations of random gene integration approaches using lentiviral vectors (LVV). Permanent therapeutic protein production applications of HSC targeted integration include expression of proteins and enzymes in target organs including the central nervous system (CNS) by tissue resident HSC-derived myeloid cells, as well as efficient systemic delivery of secreted proteins in the circulation. Potential applications include enzyme replacement for metabolic disease, CNS delivery of therapeutic proteins or antibodies for neurodegenerative diseases, and production of plasma proteins for coagulation and complement disorders.

We currently harness two genomic locations for targeted insertion, the CCR5 safe harbor locus and the alpha globin locus:

Our lead product candidate from our CCR5 locus technology is GPH301, which we are developing for the treatment of Gaucher disease, a genetic disorder that results in a deficiency in the glucocerebrosidase (GCase) enzyme. The CCR5 gene encodes the C-C chemokine receptor type 5 (CCR5) protein and is considered a non-essential gene because its inactivation has been observed to have no general detrimental impact on human health. With GPH301, we insert a functional copy of the gene for GCase into the chromosomal locus of the CCR5 gene. This locus is known as a "safe harbor" both because of the lack of deleterious effects associated with gene insertions that occur there and because the expression of inserted genes can be reliably and precisely controlled by regulatory elements inserted together with the gene of interest. We use a lineage specific promoter so that GCase expression is limited to monocytes and macrophages which can migrate into tissues including crossing the blood brain barrier into the CNS. We inserted GCase into approximately 35% of targeted CCR5 alleles in HSPCs (resulting in ~50% of cells having at least one allele targeted) which subsequently engrafted, differentiated, and expressed GCase from macrophages at levels which could lead to a functional cure. This same approach can be used for therapeutic protein production in many other diseases including other lysosomal storage diseases. We believe that proof of concept in Gaucher disease can accelerate development of a CCR5 safe harbor protein production pipeline. We believe there are significant synergies and regulatory efficiencies because these programs will use the same RNA guide and preclinical safety assessment.

Our other approach for therapeutic protein production harnesses the alpha-globin locus, which uses the alpha-globin promoter to express high protein levels from the red blood cell lineage and normalize plasma protein levels to potentially develop HSC-based cures and treatments for additional indications.

We intend to pursue applications of our technology platform to develop potential therapies for a number of serious diseases. Our high efficiency gene editing technology has been shown using human cells and/or animal models to be applicable to a broad range of HSC-based indications (e.g. MPS I, Krabbe, beta-thalassemia) as well as other tissues, such as airway stem cells (cystic fibrosis), neural stem cells, pluripotent stem cells and keratinocytes (wound healing). We intend to investigate the potential of developing therapies for other diseases based on these findings.

We are party to a license agreement with Stanford pursuant to which we have in-licensed key patent rights for our gene editing platform technology and product candidates solely for the development of prophylactics and therapeutics in certain of our initial target indications. Additionally, we have entered into option agreements with Stanford pursuant to which we may expand the field of use of the licensed patent rights to include additional indications and license additional technologies for use in our programs.

Our Pipeline

Our Team and Investors

Our team is led by executives who have deep experience in drug development and company-building in the biopharmaceutical industry. Josh Lehrer, M.D., our Chief Executive Officer, previously served as Chief Medical Officer at Global Blood Therapeutics, Inc. (GBT), where he led development for the marketed SCD treatment Oxbryta™ from pre-IND stages through its commercial launch. Prior to GBT, he served in clinical roles at Genentech, Inc. (Genentech) and as a practicing cardiologist at Stanford. Katherine Stultz, our Chief Operating Officer, has extensive experience in developing brands and building teams, as a global project leader and general manager at Celgene Corporation and in early commercialization roles at Eli Lilly and Company. Philip Gutry, our Chief Business Officer and Head of Finance & Investor Relations, previously served as Chief Business Officer at Kronos Bio, Inc. and in senior business development and finance roles at Regeneron Pharmaceuticals, Inc., MPM Capital, and Gilead Sciences, Inc. Jerry Cacia, our Chief Technical Officer, most recently served as Head of Global Technical Development at Roche/Genentech, where he supported a pipeline that included over 80 new molecular entities and more than 100 development projects in various stages, including a number of cell and gene therapies. Jane Grogan, Ph.D., our Chief Scientific Officer, most recently served as Chief Scientific Officer and a member of the executive leadership team at ArsenalBio and has over 15 years of experience at Genentech. Our people function is led by SVP Julia Tran, a three-time executive with more than 20 years of experience in building and growing companies in the biotechnology industry including Amyris, Inc., CV Therapeutics, Inc. and Millennium Pharmaceuticals Inc. and in technology companies including vArmour Networks, SilverTail Systems and most recently Blue Lava where she was a co-founder, Chief Operating Officer and Chief Community Officer. Our third scientific founder, Daniel Dever, Ph.D., serves as our Head of Discovery Research. We are building a broader team that is passionate about our mission of urgently translating groundbreaking science to transform lives.

Since our inception, we have raised approximately $197.7 million in funding from leading investors, including Cormorant Asset Management, Deerfield Management Company, Federated Hermes Kaufmann Funds, Fidelity Management & Research Company, Janus Henderson Investors, Logos Capital, OrbiMed, Perceptive Advisors, RA Capital, Rock Springs Capital, Samsara BioCapital, Surveyor Capital (a Citadel company), Venrock Healthcare Capital Partners, and our founding investor Versant Ventures. Stanford also participated in our Series B preferred stock financing in March 2021.

Our Strategy

We are a next-generation gene editing company harnessing high efficiency targeted gene integration to develop a new class of therapies to cure a wide range of serious and life-threatening diseases. Our goal is to advance a portfolio of one-time curative therapies which can ultimately be administered in the outpatient setting. The key components of our strategy are as follows:

- Demonstrate clinical proof-of-concept for gene correction with our lead product candidate, GPH101, for the treatment of sickle disease.
- Advance the gene replacement application of our technology with GPH201 for the treatment of XSCID.
- Establish the broad potential of targeted gene insertion with GPH301 for the treatment of Gaucher disease.
- Expand the patient population and indications eligible for one-time curative HSC therapies by harnessing industry advances in non-genotoxic HSC targeted conditioning regimens.
- Leverage high efficiency targeted gene integration in other cell types.
- Continue to optimize and expand our next-generation gene editing technology to reinforce our leadership in targeted gene integration.
- Evaluate potential strategic collaborations to maximize the broad therapeutic potential of our technology and product candidates.

Risks Associated with Our Business

Our business is subject to a number of risks of which you should be aware before making an investment decision. These risks are discussed more fully in the "Risk Factors" section of this prospectus immediately following this prospectus summary. These risks include, but are not limited to, the following:

- We have incurred significant losses since inception. We expect to incur losses for the foreseeable future and may never achieve or maintain profitability.
- Our limited operating history may make it difficult for you to evaluate the performance of our business to date and to assess our future viability.
- We have never generated revenue from product sales, may never generate any revenue from product sales and may never become profitable.
- Even if this offering is successful, we will need substantial additional funding. If we are unable to raise capital when needed on acceptable terms, or at all, we would be forced to delay, reduce, or terminate our research and product development programs, future commercialization efforts or other operations.
- We face risks related to health epidemics, pandemics and other widespread outbreaks of contagious disease, including the COVID-19 pandemic, which could significantly disrupt our operations, impact our financial results or otherwise adversely impact our business.
- We are very early in our development efforts. Other than GPH101, which is in early clinical development, all of our product candidates are still in preclinical development or earlier stages and it will be many years before we or our collaborators commercialize a product candidate, if ever. If we are unable to advance our product candidates through clinical development, obtain regulatory approval and ultimately commercialize our product candidates, or experience significant delays in doing so, our business will be materially harmed.

- Our gene editing technology is not approved for human therapeutic use. The approaches we are taking to discover and develop novel therapeutics may never lead to marketable products.
- If serious adverse events, undesirable side effects, or unexpected characteristics are identified with respect to our product candidates, we may need to abandon or limit our clinical development or commercialization of those product candidates.
- We face significant competition in an environment of rapid technological change, and there is a possibility that our competitors may achieve regulatory approval before us or develop therapies that are safer, less expensive or more advanced or effective than ours, which may harm our financial condition and our ability to successfully market or commercialize our product candidates.
- Adverse public perception of genetic medicines and gene editing in particular, may negatively impact regulatory approval of, and/or demand for, our potential products, if approved.
- We contract with third parties for the manufacture of materials for our research programs and preclinical studies and expect to continue to do so for clinical trials and for commercialization of our product candidates. This reliance on third parties increases the risk that we will not have sufficient quantities of such materials, product candidates, or any products that we may develop and commercialize, or that such supply will not be available to us at an acceptable cost or timelines, which could delay, prevent, or impair our development or commercialization efforts.
- If we are unable to obtain and maintain patent and other intellectual property protection for any product candidates we develop and for our gene editing platform technology, or if the scope of the patent and other intellectual property protection obtained is not sufficiently broad, our competitors could develop and commercialize products and technology similar or identical to ours, and our ability to successfully commercialize our product candidates, and our gene editing platform technology may be adversely affected.
- Our rights to develop and commercialize our gene editing platform technology and product candidates are subject, in part, to the terms and conditions of licenses granted to us by others.
- The intellectual property landscape around gene editing technology is highly dynamic, and third parties may initiate legal proceedings alleging that we are infringing, misappropriating, or otherwise violating their intellectual property rights, the outcome of which would be uncertain and may prevent, delay or otherwise interfere with our product discovery and development efforts.
- Our owned and in-licensed patents and other intellectual property may be subject to priority disputes or inventorship disputes or we may be subject to claims that we have infringed, misappropriated or otherwise violated the intellectual property of a third party and similar proceedings. If we or our licensor are unsuccessful in any of these proceedings, we may be required to obtain licenses from third parties, which may not be available on commercially reasonable terms or at all, or to cease the development, manufacture, and commercialization of one or more of our product candidates, which could have a material adverse impact on our business.

Corporate History and Information

We were incorporated in Ontario, Canada on June 1, 2017 as Longbow Therapeutics Inc. and were reincorporated in the State of Delaware in October 2019. In February 2020, we changed our name to Integral Medicines, Inc. and in August 2020, we changed our name to Graphite Bio, Inc. Research and development of our initial technology ceased at the end of 2018 and we did not have any significant operations or any research and development activities in 2019. We began our current research and development activities and operations in 2020.

Our principal executive office is located at 279 East Grand Avenue, Suite 430, South San Francisco, CA 94080, and our telephone number is (650) 484-0886. Our website address is https://graphitebio.com/. We do

not incorporate the information on or accessible through our website into this prospectus, and you should not consider any information on, or that can be accessed through, our website as part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference.

We use various trademarks and trade names in our business, including without limitation our corporate name and logo. All other trademarks or trade names referred to in this prospectus are the property of their respective owners. Solely for convenience, the trademarks and trade names in this prospectus may be referred to without the ® and ™ symbols, but such references should not be construed as any indicator that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto.

Implications of Being an Emerging Growth Company

We qualify as an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, as amended (JOBS Act). As an emerging growth company, we may take advantage of specified reduced disclosure and other requirements that are otherwise applicable generally to public companies. These provisions include, but are not limited to:

- being permitted to present only two years of audited financial statements in this prospectus and only two years of related "Management's Discussion and Analysis of Financial Condition and Results of Operations" in our periodic reports and registration statements, including this prospectus;
- not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, as amended (SOX);
- reduced disclosure obligations regarding executive compensation in our periodic reports, proxy statements, and registration statements, including in this prospectus; and
- exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved.

We may take advantage of these exemptions for up to five years from the date of effectiveness of this registration statement or such earlier time that we are no longer an emerging growth company. We would cease to be an emerging growth company on the date that is the earliest of (i) the last day of the fiscal year in which we have total annual gross revenues of $1.07 billion or more; (ii) the last day of our fiscal year following the fifth anniversary of the date of the completion of this offering; (iii) the date on which we have issued more than $1.0 billion in nonconvertible debt during the previous three years; or (iv) the last day of the fiscal year in which we are deemed to be a large accelerated filer under the rules of the Securities and Exchange Commission (SEC), which means the market value of our common stock that is held by non-affiliates exceeds $700 million as of the prior June 30th. We may choose to take advantage of some but not all of these exemptions. We have taken advantage of reduced reporting requirements in this prospectus. Accordingly, the information contained herein may be different from the information you receive from other public companies in which you hold stock. We have elected to use this extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date we (1) are no longer an emerging growth company or (2) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, our financial statements may not be comparable to companies that comply with new or revised accounting pronouncements as of public company effective dates.

THE OFFERING

Common stock offered by us	shares.
Underwriters' over-allotment option	shares.
Common stock to be outstanding immediately after this offering	shares (or shares if the underwriters exercise their over-allotment option to purchase additional shares in full).
Use of proceeds	We estimate that the net proceeds from this offering will be approximately $ million (or $ million if the underwriters exercise their over-allotment option to purchase additional shares in full) assuming an initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. We currently intend to use the net proceeds from this offering, including our existing cash and cash equivalents, to fund our clinical development of GPH101 for the treatment of SCD, GPH201 for the treatment of XSCID and GPH301 for the treatment of Gaucher disease, to fund our current discovery programs in CCR5 and alpha globin, and for working capital and general corporate purposes. See the section titled "Use of Proceeds" for additional information.
Risk factors	See the section titled "Risk Factors" and other information included in this prospectus for a discussion of factors that you should consider before deciding to invest in our common stock.
Proposed Nasdaq symbol	"GRPH"

The number of shares of our common stock to be outstanding immediately after this offering is based on 102,045,839 shares of common stock outstanding as of March 31, 2021, including (i) our restricted common stock subject to vesting and (ii) the automatic conversion of all outstanding shares of our redeemable convertible preferred stock into an aggregate of 74,812,432 shares of our common stock immediately prior to the completion of this offering, and excludes:

- 5,538,444 shares of our common stock issuable upon the exercise of stock options outstanding as of March 31, 2021, with a weighted-average exercise price of $2.06 per share;
- 5,101,057 shares of our common stock issuable upon the exercise of outstanding stock options granted after March 31, 2021, with a weighted-average exercise price of $2.98 per share;
- 6,199,876 shares of our common stock reserved for future issuance under our 2020 Stock Option and Grant Plan (2020 Plan) as of March 31, 2021;

- shares of our common stock reserved for future issuance under our 2021 Stock Option and Incentive Plan (2021 Plan), which will become available for issuance upon the effectiveness of the registration statement of which this prospectus is a part, as well as any future increases in the number of shares of our common stock reserved for issuance under the 2021 Plan; and
- shares of our common stock reserved for future issuance under our 2021 Employee Stock Purchase Plan (2021 ESPP), which will become available for issuance upon the effectiveness of the registration statement of which this prospectus is a part, as well as any future increases in the number of shares of our common stock reserved for issuance under the 2021 ESPP.

Unless we specifically state otherwise or the context otherwise requires, this prospectus reflects and assumes the following:

- a 1 -for- reverse stock split of our capital stock effected on , 2021;
- the automatic conversion of all outstanding shares of our redeemable convertible preferred stock into an aggregate of 74,812,432 shares of our common stock immediately prior to the completion of this offering;
- no exercise of the outstanding options described above;
- no exercise by the underwriters of their over-allotment option; and
- the adoption, filing and effectiveness of our amended and restated certificate of incorporation and our amended and restated bylaws, which will occur immediately prior to the completion of this offering.

SUMMARY FINANCIAL DATA

The following tables set forth (i) our summary statements of operations and comprehensive loss data for the years ended December 31, 2019 and 2020 and our summary balance sheet data as of December 31, 2020, which have been derived from our audited financial statements appearing elsewhere in this prospectus and (ii) our summary condensed statements of operations and comprehensive loss data for the three months ended March 31, 2020 and 2021 and our summary condensed balance sheet data as of March 31, 2021, which have been derived from our unaudited interim financial statements appearing elsewhere in this prospectus. We have prepared the unaudited interim condensed financial statements on the same basis as our audited financial statements and, in the opinion of management, these financial statements reflect all adjustments, consisting only of normal recurring adjustments, that are necessary for the fair statement of our unaudited interim condensed financial statements. Our historical results are not necessarily indicative of the results that may be expected in the future and our interim results are not necessarily indicative of results that may be expected for the full year. You should read the following summary financial data together with the "Selected Financial Data" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" sections of this prospectus and our financial statements and the related notes included elsewhere in this prospectus. The summary financial data included in this section are not intended to replace the audited financial statements and the related notes included elsewhere in this prospectus and are qualified in their entirety by the financial statements and the related notes included elsewhere in this prospectus.

	Year Ended December 31,		Three Months Ended March 31,	
	2019	2020	2020	2021
	(in thousands, except share and per share amounts)		(unaudited)	
Statements of Operations and Comprehensive Loss Data:				
Operating expenses:				
Research and development	$ —	$ 9,123	$ —	$ 5,377
General and administrative	29	4,377	121	3,991
Total operating expenses	29	13,500	121	9,368
Loss from operations	(29)	(13,500)	(121)	(9,368)
Other income (expense), net:				
Related party convertible note interest expense	(80)	(40)	(20)	—
Change in fair value of the redeemable convertible preferred stock tranche liabilities	—	(54,833)	—	(10,341)
Total operating income (expense), net	(80)	(54,873)	(20)	(10,341)
Net loss and comprehensive loss	$ (109)	$ (68,373)	$ (141)	$ (19,709)
Net loss per share attributable to common stockholders, basic and diluted[1]	$(109,000)	$ (12.31)	$ (141,000)	$ (2.37)
Weighted-average shares used in computing net loss per share attributable to common stockholders, basic and diluted[1]	1	5,554,899	1	8,329,815
Pro forma net loss per share attributable to common stockholders, basic and diluted[2]		$ (0.38)		$
Weighted-average shares outstanding used in computing pro forma net loss per share attributable to common stockholders, basic and diluted[2]		35,574,844		

(1) See Notes 2 and 11 to our financial statements included elsewhere in this prospectus for an explanation of the calculations of our basic and diluted net loss per share and the weighted-average number of shares used in the computation of the per share amounts.

(2) See the section titled "Management's Discussion and Analysis of Financial Conditions and Results of Operations—Unaudited Pro Forma Information" for an explanation of the calculation of our basic and diluted pro forma net loss per share, and the weighted-average number of shares outstanding used in the computation of the per share amounts.

	As of March 31, 2021		
	Actual	Pro Forma(1)	Pro Forma As Adjusted(2)(3)
	(unaudited)	(in thousands) (unaudited)	(unaudited)
Condensed Balance Sheet Data:			
Cash and cash equivalents	$ 177,015	$	$
Working capital(4)	173,873		
Total assets	182,912		
Redeemable convertible preferred stock	260,532		
Additional paid-in capital	6,223		
Accumulated deficit	(90,300)		
Total stockholders' deficit	(84,077)		

(1) The pro forma column in the balance sheet data table above gives effect to (i) the automatic conversion of all outstanding shares of our redeemable convertible preferred stock as of March 31, 2021 into an aggregate of 74,812,432 shares of our common stock immediately prior to the completion of this offering and the adoption, filing and effectiveness of our amended and restated certificate of incorporation and the adoption of our amended and restated bylaws, which will occur immediately prior to the completion of this offering.

(2) The pro forma as adjusted column in the balance sheet data table above gives effect to (i) the pro forma adjustments set forth in footnote (1) above; and (ii) the sale of shares of common stock in this offering at the assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

(3) Each $1.00 increase or decrease in the assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, would increase or decrease, as applicable, the amount of each of our cash and cash equivalents, working capital, total assets and total stockholders' deficit by approximately $ million, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. We may also increase or decrease the number of shares we are offering. Similarly, each increase or decrease of 1.0 million in the number of shares we are offering would increase or decrease, as applicable, the amount of each of our cash and cash equivalents, working capital, total assets and total stockholders' deficit by approximately $ million, based on the assumed initial public offering price per share, the midpoint of the price range as set forth on the cover page of this prospectus, remains the same. The pro forma as adjusted information is illustrative only, and we will adjust this information based on the actual initial public offering price and other terms of this offering determined at pricing.

(4) We define working capital as current assets less current liabilities. See our consolidated financial statements and the related notes included elsewhere in this prospectus for further details regarding our current assets and current liabilities.

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the risks and uncertainties described below together with all of the other information contained in this prospectus, including our financial statements and related notes appearing at the end of this prospectus, before deciding to invest in our common stock. If any of the events or developments described below were to occur, our business, financial condition, results of operations and prospects could be materially and adversely affected, the trading price of our common stock could decline and you could lose all or part of your investment. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently believe to be immaterial may also adversely affect our business.

Risks Related to Our Financial Position, Limited Operating History and Need for Additional Capital

We have incurred significant losses since our inception, we expect to incur significant losses for the foreseeable future, and we may never achieve or maintain profitability.

Since our inception, we have incurred significant net losses, have not generated any revenue from product sales to date and have financed our operations principally through private placements of our redeemable convertible preferred stock. Our net loss was $0.1 million, $68.4 million and $19.7 million for the years ended December 31, 2019 and 2020 and the three months ended March 31, 2021, respectively. As of March 31, 2021, we had an accumulated deficit of $90.3 million. We expect to continue to incur significant and increasing losses for the foreseeable future. The net losses we incur may fluctuate significantly from quarter to quarter and year to year, such that a period-to-period comparison of our results of operations may not be a good indication of our future performance. We anticipate that our expenses will increase substantially if and as we:

- initiate and conduct our clinical trials for GPH101 and our current and future product candidates that we may identify and develop;
- continue our current research programs and our preclinical development of product candidates from our current research programs;
- seek to identify additional research programs and additional product candidates;
- hire additional research and development and clinical personnel;
- maintain, expand, enforce, defend and protect our intellectual property portfolio and provide reimbursement of third-party expenses related to our patent portfolio;
- seek marketing approvals for any of our product candidates that successfully complete clinical trials;
- establish our manufacturing capability, including developing our contract development and manufacturing relationships, and should we decide to do so, building and maintaining a commercial-scale current Good Manufacturing Practices (cGMP), manufacturing facility;
- ultimately establish a sales, marketing, and distribution infrastructure to commercialize any products for which we may obtain marketing approval;
- further develop our gene editing platform;
- add operational, financial, and management information systems and personnel;
- acquire or in-license product candidates, intellectual property and technologies; and
- operate as a public company.

To date, we have not initiated a clinical trial for any product candidate and expect that it will be many years, if ever, before we have a product candidate ready for commercialization, if approved. To become and remain profitable, we must develop and eventually commercialize products with significant market potential. This will

require us to be successful in a range of challenging activities, including identifying product candidates, completing preclinical testing and clinical trials of product candidates, obtaining marketing approval for these product candidates, manufacturing, marketing, and selling those products for which we may obtain marketing approval, obtaining market acceptance for such products and satisfying any post-marketing requirements. We may never succeed in these activities and, even if we do, may never generate revenue in an amount sufficient to achieve profitability. Most of our programs are currently only in the preclinical testing stage and early clinical development stage, and we expect to commence clinical trials for GPH101 in 2021. Because of the numerous risks and uncertainties associated with developing gene editing product candidates, we are unable to predict the extent of any future losses or when we will become profitable, if ever. If we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable would decrease the value of our Company and our stock price and could impair our ability to raise capital, maintain and fund our research and development efforts, expand our business, or continue our operations. A decline in the value of our Company could also cause you to lose all or part of your investment.

Our limited operating history may make it difficult for you to evaluate the performance of our business to date and to assess our future viability.

We are an early-stage company. We were founded in 2017 and commenced operations in 2020. Our operations to date have been limited to organizing and staffing our Company, business planning, raising capital, acquiring and developing our platform and technology, identifying potential product candidates, establishing and maintaining our intellectual property portfolio, undertaking preclinical studies and preparing for clinical trials. Other than GPH101, which is in early clinical development, all of our research programs are still in the preclinical or research stage of development, and their risk of failure is high. We have not demonstrated an ability to initiate or successfully complete any clinical trials, including large-scale, pivotal clinical trials, obtain marketing approvals, manufacture a commercial-scale product, or arrange for a third party to do so on our behalf, or conduct sales and marketing activities necessary for successful commercialization. Typically, it takes about 10 to 15 years to develop a new product from the time it is discovered to when it is available for treating patients. Consequently, any predictions you make about the likelihood of our future success or viability may not be as accurate as they could be if we had a longer operating history.

Our limited operating history, particularly in light of the rapidly evolving gene editing field, may make it difficult to evaluate our technology and industry and predict our future performance. Our very short history as an operating company makes any assessment of the likelihood of our future success and viability subject to significant uncertainty. We will encounter risks and difficulties frequently experienced by very early stage companies in rapidly evolving fields. If we do not address these risks successfully, our business will suffer.

In addition, as a new business, we may encounter other unforeseen expenses, difficulties, complications, delays, and other known and unknown factors. We will need to transition from a company with a research focus to a company capable of supporting commercial activities. We may not be successful in such a transition. If we do not adequately address these risks and difficulties or successfully make such a transition, our business will suffer.

We have never generated revenue from product sales, may never generate any revenue from product sales and may never become profitable.

Our ability to generate revenue from product sales and achieve profitability, if ever, depends on our ability, alone or with collaborative partners, to successfully complete the development of, and obtain the regulatory approvals necessary to commercialize, our current product candidates and any product candidates we may identify for development. We do not anticipate generating revenues from product sales for the next several years, if ever.

Even if one or more of the product candidates we develop are approved for commercial sale, we anticipate incurring significant costs associated with commercializing any approved product candidate. Our expenses could

increase beyond expectations if we are required by the U.S. Food and Drug Administration (FDA), the European Medicines Agency (EMA), or other regulatory authorities to perform clinical and other studies in addition to those that we currently anticipate. Even if we are able to generate revenues from the sale of any approved product candidates, we may not become profitable and may need to obtain additional funding to continue operations.

Even if this offering is successful, we will need substantial additional funding. If we are unable to raise capital when needed on acceptable terms, or at all, we would be forced to delay, reduce, or terminate our research and product development programs, future commercialization efforts or other operations.

Developing pharmaceutical products, including conducting preclinical studies and clinical trials, is a very time-consuming, expensive and uncertain process that takes years to complete. Our operations have consumed substantial amounts of cash since inception, and we expect our expenses to increase in connection with our ongoing activities, particularly as we identify, continue the research and development of, initiate and conduct clinical trials of, and seek marketing approval for, our product candidates. In addition, if we obtain marketing approval for our product candidates, we expect to incur significant commercialization expenses related to product sales, marketing, manufacturing, and distribution to the extent that such sales, marketing, manufacturing, and distribution are not the responsibility of a collaborator. Other unanticipated costs may also arise. Furthermore, upon the closing of this offering, we expect to incur additional costs associated with operating as a public company. Accordingly, we will need to obtain substantial additional funding in connection with our continuing operations. If we are unable to raise capital when needed or on acceptable terms, we would be forced to delay, reduce, or eliminate our research and product development programs, future commercialization efforts or other operations.

As of March 31, 2021, our cash, cash equivalents and marketable securities were $177.0 million. We expect that the net proceeds from this offering, together with our existing cash, cash equivalents, and marketable securities, will enable us to fund our operating expenses and capital expenditure requirements for at least the next months. However, our operating plan may change as a result of factors currently unknown to us, and we may need to seek funding sooner than planned. Our future capital requirements will depend on many factors, including:

- the timing, scope, progress, results and costs of our planned clinical trials of GPH101 and other product candidates that we may identify and develop;
- the costs, timing, and outcome of regulatory review of the product candidates we develop;
- the costs of continuing to build our gene editing platform;
- the timing, scope, progress, results, and costs of discovery, preclinical development and formulation development for the product candidates we develop;
- the costs of preparing, filing, and prosecuting patent applications, establishing, maintaining and enforcing our intellectual property and proprietary rights, and defending intellectual property-related claims;
- the costs of future activities, including product sales, medical affairs, marketing, manufacturing, distribution, coverage and reimbursement for any product candidates for which we receive regulatory approval;
- our ability to achieve sufficient market acceptance, coverage and adequate reimbursement from third-party payors and adequate market share and revenue for any approved products;
- our ability to establish and maintain additional collaborations, licenses or other similar arrangements on favorable terms, if at all;
- the success of any collaborations that we may establish and of our license agreements;
- the continued effect of the COVID-19 pandemic on our business;

- the extent to which we acquire or in-license product candidates, intellectual property and technologies; and
- the costs of operating as a public company.

Identifying potential product candidates and conducting preclinical testing and clinical trials is a time-consuming, expensive, and uncertain process that takes years to complete, and we may never generate the necessary data or results required to obtain marketing approval and achieve product sales. In addition, our product candidates, if approved, may not achieve commercial success. Our commercial revenues, if any, will be derived from sales of products that we do not expect to be commercially available for many years, if at all. Accordingly, we will need to continue to rely on additional financing to achieve our business objectives. Adequate additional financing may not be available to us on acceptable terms, or at all. In addition, we may seek additional capital due to favorable market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans.

Any additional fundraising efforts may divert our management from their day-to-day activities, which may adversely affect our ability to develop and commercialize our product candidates. We have no committed sources of additional capital and, if we are unable to raise additional capital in sufficient amounts or on terms acceptable to us, we may have to significantly delay, scale back or discontinue the development or commercialization of our product candidates or other research and development initiatives. Without sufficient funding, our license agreements and any future collaboration agreements may also be terminated if we are unable to meet the payment or other obligations under such agreements.

Until such time, if ever, as we can generate substantial product revenues, we expect to finance our cash needs through a combination of equity offerings, debt financings, collaborations, strategic alliances, and licensing arrangements. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a common stockholder. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures, declaring dividends, and possibly other restrictions.

If we raise funds through additional collaborations, strategic alliances, or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs, or product candidates we develop, or we may have to grant licenses on terms that may not be favorable to us and/or that may reduce the value of our common stock. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce, or terminate our product development or future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

We may be subject to adverse legislative or regulatory tax changes that could adversely affect our business and financial condition.

The rules dealing with U.S. federal, state and local income taxation are constantly under review by persons involved in the legislative process and by the Internal Revenue Service and the U.S. Treasury Department. Changes to tax laws (which changes may have retroactive application) could adversely affect our stockholders or us. We cannot predict whether, when, in what form, or with what effective dates, tax laws, regulations and rulings may be enacted, promulgated or decided, which could result in an increase in our, or our stockholders', tax liability or require changes in the manner in which we operate in order to minimize increases in our tax liability.

Our ability to use our U.S. net operating loss carryforwards and certain other U.S. tax attributes may be limited.

As of December 31, 2020, we had U.S. federal net operating loss carryforwards of $10.8 million (which are not subject to expiration) and state net operating loss carryforwards of $29,000 (which begin to expire in various amounts in 2039). Our ability to use our U.S. federal and state net operating losses to offset potential future taxable income and reduce income taxes that would otherwise be due is dependent upon our generation of future taxable income, and we cannot predict with certainty when, or whether, we will generate sufficient taxable income to use all of our net operating losses.

Under current law, unused U.S. federal net operating losses generated in taxable years beginning after December 31, 2017 are not subject to expiration and may be carried forward indefinitely. For taxable years beginning after December 31, 2020, however, the deductibility of such U.S. federal net operating losses is limited to 80% of our taxable income in such taxable years. In addition, both our current and our future unused U.S. federal net operating losses and tax credits may be subject to limitation under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, or the Code, if we undergo an "ownership change," generally defined as a greater than 50 percentage point change (by value) in its equity ownership by certain stockholders over a rolling three-year period. We may have experienced such ownership changes in the past, and we may experience ownership changes in the future as a result of this offering or subsequent shifts in our stock ownership, some of which are outside our control. Our net operating losses and tax credits may also be impaired or restricted under state law.

We face risks related to health epidemics, pandemics and other widespread outbreaks of contagious disease, including theCOVID-19 pandemic, which could significantly disrupt our operations, impact our financial results or otherwise adversely impact our business.

Significant outbreaks of contagious diseases, and other adverse public health developments, could have a material impact on our business operations and operating results. For example, the spread of COVID-19 has affected segments of the global economy and could affect our operations. As a result of the COVID-19 pandemic or similar public health crises that may arise, we may experience disruptions that could adversely impact our operations, research and development, including preclinical studies, clinical trials and manufacturing activities, including:

- delays or disruptions in clinical trials that we may be conducting, including patient screening, patient enrollment, patient dosing, clinical trial site activation, and study monitoring;
- delays or disruptions in preclinical experiments and IND-enabling and clinical trial application-enabling studies due to restrictions related to our staff being on site;
- interruption or delays in the operations of the FDA, the EMA and comparable foreign regulatory agencies;
- interruption of, or delays in, receiving, supplies of drug substance and drug product from our CMOs or delays or disruptions in our pre-clinical experiments or clinical trials performed by CROs due to staffing shortages, production and research slowdowns or stoppages and disruptions in delivery systems or research;
- limitations imposed on our business operations by local, state, or federal authorities to address such pandemics or similar public health crises could impact our ability to conduct preclinical or clinical activities, including conducting IND-enabling studies or our ability to select future development candidates;
- the impact of the COVID-19 pandemic on our corporate culture; and
- business disruptions caused by potential workplace, laboratory and office closures and an increased reliance on employees working from home, disruptions to or delays in ongoing laboratory experiments and operations, staffing shortages, travel limitations, cyber security and data accessibility, or

communication or mass transit disruptions, any of which could adversely impact our business operations or delay necessary interactions with local regulators, ethics committees, manufacturing sites, research or clinical trial sites and other important agencies and contractors.

For example and in light of the ongoing COVID-19 pandemic, our partner Stanford was delayed in making anIND-filing. In addition, the trading prices for biopharmaceutical companies have been highly volatile as a result of the COVID-19 pandemic, and we may face similar volatility in our stock price.

We cannot predict the scope and severity of any potential business shutdowns or disruptions. If we or any of the third parties with whom we engage were to experience shutdowns or other business disruptions, our ability to conduct our business in the manner and on the timelines presently planned could be materially and negatively affected, which could have a material adverse impact on our business, financial condition, our results of operations and prospects.

For additional information regarding the impact of the COVID-19 pandemic on our Company, see the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations—Business Impact of COVID-19 Pandemic."

Risks Related to Discovery, Development, and Commercialization

We are very early in our development efforts. Other than GPH101, which is in early clinical development, all of our product candidates are still in preclinical development or earlier stages and it will be many years before we or our collaborators commercialize a product candidate, if ever. If we are unable to advance our product candidates through clinical development, obtain regulatory approval and ultimately commercialize our product candidates, or experience significant delays in doing so, our business will be materially harmed.

We are very early in our development efforts and have focused our research and development efforts to date on gene editing technology, identifying our initial targeted disease indications and our initial product candidates. We have not achieved preclinical proof of concept for the majority of our programs and there is no guarantee that we will achieve it for these programs. Our future success depends heavily on the successful development of our gene editing product candidates. To date, we have invested substantially all of our efforts and financial resources in building our gene editing platform, and the identification and preclinical development of our current product candidates. Our ability to generate product revenue, which we do not expect will occur for many years, if ever, will depend heavily on the successful development and eventual commercialization of our product candidates, which may never occur.

Commencing clinical trials in the United States is also subject to acceptance by the FDA of our INDs, and finalizing the trial design based on discussions with the FDA and other regulatory authorities. In the event that the FDA requires us to complete additional preclinical studies or we are required to satisfy other FDA requests, the start of our clinical trials may be delayed. Even after we receive and incorporate guidance from these regulatory authorities, the FDA or other regulatory authorities could disagree that we have satisfied their requirements to commence our clinical trial or change their position on the acceptability of our trial design or the clinical endpoints selected, which may require us to complete additional preclinical studies or clinical trials or impose stricter approval conditions than we currently expect. There are equivalent processes and risks applicable to clinical trial applications in other countries, including in Europe.

Commercialization of our product candidates will require additional preclinical and clinical development; regulatory and marketing approval in multiple jurisdictions, including by the FDA and the EMA; obtaining manufacturing supply, capacity and expertise; building of a commercial organization; and significant marketing efforts. The success of product candidates we identify and develop will depend on many factors, including the following:

- sufficiency of our financial and other resources to complete the necessary preclinical studies,IND-enabling studies, and clinical trials;

- successful enrollment in, and completion of, clinical trials;
- receipt of marketing approvals from applicable regulatory authorities;
- establishment of arrangements with third-party manufacturers for clinical supply and commercial manufacturing and, where applicable, commercial manufacturing capabilities;
- successful development of our internal manufacturing processes and transfer to larger-scale facilities operated by either a contract manufacturing organization (CMO), or by us;
- obtaining and maintaining patent, trade secret, and other intellectual property protection and non-patent exclusivity for our products;
- launching commercial sales of the products, if and when approved, whether alone or in collaboration with others;
- acceptance of the products, if and when approved, by patients, the medical community, and third-party payors;
- effectively competing with other therapies and treatment options;
- a continued acceptable safety profile of the products following approval;
- enforcing and defending intellectual property and proprietary rights and claims; and
- supplying the product that is cost-effective and acceptable to the pricing or reimbursement authorities in different countries.

If we do not successfully achieve one or more of these activities in a timely manner or at all, we could experience significant delays or an inability to successfully commercialize our product candidates, which would materially harm our business. If we do not receive regulatory approvals for our product candidates, we may not be able to continue our operations.

Our gene editing technology is not approved for human therapeutic use. The approaches we are taking to discover and develop novel therapeutics may never lead to marketable products.

We are focused on developing curative medicines utilizing the CRISPR gene editing technology. CRISPR-based gene editing technologies are relatively new and their therapeutic utility is largely unproven. Our successful development of products will require solving a number of issues, including developing or obtaining technologies to safely deliver a therapeutic agent into target cells within the human body or engineer human cells while outside of the body such that the modified cells can have a therapeutic effect when delivered to the patient, optimizing the efficacy and specificity of such products, and ensuring and demonstrating the therapeutic selectivity, efficacy, potency, purity and safety of such products. There can be no assurance we will be successful in solving any or all of these issues. Indeed, no gene editing cell therapy has been approved in the United States, the European Union (EU), other countries or other key jurisdictions. Accordingly, the potential to successfully obtain approval for any of our CRISPR technology-based therapies remains unproven.

Our future success also is highly dependent on the successful development of CRISPR-based gene editing technologies and therapeutic applications for the indications on which we have focused our ongoing research and development efforts. We may decide to alter or abandon these programs as new data become available and we gain experience in developing CRISPR-based therapeutics. We cannot be sure that our gene editing technologies will yield satisfactory products that are safe and effective, sufficiently pure or potent, manufacturable, scalable or profitable in our selected indications.

We are subject to additional development challenges and risks due to the novel nature of our gene editing technology.

Because our *in vivo* technology potentially involves gene editing across multiple cell and tissue types, we are subject to many of the challenges and risks that other gene editing therapeutics and gene therapies face, including:

- regulatory guidance regarding the requirements governing gene and gene editing therapy products have changed and may continue to change in the future;
- to date, only a limited number of products that involve *in vivo* gene transfer have been approved globally;
- improper modulation of a gene sequence, including unintended editing events or insertion of a sequence into certain locations in a patient's chromosome, could lead to cancer, other aberrantly functioning cells or other diseases, including death;
- corrective expression of a missing protein in patients' cells could result in the protein being recognized as foreign, and lead to a sustained immunological reaction against the expressed protein or expressing cells, which could be severe or life-threatening; and
- regulatory agencies may require extended follow-up observation periods of patients who receive treatment using gene editing products including, for example, the FDA's recommended 15-year follow-up observation period for these patients, and we will need to adopt such observation periods for our product candidates if required by the relevant regulatory agency, which could vary by country or region.

Further, because our *ex vivo* product candidates involve editing human cells and then delivering modified cells to patients, we are subject to many of the challenges and risks that engineered cell therapies face. For example, clinical trials using engineered cell-based gene therapies may require unique products to be created for each patient and such individualistic manufacturing may be both inefficient and cost-prohibitive.

We may not be successful in our efforts to identify and develop potential product candidates. If these efforts are unsuccessful, we may never become a commercial stage company or generate any revenues.

The success of our business depends primarily upon our ability to identify, develop, and commercialize product candidates based on our gene editing platform. Our research programs may fail to identify potential product candidates for clinical development for a number of reasons: our research methodology may be unsuccessful in identifying potential product candidates; our potential product candidates may be shown to have harmful side effects in preclinical *in vitro* experiments or animal model studies; they may not show promising signals of therapeutic effect in such experiments or studies; or they may have other characteristics that may make the product candidates impractical to manufacture, unmarketable, or unlikely to receive marketing approval.

If any of these events occur, we may be forced to abandon our research or development efforts for a program or programs, which would have a material adverse effect on our business, financial condition, results of operations, and prospects and could potentially cause us to cease operations. Research programs to identify new product candidates require substantial technical, financial, and human resources. We may focus our efforts and resources on potential programs or product candidates that ultimately prove to be unsuccessful, which would be costly and time-consuming.

If serious adverse events, undesirable side effects, or unexpected characteristics are identified with respect to our product candidates, we may need to abandon or limit our clinical development or commercialization of those product candidates.

To date, we have not evaluated any product candidates in human clinical trials. It is impossible to predict when or if any product candidates we develop, including our product candidates, GPH101, GPH201 and

GPH301, will ultimately prove safe in humans. In the genomic medicine field, there have been several significant adverse events from gene therapy treatments in the past, including reported cases of leukemia and death. There can be no assurance that our gene editing technologies will not cause severe or undesirable side effects.

A significant potential risk in any gene editing product is that the edit will be“off-target” and cause serious adverse events, undesirable side effects, or unexpected characteristics. For example, off-target cuts could lead to disruption of a gene or a genetic regulatory sequence at an unintended site in the DNA. We cannot be certain that off-target editing will not occur in any of our clinical studies. There is also the potential risk of delayed adverse events following exposure to gene editing therapy due to the potential for persistent biological activity of the genetic material or other components of products used to carry the genetic material. If any adverse events or side effects are caused by any product candidate we develop and test, the administration process or related procedures, our clinical trials could be delayed, suspended or terminated.

Viral vectors, including AAV, which are relatively new approaches used for disease treatment, also have known side effects, and for which additional risks could develop in the future. In past clinical trials that were conducted by others with non-AAV vectors, significant side effects were caused by gene therapy treatments, including reported cases of myelodysplasia, leukemia and death. Other potential side effects could include an immunologic reaction and insertional oncogenesis, which is the process whereby the insertion of a functional gene near a gene that is important in cell growth or division results in uncontrolled cell division, which could potentially enhance the risk of cancer. If the vectors we use demonstrate a similar side effect, or other adverse events, we may be required to halt or delay further clinical development of any potential product candidates. Furthermore, the FDA has stated that LVV possess characteristics that may pose high risks of delayed adverse events. Such delayed adverse events may also occur in other viral vectors, including AAV vectors.

In addition to side effects and adverse events caused by our product candidates, the conditioning, administration process or related procedures which may be used to condition a patient for gene therapy treatment also can cause adverse side effects and adverse events. A gene therapy patient is generally administered cytotoxic drugs to remove stem cells from the bone marrow to create sufficient space in the bone marrow for the modified stem cells to engraft and produce new cells. This procedure compromises the patient’s immune system, and conditioning regimens have been associated with adverse events in clinical trial participants.

If any product candidates we develop are associated with serious adverse events, undesirable side effects, or unexpected characteristics, we may need to abandon their development or limit development to certain uses or subpopulations in which the serious adverse events, undesirable side effects or other characteristics are less prevalent, less severe, or more acceptable from a risk-benefit perspective, any of which would have a material adverse effect on our business, financial condition, results of operations, and prospects. Many product candidates, including gene therapy product candidates, that initially showed promise in early stage testing have later been found to cause side effects that prevented further clinical development of the product candidates.

If we are unable to demonstrate that any of the above adverse events were caused by factors other than our product candidate, the FDA, the EMA or other regulatory authorities could order us to cease further development of, or deny approval of, any product candidates we are able to develop for any or all targeted indications. Even if we are able to demonstrate that all future serious adverse events are not product-related, such occurrences could affect patient recruitment. Moreover, if we elect, or are required, to delay, suspend or terminate any clinical trial of any product candidate we may develop, the commercial prospects of such product candidates may be harmed and our ability to generate product revenues from any of these product candidates may be delayed or eliminated. Any of these occurrences may harm our ability to identify and develop product candidates and could have a material adverse effect on our business, financial condition, result of operations, and prospects.

Additionally, if we successfully develop a product candidate and it receives marketing approval, the FDA could require us to adopt a Risk Evaluation and Mitigation Strategy (REMS), to ensure that the benefits of

treatment with such product candidate outweighs the risks for each potential patient, which may include, among other things, a medication guide outlining the risks of the product for distribution to patients, a communication plan to health care practitioners, extensive patient monitoring, or distribution systems and processes that are highly controlled, restrictive, and more costly than what is typical for the industry. Furthermore, if we or others later identify undesirable side effects caused by any product candidate that we develop, several potentially significant negative consequences could result, including:

- regulatory authorities may suspend or withdraw approvals of such product candidate;
- regulatory authorities may require additional warnings on the label or limit the approved use of such product candidate;
- we may be required to conduct additional clinical trials;
- we could be sued and held liable for harm caused to patients; and
- our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of any of our product candidates and could have a material adverse effect on our business, financial condition, results of operations, and prospects.

We may find it difficult to enroll patients in our clinical trials given the limited number of patients who have the diseases for which our product candidates may be developed. If we experience delays or difficulties in the enrollment of patients in clinical trials, our clinical development activities and our receipt of necessary regulatory approvals could be delayed or prevented.

We may not be able to initiate or continue clinical trials for any product candidates we identify or develop if we are unable to locate and enroll a sufficient number of eligible patients to participate in these trials as required by the FDA, the EMA or other analogous regulatory authorities outside the United States, or as needed to provide appropriate statistical power for a given trial. Enrollment may be particularly challenging for some of the rare genetically defined diseases we are targeting in our most advanced programs. In addition, if patients are unwilling to participate in our gene editing trials because of negative publicity from adverse events related to the biotechnology, gene therapy, or gene editing fields, competitive clinical trials for similar patient populations, clinical trials in competing products, or for other reasons, the timeline for recruiting patients, conducting studies, and obtaining regulatory approval of our product candidates may be delayed. Moreover, some of our competitors may have ongoing clinical trials for product candidates that would treat the same indications as our product candidates, and patients who would otherwise be eligible for our clinical trials may instead enroll in clinical trials of our competitors' product candidates.

Patient enrollment is also affected by other factors, including:

- severity of the disease under investigation;
- size of the patient population and process for identifying patients;
- design of the trial protocol;
- availability and efficacy of approved medications for the disease under investigation;
- availability of genetic testing for potential patients;
- ability to obtain and maintain patient informed consent;
- risk that enrolled patients will drop out before completion of the trial;
- eligibility and exclusion criteria for the trial in question;
- perceived risks and benefits of the product candidate under trial;

- perceived risks and benefits of gene editing as a therapeutic approach;
- efforts to facilitate timely enrollment in clinical trials;
- patient referral practices of physicians;
- ability to monitor patients adequately during and after treatment; and
- proximity and availability of clinical trial sites for prospective patients, especially for those conditions which have small patient pools.

In addition, the COVID-19 pandemic may affect the timing of our planned clinical trials. Clinical trial activities, including patient enrollment and data collection, are dependent upon global clinical trial sites which have been and continue to be adversely affected by the COVID-19 pandemic. For example, as the global healthcare community responded to the fluctuations in COVID-19 cases and hospitalizations, many hospitals, including those operating as clinical trial sites for other ongoing trials, temporarily paused elective procedures, which included dosing of new patients with investigational products. Additionally, the COVID-19 pandemic may cause delays in data collection and monitoring activities, which may present data integrity challenges or require modifications to our planned clinical trial protocol.

In addition, our ability to successfully initiate, enroll, and complete a clinical trial in any foreign country is subject to numerous risks unique to conducting business in foreign countries, including:

- difficulty in establishing or managing relationships with CROs and physicians;
- different standards for the conduct of clinical trials;
- different standard-of-care for patients with a particular disease;
- difficulty in locating qualified local consultants, physicians, and partners; and
- potential burden of complying with a variety of foreign laws, medical standards, and regulatory requirements, including the regulation of pharmaceutical and biotechnology products and treatment and of gene editing technologies.

Enrollment delays in our clinical trials may result in increased development costs for our product candidates, which would cause the value of our Company to decline and limit our ability to obtain additional financing. If we or our collaborators have difficulty enrolling a sufficient number of patients to conduct our clinical trials as planned, we may need to delay, limit, or terminate ongoing or planned clinical trials, any of which would have an adverse effect on our business, financial condition, results of operations, and prospects.

If we are unable to successfully identify patients who are likely to benefit from therapy with our product candidates, or experience significant delays in doing so, we may not realize the full commercial potential of any products we may develop.

Our success may depend, in part, on our ability to identify patients who are likely to benefit from therapy with our product candidates, which requires those potential patients to have their DNA analyzed for the presence or absence of a particular sequence. If we, or any third parties that we engage to assist us, are unable to successfully identify such patients, or experience delays in doing so, then:

- our ability to develop our product candidates may be adversely affected if we are unable to appropriately select patients for enrollment in our clinical trials; and
- we may not realize the full commercial potential of any product candidates that receive marketing approval if, among other reasons, we are unable to appropriately select patients who are likely to benefit from therapy with our product candidates.

As a result of these factors, we may be unable to successfully develop and realize the commercial potential of our product candidates, and our business, financial condition, results of operations, and prospects would be materially adversely affected.

Even if we complete the necessary preclinical studies and clinical trials, the marketing approval process is expensive, time-consuming, and uncertain and may prevent us from obtaining approvals for the commercialization of our product candidates. If we are not able to obtain, or if there are delays in obtaining, required regulatory approvals, we will not be able to commercialize, or will be delayed in commercializing, product candidates we develop, and our ability to generate revenue will be materially impaired.

Any product candidates we develop and the activities associated with their development and commercialization, including their design, testing, manufacture, recordkeeping, labeling, storage, approval, advertising, promotion, sale, import, export, and distribution, are subject to comprehensive regulation by the FDA, the EMA and other regulatory authorities in the United States and by comparable authorities in other countries. Failure to obtain marketing approval for a product candidate will prevent us from commercializing the product candidate in a given jurisdiction. We have not received approval to market any product candidates from regulatory authorities in any jurisdiction. We have only limited experience in filing and supporting the applications necessary to gain marketing approvals and expect to rely on third parties to assist us in this process. Securing regulatory approval requires the submission of extensive preclinical and clinical data and supporting information to the various regulatory authorities for each therapeutic indication to establish the biological product candidate's safety, purity, and potency. Securing regulatory approval also requires the submission of extensive information about the product manufacturing process, and inspection of manufacturing facilities by, the relevant regulatory authority. Our product candidates may not be effective, may be only moderately effective, or may prove to have undesirable or unintended side effects, toxicities, or other characteristics that may preclude our obtaining marketing approval or prevent or limit commercial use.

The process of obtaining marketing approvals, both in the United States and abroad, is expensive, may take many years if approval is obtained at all, and can vary substantially based upon a variety of factors, including the type, complexity, and novelty of the product candidates involved. Changes in marketing approval policies during the development period, changes in or the enactment of additional statutes or regulations, or changes in regulatory review for each submitted product application, may cause delays in the approval or rejection of an application. The FDA and comparable authorities in other countries have substantial discretion in the approval process and may refuse to accept any application or may decide that our data is insufficient for approval and require additional preclinical, clinical, or other studies. In addition, varying interpretations of the data obtained from preclinical and clinical testing could delay, limit, or prevent marketing approval of a product candidate. Any marketing approval we ultimately obtain may be limited or subject to restrictions or post-approval commitments that render the approved product not commercially viable.

If we experience delays in obtaining approval or if we fail to obtain approval of our product candidates, the commercial prospects for those product candidates may be harmed, and our ability to generate revenues will be materially impaired.

We may expend our limited resources to pursue a particular product candidate or indication and fail to capitalize on product candidates or indications that may be more profitable or for which there is a greater likelihood of success.

Because we have limited financial and managerial resources, we focus on research programs and product candidates that we identify for specific indications among many potential options. As a result, we may forego or delay pursuit of opportunities with other product candidates or for other indications that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. Our spending on current and future research and development programs and product candidates for specific indications may not yield any commercially viable

products. If we do not accurately evaluate the commercial potential or target market for a particular product candidate, we may relinquish valuable rights to that product candidate through collaboration, licensing, or other royalty arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights to such product candidate. Any such event could have a material adverse effect on our business, financial condition, results of operations, and prospects.

Even if we complete the necessary clinical trials, we cannot predict when, or if, we will obtain regulatory approval to commercialize a product candidate we may develop in the United States or any other jurisdiction, and any such approval may be for a more narrow indication than we seek.

We cannot commercialize a product candidate until the appropriate regulatory authorities have reviewed and approved the product candidate. Even if our product candidates meet their safety and efficacy endpoints in clinical trials, the regulatory authorities may not complete their review processes in a timely manner, or we may not be able to obtain regulatory approval. Additional delays may result if an FDA Advisory Committee or other regulatory authority recommends non-approval or restrictions on approval. In addition, we may experience delays or rejections based upon additional government regulation from future legislation or administrative action, or changes in regulatory authority policy during the period of product development, clinical trials, and the review process.

Regulatory authorities also may approve a product candidate for more limited indications than requested or they may impose significant limitations in the form of narrow indications, warnings or a REMS. These regulatory authorities may require labeling that includes precautions or contraindications with respect to conditions of use, or they may grant approval subject to the performance of costly post-marketing clinical trials. In addition, regulatory authorities may not approve the labeling claims that are necessary or desirable for the successful commercialization of our product candidates. Any of the foregoing scenarios could materially harm the commercial prospects for our product candidates and materially adversely affect our business, financial condition, results of operations, and prospects.

Marketing approval by the FDA in the United States, if obtained, does not ensure approval by regulatory authorities in other countries or jurisdictions. In addition, clinical trials conducted in one country may not be accepted by regulatory authorities in other countries, and regulatory approval in one country does not guarantee regulatory approval in any other country. Approval processes vary among countries and can involve additional product candidate testing and validation and additional administrative review periods. Seeking regulatory approval outside the United States could result in difficulties and costs for us and require additional preclinical studies or clinical trials which could be costly and time-consuming. Regulatory requirements can vary widely from country to country and could delay or prevent the introduction of our product candidates in those countries. The foreign regulatory approval process involves all of the risks associated with FDA approval. We do not have any product candidates approved for sale in any jurisdiction, including international markets, and we do not have experience in obtaining regulatory approval in international markets. If we fail to comply with regulatory requirements in international markets or to obtain and maintain required approvals, or if regulatory approvals in international markets are delayed, our target market will be reduced and our ability to realize the full market potential of our product candidates will be unrealized.

Our product candidates may fail to achieve the degree of market acceptance by physicians, patients, third-party payors, and others in the medical community necessary for commercial success.

The commercial success of any of our product candidates will depend upon its degree of market acceptance by physicians, patients, third-party payors, and others in the medical community. Ethical, social, and legal concerns about genetic medicines generally and gene editing technologies specifically could result in additional regulations restricting or prohibiting the marketing of our product candidates. Even if our product candidates receive marketing approval, they may nonetheless fail to gain sufficient market acceptance by physicians,

patients, third-party payors, and others in the medical community. The degree of market acceptance of our product candidates, if approved for commercial sale, will depend on a number of factors, including:

- the efficacy and safety of such product candidates as demonstrated in clinical trials;
- the potential and perceived advantages compared to alternative treatments;
- the limitation to our targeted patient population and limitations or warnings contained in approved labeling by the FDA or other regulatory authorities;
- the ability to offer our products for sale at cost-effective or competitive prices;
- convenience and ease of administration compared to alternative treatments;
- the clinical indications for which the product candidate is approved by the FDA, the EMA, or other regulatory agencies;
- public attitudes regarding genetic medicine generally and gene editing technologies specifically;
- the willingness of the target patient population to try novel therapies and of physicians to prescribe these therapies, as well as their willingness to accept a therapeutic intervention that involves the editing of the patient's gene;
- product labeling or product insert requirements of the FDA, the EMA, or other regulatory authorities, including any limitations or warnings contained in a product's approved labeling;
- relative convenience and ease of administration;
- the timing of market introduction of competitive products;
- publicity concerning our products or competing products and treatments;
- the strength and effectiveness of sales, marketing and distribution efforts;
- sufficient third-party coverage and adequate reimbursement, including the ability to supply product that is cost-effective and acceptable to the pricing or reimbursement authorities in different countries; and
- the prevalence and severity of any side effects.

Even if any of our product candidates obtain regulatory approval, such products may not achieve an adequate level of acceptance, we may not generate or derive sufficient product revenues, and we may not become profitable.

We face significant competition in an environment of rapid technological change, and there is a possibility that our competitors may achieve regulatory approval before us or develop therapies that are safer, less expensive or more advanced or effective than ours, which may harm our financial condition and our ability to successfully market or commercialize our product candidates.

The development and commercialization of new drug products is highly competitive. Moreover, the gene editing field is characterized by rapidly changing technologies, significant competition, and a strong emphasis on intellectual property. We will face competition with respect to any product candidates that we may develop or commercialize in the future from major pharmaceutical companies, specialty pharmaceutical companies, and biotechnology companies worldwide. Potential competitors also include academic institutions, government agencies, and other public and private research organizations that conduct research, seek patent protection, and establish collaborative arrangements for research, development, manufacturing, and commercialization.

There are a number of large pharmaceutical and biotechnology companies that currently market and sell products or are pursuing the development of products for the treatment of the disease indications for which we have research programs. Some of these competitive products and therapies are based on scientific approaches that are the same as or similar to our approach, and others are based on entirely different approaches.

There are several other companies advancing gene editing and gene therapy product candidates in preclinical or clinical development in sickle cell disease, including Beam Therapeutics Inc., bluebird bio, Inc., CRISPR Therapeutics AG, Editas Medicine, Inc., Intellia Therapeutics, Inc., and Sangamo Therapeutics, Inc. Companies advancing gene therapy programs in XSCID include Mustang Bio, Inc. Companies advancing gene therapy programs in Gaucher Disease include AVROBio, Inc. and Freeline Therapeutics Holdings plc. Companies combining CRISPR with HDR include CRISPR Therapeutics AG, which, for oncology applications, inserts a chimeric antigen receptor (CAR) construct into the TCR alpha constant (TRAC) locus in T-cells using HDR. Additionally, an academic collaboration between the University of California, San Francisco and the University of California, Los Angeles is seeking to correct the sickle cell mutation using CRISPR followed by delivery of a single-stranded oligonucleotide DNA donor to potentially harness HDR.

Any product candidates that we successfully develop and commercialize will compete with existing therapies and new therapies that may become available in the future that are approved to treat the same diseases for which we may obtain approval for our product candidates. This may include other types of therapies, such as small molecule, antibody, and/or protein therapies.

Many of our current or potential competitors, either alone or with their collaboration partners, may have significantly greater financial resources and expertise than we do in research and development, manufacturing, preclinical testing, conducting clinical trials, obtaining regulatory approvals, and marketing approved products. Mergers and acquisitions in the pharmaceutical, biotechnology, and gene therapy industries may result in even more resources being concentrated among a smaller number of our competitors. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These competitors also compete with us in recruiting and retaining qualified scientific and management personnel and establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs. Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize product candidates that are safer, more effective, have fewer or less severe side effects, are more convenient, or are less expensive than any product candidates that we may develop or that would render any product candidates that we may develop obsolete or non-competitive. Our competitors also may obtain FDA or other regulatory approval for their product candidates more rapidly than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market. Additionally, technologies developed by our competitors may render our potential product candidates uneconomical or obsolete, and we may not be successful in marketing our product candidates against competitors.

In addition, as a result of the expiration or successful challenge of our patent rights, we could face more litigation with respect to the validity and/or scope of patents relating to our competitors' products. The availability of our competitors' products could limit the demand, and the price we are able to charge, for any product candidates that we may develop and commercialize.

If, in the future, we are unable to establish sales and marketing capabilities or enter into agreements with third parties to sell and market our product candidates, we may not be successful in commercializing those product candidates if and when they are approved.

We do not have a sales or marketing infrastructure and have limited experience in the sale, marketing, or distribution of pharmaceutical products. To achieve commercial success for any approved products for which we retain sales and marketing responsibilities, we must either develop a sales and marketing organization or outsource these functions to third parties. In the future, we may choose to build a focused sales, marketing, and commercial support infrastructure to sell, or participate in sales activities with our collaborators for, some of our product candidates if and when they are approved.

There are risks involved with both establishing our own commercial capabilities and entering into arrangements with third parties to perform these services. For example, recruiting and training a sales force or reimbursement specialists is expensive and time consuming and could delay any product launch. If the commercial launch of a product candidate for which we recruit a sales force and establish marketing and other commercialization capabilities is delayed or does not occur for any reason, we would have prematurely or unnecessarily incurred these commercialization expenses. This may be costly, and our investment would be lost if we cannot retain or reposition our commercialization personnel.

Factors that may inhibit our efforts to commercialize our product candidates on our own include:

- our inability to recruit and retain adequate numbers of effective sales, marketing, reimbursement, customer service, medical affairs, and other support personnel;
- the inability of sales personnel to obtain access to physicians or educate adequate numbers of physicians on the benefits of prescribing any future products;
- the inability of reimbursement professionals to negotiate arrangements for formulary access, reimbursement, and other acceptance by payors;
- restricted or closed distribution channels that make it difficult to distribute our product candidates to segments of the patient population;
- the lack of complementary products to be offered by sales personnel, which may put us at a competitive disadvantage relative to companies with more extensive product lines; and
- unforeseen costs and expenses associated with creating an independent commercialization organization.

If we enter into arrangements with third parties to perform sales, marketing, commercial support, and distribution services, our product revenues or the profitability of these product revenues to us may be lower than if we were to market and sell any products we may develop ourselves. In addition, we may not be successful in entering into arrangements with third parties to commercialize our product candidates or may be unable to do so on terms that are favorable to us. We may have little control over such third parties, and any of them may fail to devote the necessary resources and attention to sell and market our products effectively. If we do not establish commercialization capabilities successfully, either on our own or in collaboration with third parties, we will not be successful in commercializing our product candidates.

Adverse public perception of genetic medicines and gene editing in particular, may negatively impact regulatory approval of, and/or demand for, our potential products, if approved.

Our potential therapeutic products involve editing the human genome. The clinical and commercial success of our potential products will depend in part on public understanding and acceptance of the use of gene editing therapy for the prevention or treatment of human diseases. Public perception and related media coverage of potential gene therapy-related efficacy or safety issues, including adoption of new therapeutics or novel approaches to treatment, as well as ethical concerns related specifically to gene editing, may adversely influence the willingness of subjects to participate in clinical trials, or if any therapeutic is approved, of physicians and patients to accept these novel and personalized treatments. Physicians, health care providers and third-party payors often are slow to adopt new products, technologies and treatment practices, particularly those that may also require additional upfront costs and training. Physicians may not be willing to undergo training to adopt these novel and potentially personalized therapies, may decide the particular therapy is too complex or potentially risky to adopt without appropriate training, and may choose not to administer the therapy. Further, due to health conditions, genetic profile or other reasons, certain patients may not be candidates for the therapies.

In addition, responses by federal and state agencies, congressional committees and foreign governments to negative public perception, ethical concerns or financial considerations may result in new legislation, regulations, or medical standards, such as stricter labeling requirements, that could limit our ability to develop or commercialize any product candidates, obtain or maintain regulatory approval or otherwise achieve profitability. New government requirements may be established that could delay or prevent regulatory approval of our product candidates under development. It is impossible to predict whether legislative changes will be enacted, regulations, policies or guidance changed, or interpretations by agencies or courts changed, or what the impact of such changes, if any, may be. Based on these and other factors, health care providers and payors may decide that the benefits of these new therapies do not or will not outweigh their costs.

More restrictive government regulations or negative public opinion would have a negative effect on our business or financial condition and may delay or impair our development and commercialization of product candidates or demand for our product candidates. Adverse events in our preclinical studies or clinical trials or those of our competitors or of academic researchers utilizing gene editing technologies, even if not ultimately attributable to product candidates we identify and develop, and the resulting publicity could result in increased governmental regulation, unfavorable public perception, potential regulatory delays in the testing or approval of potential product candidates we identify and develop, stricter labeling requirements for those product candidates that are approved, and a decrease in demand for any such product candidates. Use of gene editing technology by a third party or government to develop biological agents or products that threaten U.S. national security could similarly result in such negative impacts to us.

Even if we are able to commercialize any product candidates, such products may become subject to unfavorable pricing regulations, third-party reimbursement practices, or healthcare reform initiatives, which would harm our business.

The regulations that govern marketing approvals, pricing, and reimbursement for new products vary widely from country to country. Some countries require approval of the sale price of a product before it can be marketed. In many countries, the pricing review period begins after marketing or product licensing approval is granted. In some foreign markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. As a result, we might obtain marketing approval for a product in a particular country, but then be subject to price regulations that delay or might even prevent our commercial launch of the product, possibly for lengthy time periods, and negatively impact the revenues we are able to generate from the sale of the product in that country. Adverse pricing limitations may hinder our ability to recoup our investment in one or more product candidates we develop, even if any of our product candidates obtain marketing approval.

Our ability to commercialize any products successfully also will depend in part on the extent to which reimbursement for these products and related treatments will be available from government authorities or healthcare programs, private health plans, and other organizations. Government authorities and third-party payors, such as private health plans, decide which medications they will pay for and establish reimbursement levels. A primary trend in the U.S. healthcare industry is cost containment. Government authorities and other third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. Increasingly, third-party payors are challenging the prices charged for medical products and requiring that drug companies provide them with predetermined discounts from list prices. Novel medical products, if covered at all, may be subject to enhanced utilization management controls designed to ensure that the products are used only when medically necessary. Such utilization management controls may discourage the prescription or use of a medical product by increasing the administrative burden associated with its prescription or creating coverage uncertainties for prescribers and patients. We cannot be sure that reimbursement will be available for any products that we commercialize and, if reimbursement is available, that the level of reimbursement will be adequate. Reimbursement may impact the demand for, or the price of, any product candidate for which we obtain marketing approval. If reimbursement is not available or is available only to limited levels, we may not be able to successfully commercialize any product candidate for which we obtain marketing approval.

There may be significant delays in obtaining reimbursement for newly approved products, and coverage may be more limited than the purposes for which the product is approved by the FDA, the EMA or other regulatory authorities outside the United States. Moreover, eligibility for reimbursement does not imply that any product will be paid for in all cases or at a rate that covers our costs, including research, development, manufacture, sale, and distribution. Interim reimbursement levels for new products, if applicable, may also not be sufficient to cover our costs and may not be made permanent. Reimbursement rates may vary according to the use of the product and the clinical setting in which it is used, may be based on reimbursement levels already set for lower cost products and may be incorporated into existing payments for other services. Net prices for products may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of products from countries where they may be sold at lower prices than in the United States. Our inability to promptly obtain coverage and profitable payment rates from both government-funded and private payors for any approved products we may develop could have a material adverse effect on our operating results, our ability to raise capital needed to commercialize products, and our overall financial condition.

Due to the novel nature of our technology and the potential for our product candidates to offer therapeutic benefit in a single administration or limited number of administrations, we face uncertainty related to pricing and reimbursement for these product candidates.

Our initial target patient populations are relatively small, as a result of which the pricing and reimbursement of any of our product candidates, if approved, must be adequate to support the necessary commercial infrastructure. If we are unable to obtain adequate levels of reimbursement, our ability to successfully market and sell any such product candidates will be adversely affected. The manner and level at which reimbursement is provided for services related to any product candidates we develop (e.g., for administration of our product candidate to patients) is also important. Inadequate reimbursement for such services may lead to physician and payor resistance and adversely affect our ability to market or sell our product candidates. In addition, we may need to develop new reimbursement models in order to realize adequate value. Payors may not be able or willing to adopt such new models, and patients may be unable to afford that portion of the cost that such models may require them to bear. If we determine such new models are necessary but we are unsuccessful in developing them, or if such models are not adopted by payors, our business, financial condition, results of operations, and prospects could be adversely affected.

We expect the cost of a single administration of a gene editing therapy, such as those we are seeking to develop, to be substantial, when and if they achieve regulatory approval. We expect that coverage and reimbursement by government and private payors will be essential for most patients to be able to afford these treatments. Accordingly, sales of any such product candidates will depend substantially, both domestically and abroad, on the extent to which the costs of any of our product candidates will be paid by government authorities, private health plans, and other third-party payors. Payors may not be willing to pay high prices for a single administration. Coverage and reimbursement by a third-party payor may depend upon several factors, including the third-party payor's determination that use of a product is:

- a covered benefit under its health plan;
- safe, effective, and medically necessary;
- appropriate for the specific patient;
- cost-effective; and
- neither experimental nor investigational.

Obtaining coverage and reimbursement for a product from third-party payors is a time-consuming and costly process that could require us to provide to the payor supporting scientific, clinical, and cost-effectiveness data. There is significant uncertainty related to third-party coverage and reimbursement of newly approved

products. We may not be able to provide data sufficient to gain acceptance with respect to coverage and reimbursement. If coverage and reimbursement are not available, or are available only at limited levels, we may not be able to successfully commercialize any of our product candidates. Even if coverage is provided, the approved reimbursement amount may not be adequate to realize a sufficient return on our investment.

In the United States, no uniform policy exists for coverage and reimbursement for products among third-party payors. Therefore, decisions regarding the extent of coverage and amount of reimbursement to be provided can differ significantly from payor to payor. The process for determining whether a payor will provide coverage for a product may be separate from the process for setting the reimbursement rate a payor will pay for the product. One third-party payor's decision to cover a particular product or service does not ensure that other payors will also provide coverage for the medical product or service. Third-party payors may limit coverage to specific products on an approved list or formulary, which may not include all FDA-approved products for a particular indication.

Further, third-party payors are increasingly challenging the price and examining the medical necessity and cost-effectiveness of medical products and services, in addition to their safety and efficacy. In order to secure coverage and reimbursement for any product that might be approved for sale, we may need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of our products, in addition to the costs required to obtain FDA or comparable regulatory approvals. Additionally, we may also need to provide discounts to purchasers, private health plans or government healthcare programs. Despite our best efforts, our product candidates may not be considered medically necessary or cost-effective. If third-party payors do not consider a product to be cost-effective compared to other available therapies, they may not cover an approved product as a benefit under their plans or, if they do, the level of payment may not be sufficient to allow us to sell our products at a profit. A decision by a third-party payor not to cover a product could reduce physician utilization once the product is approved and have a material adverse effect on sales, our operations and financial condition. Finally, in some foreign countries, the proposed pricing for a product candidate must be approved before it may be lawfully marketed. The requirements governing product pricing vary widely from country to country. For example, in the EU, pricing and reimbursement of pharmaceutical products are regulated at a national level under the individual EU Member States' social security systems. Some foreign countries provide options to restrict the range of medicinal products for which their national health insurance systems provide reimbursement and can control the prices of medicinal products for human use. To obtain reimbursement or pricing approval, some of these countries may require the completion of clinical trials that compare the cost effectiveness of a particular product candidate to currently available therapies. A country may approve a specific price for the medicinal product or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the medicinal product on the market. There can be no assurance that any country that has price controls or reimbursement limitations for products will allow favorable reimbursement and pricing arrangements for any of our product candidates. Even if approved for reimbursement, historically, product candidates launched in some foreign countries, such as some countries in the EU, do not follow price structures of the United States and prices generally tend to be significantly lower.

If the market opportunities for any product candidates we develop are smaller than we believe they are, our potential revenues may be adversely affected, and our business may suffer. Because the target patient populations for many of our product candidates are small, we must be able to successfully identify patients and achieve a significant market share to maintain profitability and growth.

We focus our research and product development on treatments for rare genetically defined diseases. Many of our product candidates are expected to target a single mutation; as a result, the relevant patient population may therefore be small. Our projections of both the number of people who have these diseases, as well as the subset of people with these diseases who have the potential to benefit from treatment with our product candidates, are based on estimates. These estimates may prove to be incorrect and new studies may change the estimated incidence or prevalence of these diseases. The number of patients in the United States, Europe, and elsewhere may turn out to be lower than expected, and patients may not be amenable to treatment with our product

candidates, or may become increasingly difficult to identify or gain access to, all of which would adversely affect our business, financial condition, results of operations, and prospects. Additionally, because of the potential that any product candidates we develop could cure a target disease, we may not receive recurring revenues from patients and may deplete the patient population prevalence through curative therapy.

Genetic medicines are novel, and any product candidates we develop may be complex and difficult to manufacture. We could experience delays in complying with regulatory requirements or production problems that result in delays in our development or commercialization programs, limit the supply of our product candidates, or otherwise harm our business.

Our product candidates will likely require processing steps that are more complex than those required for most chemical pharmaceuticals. Moreover, unlike chemical pharmaceuticals, the physical and chemical properties of a biologic such as the product candidates we are developing generally cannot be fully characterized. As a result, assays of the finished product candidate may not be sufficient to ensure that the product candidate will perform in the intended manner. Problems with the manufacturing process, even minor deviations from the normal process, could result in product defects or manufacturing failures that result in unusable products, product recalls, product liability claims, insufficient inventory, or potentially delay progression of our potential IND filings. We may also encounter problems achieving adequate quantities and quality of clinical-grade materials that meet FDA, EMA or other comparable applicable foreign standards or specifications with consistent and acceptable production yields and costs. For example, the current approach of manufacturing AAV vectors may fall short of supplying required number of doses needed for advanced stages of pre-clinical studies or clinical trials, and the FDA may ask us to demonstrate that we have the appropriate manufacturing processes in place to support the higher-dose group in our future pre-clinical studies or clinical trials.

In addition, the FDA, the EMA, and other regulatory authorities may require us to submit samples of any of the approved product together with the protocols showing the results of applicable tests at any time. Under some circumstances, the FDA, the EMA, or other regulatory authorities may require that we not distribute a sample until the agency authorizes its release. Slight deviations in the manufacturing process, including those affecting quality attributes and stability, may result in unacceptable changes in the product that could result in product recalls. Product recalls could cause us to delay clinical trials or product launches, which could be costly to us and otherwise harm our business, financial condition, results of operations, and prospects.

We also may encounter problems hiring and retaining the experienced scientific, quality control, and manufacturing personnel needed to manage our manufacturing process, which could result in delays in our production or difficulties in maintaining compliance with applicable regulatory requirements.

Given the nature of biologics manufacturing, including for AAV vectors, there is a risk of contamination during manufacturing. Any contamination could materially harm our ability to produce product candidates on schedule and could harm our results of operations and cause reputational damage. Some of the raw materials that we anticipate will be required in our manufacturing process are derived from biologic sources. Such raw materials are difficult to procure and may be subject to contamination or recall. A material shortage, contamination, recall, or restriction on the use of biologically derived substances in the manufacture of our current or future product candidates could adversely impact or disrupt the commercial manufacturing or the production of clinical material, which could materially harm our development timelines and our business, financial condition, results of operations, and prospects.

Any problems in our manufacturing process or the facilities with which we contract could make us a less attractive collaborator for potential partners, including larger pharmaceutical companies and academic research institutions, which could limit our access to additional attractive development programs. Problems in third-party manufacturing process or facilities also could restrict our ability to ensure sufficient clinical material for our planned clinical trials and to meet market demand for any product candidates we develop and commercialize.

Product liability lawsuits against us could cause us to incur substantial liabilities and could limit commercialization of our product candidates.

We face an inherent risk of product liability exposure related to the testing in human clinical trials of our product candidates and will face an even greater risk if we commercially sell any products we develop. If we cannot successfully defend ourselves against claims that our product candidates caused injuries, we could incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

- decreased demand for any of our current or future product candidates;
- injury to our reputation and significant negative media attention;
- withdrawal of clinical trial participants;
- significant time and costs to defend the related litigation;
- substantial monetary awards to trial participants or patients;
- loss of revenue; and
- the inability to commercialize our product candidates.

Although we maintain product liability insurance coverage, it may not be adequate to cover all liabilities that we may incur. We anticipate that we will need to increase our insurance coverage when we begin clinical trials and if we successfully commercialize any products. Insurance coverage is increasingly expensive. We may not be able to maintain insurance coverage at a reasonable cost or in an amount adequate to satisfy any liability that may arise.

If we or any contract manufacturers and suppliers we engage fail to comply with environmental, health, and safety laws and regulations, we could become subject to fines or penalties or incur costs that could have a material adverse effect on the success of our business.

We and any contract manufacturers and suppliers we engage are subject to numerous federal, state, and local environmental, health, and safety laws, regulations, and permitting requirements, including those governing laboratory procedures; the generation, handling, use, storage, treatment, and disposal of hazardous and regulated materials and wastes; the emission and discharge of hazardous materials into the ground, air, and water; and employee health and safety. Our operations involve the use of hazardous and flammable materials, including chemicals and biological and radioactive materials. Our operations also produce hazardous waste. We generally contract with third parties for the disposal of these materials and wastes. We cannot eliminate the risk of contamination or injury from these materials. In the event of contamination or injury resulting from our use of hazardous materials, we could be held liable for any resulting damages, and any liability could exceed our resources. Under certain environmental laws, we could be held responsible for costs relating to any contamination at our current or past facilities and at third-party facilities. We also could incur significant costs associated with civil or criminal fines and penalties.

Compliance with applicable environmental laws and regulations may be expensive, and current or future environmental laws and regulations may impair our research and product development efforts. In addition, we cannot entirely eliminate the risk of accidental injury or contamination from these materials or wastes. Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, this insurance may not provide adequate coverage against potential liabilities. We do not carry specific biological or hazardous waste insurance coverage, and our property, casualty, and general liability insurance policies specifically exclude coverage for damages and fines arising from biological or hazardous waste exposure or contamination. Accordingly, in the event of contamination or injury, we could be held liable for damages or be penalized with fines in an amount exceeding our resources, and our clinical trials or regulatory approvals could be suspended, which could have a material adverse effect on our business, financial condition, results of operations, and prospects.

In addition, we may incur substantial costs in order to comply with current or future environmental, health, and safety laws, regulations, and permitting requirements. These current or future laws, regulations, and permitting requirements may impair our research, development, or production efforts. Failure to comply with these laws, regulations, and permitting requirements also may result in substantial fines, penalties, or other sanctions or business disruption, which could have a material adverse effect on our business, financial condition, results of operations, and prospects.

Any third-party contract manufacturers and suppliers we engage will also be subject to these and other environmental, health, and safety laws and regulations. Liabilities they incur pursuant to these laws and regulations could result in significant costs or an interruption in operations, which could have a material adverse effect on our business, financial condition, results of operations, and prospects.

Risks Related to Our Relationships with Third Parties

We expect to rely on third parties to conduct our clinical trials and some aspects of our research and preclinical testing, and those third parties may not perform satisfactorily, including failing to meet deadlines for the completion of such trials, research, or testing.

We currently rely and expect to continue to rely on third parties, such as CROs, clinical data management organizations, medical institutions, and clinical investigators, to conduct some aspects of our research and preclinical testing, and we expect to rely on third parties to help conduct our planned clinical trials. Any of these third parties may terminate their engagements with us at any time under certain criteria. If we need to enter into alternative arrangements, it may delay our product development activities.

Our reliance on these third parties to conduct clinical trials and for research and development activities will reduce our control over these activities but will not relieve us of our responsibilities. For example, we will remain responsible for ensuring that each of our clinical trials is conducted in accordance with the general investigational plan and protocols for the trial. Moreover, the FDA, the EMA and other regulatory authorities require us to comply with standards, commonly referred to as Good Clinical Practices, for conducting, recording, and reporting the results of clinical trials to assure that data and reported results are credible and accurate and that the rights, integrity, and confidentiality of trial participants are protected.

Although we intend to design the clinical trials for our product candidates, CROs will conduct some or all of the clinical trials. As a result, many important aspects of our development programs, including their conduct and timing, will be outside of our direct control. Our reliance on third parties to conduct current and future preclinical studies and future clinical trials will also result in less direct control over the management of data developed through preclinical studies and clinical trials than would be the case if we were relying entirely upon our own staff. Communicating with third parties can also be challenging, potentially leading to mistakes as well as difficulties in coordinating activities. Third parties may:

- have staffing difficulties;
- fail to comply with contractual obligations;
- experience regulatory compliance issues;
- undergo changes in priorities or become financially distressed; or
- form relationships with other entities, some of which may be our competitors.

These factors may materially adversely affect the willingness or ability of third parties to conduct our preclinical studies and clinical trials and may subject us to unexpected cost increases that are beyond our control. If the CROs and other third parties do not perform preclinical studies and future clinical trials in a satisfactory manner, breach their obligations to us or fail to comply with regulatory requirements, the development,

regulatory approval and commercialization of our product candidates may be delayed, we may not be able to obtain regulatory approval and commercialize our product candidates, or our development programs may be materially and irreversibly harmed. If we are unable to rely on preclinical and clinical data collected by our CROs and other third parties, we could be required to repeat, extend the duration of, or increase the size of any preclinical studies or clinical trials we conduct and this could significantly delay commercialization and require greater expenditures, which could have a material adverse effect on our business, financial condition, result of operations, and prospects.

We also expect to rely on third parties to store and distribute drug supplies for our clinical trials. Any performance failure on the part of our distributors could delay clinical development or marketing approval of our product candidates or commercialization of our therapies, producing additional losses and depriving us of potential product revenue.

Dr. Porteus, our co-founder and a member of our board of directors, may have actual or potential conflicts of interest because of his position with Stanford.

Following this offering, Dr. Porteus will continue to serve on our board of directors, our Scientific & Clinical Advisory Board and as our paid consultant and will retain his position and affiliation with Stanford. Furthermore, Dr. Porteus holds shares of our restricted common stock subject to vesting based, among other things, on his continued service to us as a director, employee or consultant. Dr. Porteus' position at Stanford creates, or may create the appearance of, conflicts of interest when we ask Dr. Porteus to make decisions that could have different implications for Stanford than the decisions have for us or for himself, including decisions related to our license of intellectual property rights from Stanford and other contractual relationships we may enter into from time to time with Stanford.

We contract with third parties for the manufacture of materials for our research programs and preclinical studies and expect to continue to do so for clinical trials and for commercialization of our product candidates. This reliance on third parties increases the risk that we will not have sufficient quantities of such materials, product candidates, or any products that we may develop and commercialize, or that such supply will not be available to us at an acceptable cost or timelines, which could delay, prevent, or impair our development or commercialization efforts.

We do not have any manufacturing facilities at the present time. We currently rely on third-party manufacturers for the manufacture of materials for our research programs and preclinical studies, including our viral vectors, GMP plasmids, RNA guides and Cas9, and expect to continue to rely on third parties, including Stanford, for our planned clinical trials and for commercialization of any product candidates for which we obtain marketing approval. For example, we rely on third parties to manufacture viral vectors. We do not have a long term supply agreement with any of our third-party manufacturers, and we purchase our required supply on a purchase order basis, which means that aside from any binding purchase orders we have from time to time, our third-party manufacturers could cease manufacturing for us or change the terms on which they are willing to continue manufacturing for us at any time.

We may be unable to establish any agreements with third-party manufacturers or to do so on acceptable terms for one or more of our material needs. Even if we are able to establish agreements with third-party manufacturers, reliance on third-party manufacturers entails additional risks, including:

- the possible failure of the third party to manufacture our product candidates according to our schedule, or at all, including if the third party gives greater priority to the supply of other products over our product candidates or otherwise do not satisfactorily perform according to the terms of the agreements between us and them;
- the possible breach of the manufacturing agreement by the third party;

- the possible misappropriation of our proprietary information, including our trade secrets and know-how;
- the possible termination or nonrenewal of the agreement by the third party at a time that is costly or inconvenient for us; and
- reliance on the third party for regulatory compliance, quality assurance, safety, and pharmacovigilance and related reporting.

Third-party manufacturers may not be able to comply with cGMP regulations or similar regulatory requirements outside the United States. Our failure, or the failure of our third-party manufacturers, to comply with applicable regulations could result in sanctions being imposed on us, including fines, injunctions, civil penalties, delays, suspension or withdrawal of approvals, license revocations, seizures or recalls of product candidates, operating restrictions, and criminal prosecutions, any of which could significantly and adversely affect supplies of our products and harm our business, financial condition, results of operations, and prospects.

Any products that we may develop may compete with other product candidates and products for access to manufacturing facilities. There are a limited number of suppliers or manufacturers that operate under cGMP regulations and that might be capable of manufacturing for us. For example, three vaccines for COVID-19 were granted Emergency Use Authorization by the FDA in late 2020 and early 2021, and more are likely to be authorized in the coming months. The resultant demand for vaccines and potential for manufacturing facilities and materials to be commandeered under the Defense Production Act of 1950, or equivalent foreign legislation, may make it more difficult to obtain materials or manufacturing slots for the products needed for our clinical trials, which could lead to delays in these trials.

Any performance failure on the part of our existing or future manufacturers could delay clinical development or marketing approval. We do not currently have arrangements in place for redundant supply for bulk drug substances. If any one of our current contract manufacturer cannot perform as agreed, we may be required to replace that manufacturer, or we may be forced to manufacture the materials ourselves, for which we may not have the capabilities or resources, or enter into an agreement with a different third-party manufacturer, which we may not be able to do on reasonable terms, if at all. In either scenario, our clinical trials supply could be delayed significantly as we establish alternative supply sources. In some cases, the technical skills required to manufacture our products or product candidates may be unique or proprietary to the original third-party manufacturer and we may have difficulty, or there may be contractual restrictions prohibiting us from, transferring such skills to a back-up or alternate supplier, or we may be unable to transfer such skills at all. In addition, if we are required to change third-party manufacturers for any reason, we will be required to verify that the new third-party manufacturer maintains facilities and procedures that comply with quality standards and with all applicable regulations. We will also need to verify, such as through a manufacturing comparability study, that any new manufacturing process will produce our product candidate according to the specifications previously submitted to the FDA or another regulatory authority. The delays associated with the verification of a new third-party manufacturer could negatively affect our ability to develop product candidates or commercialize our products in a timely manner or within budget. Furthermore, a third-party manufacturer may possess technology related to the manufacture of our product candidate that such third-party manufacturer owns independently. This would increase our reliance on such third-party manufacturer or require us to obtain a license from such third-party manufacturer in order to have another third-party manufacturer manufacture our product candidates. In addition, changes in manufacturers often involve changes in manufacturing procedures and processes, which could require that we conduct bridging studies between our prior clinical supply used in our clinical trials and that of any new manufacturer. We may be unsuccessful in demonstrating the comparability of clinical supplies which could require the conduct of additional clinical trials.

Our current and anticipated future dependence upon others for the manufacture of our product candidates or any products may adversely affect our future profit margins and our ability to commercialize any products that receive marketing approval on a timely and competitive basis.

We may enter into collaborations with third parties for the research, development, and commercialization of certain of the product candidates we may develop. If any such collaborations are not successful, we may not be able to capitalize on the market potential of those product candidates.

We may seek third-party collaborators for the research, development, and commercialization of certain of the product candidates we may develop. If we enter into any such arrangements with any third parties, we will likely have limited control over the amount and timing of resources that our collaborators dedicate to the development or commercialization of any product candidates we may seek to develop with them. Our ability to generate revenues from these arrangements will depend on our collaborators' abilities to successfully perform the functions assigned to them in these arrangements. We cannot predict the success of any collaboration that we enter into.

Collaborations involving our research programs or our product candidates pose numerous risks to us, including the following:

- Collaborators have significant discretion in determining the efforts and resources that they will apply to these collaborations.
- Collaborators may not pursue development and commercialization of our product candidates or may elect not to continue or renew development or commercialization programs based on clinical trial results, changes in the collaborator's strategic focus or available funding or external factors such as an acquisition that diverts resources or creates competing priorities. If a present or future collaborator of ours were to be involved in a business combination, the continued pursuit and emphasis on our product development or commercialization program under such collaboration could be delayed, diminished, or terminated.
- Collaborators may delay clinical trials, provide insufficient funding for a clinical trial program, stop a clinical trial or abandon a product candidate, repeat or conduct new clinical trials, or require a new formulation of a product candidate for clinical testing.
- Collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our product candidates if the collaborators believe that competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive than ours.
- Collaborators with marketing and distribution rights to one or more products may not commit sufficient resources to the marketing and distribution of such products.
- Collaborators may not properly obtain, maintain, enforce, or defend our intellectual property or proprietary rights or may use our proprietary information in such a way as to invite litigation that could jeopardize or invalidate our proprietary information or expose us to potential litigation.
- Disputes may arise between the collaborators and us that result in the delay or termination of the research, development, or commercialization of our therapies or product candidates or that result in costly litigation or arbitration that diverts management attention and resources.
- Collaborators may not provide us with timely and accurate information regarding development progress and activities under the collaboration or may limit our ability to share such information, which could adversely impact our ability to report progress to our investors and otherwise plan our own development of our product candidates.
- We may lose certain valuable rights under circumstances identified in our collaborations, including if we undergo a change of control.
- Collaborators may require us to incur non-recurring and other charges, increase our near- and long-term expenditures, issue securities that dilute our existing stockholders, or disrupt our management and business.

- Collaborations may be terminated and, if terminated, may result in a need for additional capital to pursue further development or commercialization of the applicable product candidates we develop.
- Collaboration agreements may not lead to development or commercialization of product candidates in the most efficient manner or at all.

If our collaborations do not result in the successful development and commercialization of product candidates, or if one of our collaborators terminates its agreement with us, we may not receive any future research funding or milestone or royalty payments under the collaboration. If we do not receive the funding we expect under these agreements, our development of product candidates could be delayed, and we may need additional resources to develop product candidates. In addition, if one of our collaborators terminates its agreement with us, we may find it more difficult to find a suitable replacement collaborator or attract new collaborators, and our development programs may be delayed or the perception of us in the business and financial communities could be adversely affected. All of the risks relating to product development, regulatory approval, and commercialization described in this prospectus apply to the activities of our collaborators.

If conflicts arise between us and our collaborators or strategic partners, these parties may act in a manner adverse to us and could limit our ability to implement our strategies.

If conflicts arise between our corporate or academic collaborators or strategic partners and us, the other party may act in a manner adverse to us and could limit our ability to implement our strategies. Some of our academic collaborators and strategic partners are conducting multiple product development efforts within each area that is the subject of the collaboration with us. Our collaborators or strategic partners, however, may develop, either alone or with others, products in related fields that are competitive with the product candidates we develop that are the subject of these collaborations with us. Competing products, either developed by the collaborators or strategic partners or to which the collaborators or strategic partners have rights, may result in the withdrawal of partner support for our product candidates.

Some of our collaborators or strategic partners could also become our competitors in the future. Our collaborators or strategic partners could develop competing products, preclude us from entering into collaborations with their competitors, fail to obtain timely regulatory approvals, terminate their agreements with us prematurely, or fail to devote sufficient resources to the development and commercialization of products. Any of these developments could harm our product development efforts.

If we are not able to establish collaborations on a timely basis, on commercially reasonable terms, or at all, we may have to alter, reduce or delay our development and commercialization plans, or increase our expenditures to fund development or commercialization activities at our own expense.

For some of the product candidates we may develop, we may decide to collaborate with other pharmaceutical and biotechnology companies for the development and potential commercialization of those product candidates. We face significant competition in seeking appropriate collaborations and collaborations are complex and time-consuming to negotiate and document. Whether we reach a definitive agreement for a collaboration will depend, among other things, upon our assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration, and the proposed collaborator's evaluation of a number of factors. Those factors may include the design or results of clinical trials, the likelihood of approval by the FDA, the EMA or similar regulatory authorities outside the United States, the potential market for the subject product candidate, the costs and complexities of manufacturing and delivering such product candidate to patients, the potential of competing products, the existence of uncertainty with respect to our ownership of technology, which can exist if there is a challenge to such ownership without regard to the merits of the challenge, and industry and market conditions generally. The collaborator may also consider alternative product candidates or technologies for similar indications that may be available to collaborate on and whether such a collaboration could be more attractive than the one with us.

We may also be restricted under existing collaboration agreements from entering into future collaboration agreements on certain terms with potential collaborators. In addition, there have been a significant number of recent business combinations among large pharmaceutical companies that have resulted in a reduced number of potential future collaborators, which further increases competition we face in seeking potential collaborations.

We may not be able to negotiate collaborations on a timely basis, on acceptable terms, or at all. If we are unable to do so, we may have to curtail the development of the product candidate for which we are seeking to collaborate, reduce or delay its development program or one or more of our other development programs, delay its potential commercialization or reduce the scope of any sales or marketing activities, or increase our expenditures and undertake development or commercialization activities at our own expense. If we elect to increase our expenditures to fund development or commercialization activities on our own, we may need to obtain additional capital, which may not be available to us on acceptable terms or at all. If we do not have sufficient funds, we may not be able to develop product candidates or bring them to market and generate product revenue.

Risks Related to Our Intellectual Property

If we are unable to obtain and maintain patent and other intellectual property protection for any product candidates we develop and for our gene editing platform technology, or if the scope of the patent and other intellectual property protection obtained is not sufficiently broad, our competitors could develop and commercialize products and technology similar or identical to ours, and our ability to successfully commercialize our product candidates, and our gene editing platform technology may be adversely affected.

Our commercial success will depend in large part on our ability to obtain and maintain patent, trademark, trade secret and other intellectual property protection of our gene editing platform technology, product candidates and other technology, methods used to manufacture them and methods of treatment, as well as successfully defending our patent and other intellectual property rights against third-party challenges. It is difficult and costly to protect our gene editing platform technology and product candidates, and we may not be able to ensure their protection. Our ability to stop unauthorized third parties from making, using, selling, offering to sell, importing or otherwise commercializing our product candidates is dependent upon the extent to which we have rights under valid and enforceable patents or trade secrets that cover these activities.

We seek to protect our proprietary position by in-licensing intellectual property relating to our platform technology and filing patent applications in the United States and abroad related to our gene editing platform technology and product candidates that are important to our business. If we or our licensor are unable to obtain or maintain patent protection with respect to our gene editing platform technology and our product candidates, or if the scope of the patent protection secured is not sufficiently broad, our competitors could develop and commercialize products and technology similar or identical to ours and our ability to commercialize our product candidates may be adversely affected.

The patent prosecution process is expensive, time-consuming, and complex, and we may not be able to file, prosecute, maintain, enforce, or license all necessary or desirable patent applications at a reasonable cost or in a timely manner. In addition, we may not pursue or obtain patent protection in all relevant markets. It is also possible that we will fail to identify patentable aspects of our research and development output in time to obtain patent protection. Although we enter into non-disclosure and confidentiality agreements with parties who have access to confidential or patentable aspects of our research and development output, such as our employees, corporate collaborators, outside scientific collaborators, CROs, contract manufacturers, consultants, advisors, and other third parties, any of these parties may breach the agreements and disclose such output before a patent application is filed, thereby jeopardizing our ability to seek patent protection. In addition, our ability to obtain and maintain valid and enforceable patents depends on whether the differences between our inventions and the prior art allow our inventions to be patentable over the prior art. Furthermore, publications of discoveries in the scientific literature often lag behind the actual discoveries, and patent applications in the United States and other

jurisdictions are typically not published until 18 months after filing, or in some cases not at all. Therefore, we cannot be certain that we or our licensor were the first to make the inventions claimed in our owned or any licensed patents or pending patent applications, or that we or our licensor were the first to file for patent protection of such inventions.

The patent position of biotechnology and pharmaceutical companies generally is highly uncertain, involves complex legal and factual questions, and has been the subject of much litigation in recent years. The field of gene editing has been the subject of extensive patenting activity and litigation. As a result, the issuance, scope, validity, enforceability, and commercial value of our patent rights are highly uncertain and we may become involved in complex and costly litigation. Our pending and future patent applications may not result in patents being issued which protect our gene editing platform technology and our product candidates or which effectively prevent others from commercializing competitive technologies and product candidates.

No consistent policy regarding the scope of claims allowable in the field of gene editing has emerged in the United States. The scope of patent protection outside of the United States is also uncertain. Changes in either the patent laws or their interpretation in the United States and other countries may diminish our ability to protect our inventions, obtain, maintain, enforce and defend our intellectual property rights and, more generally, could affect the value of our intellectual property or narrow the scope of our owned and licensed patent rights. With respect to both in-licensed and owned intellectual property, we cannot predict whether the patent applications we and our licensor are currently pursuing will issue as patents in any particular jurisdiction or whether the claims of any issued patents will be valid and enforceable and provide sufficient protection from competitors.

Moreover, the coverage claimed in a patent application can be significantly reduced before the patent is issued, and its scope can be reinterpreted after issuance. Even if patent applications we license or own currently or in the future issue as patents, they may not issue in a form that will provide us with any meaningful protection, prevent competitors or other third parties from competing with us, or otherwise provide us with any competitive advantage. Any patents that we own or in-license may be challenged, narrowed, circumvented, or invalidated by third parties. Consequently, we do not know whether any of our platform advances and product candidates will be protectable or remain protected by valid and enforceable patents. Our competitors or other third parties may be able to circumvent our patents by developing similar or alternative technologies or products in a non-infringing manner.

In addition, given the amount of time required for the development, testing, and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. As a result, our intellectual property may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours. Moreover, some of our owned and in-licensed patents and patent applications may in the future be, co-owned by us with third parties. If we are unable to obtain an exclusive license to such third-partyco-owners' interest in such patents or patent applications, such co-owners may be able to license their rights to other third parties, including our competitors, and our competitors could market competing products and technology. In addition, we may need the cooperation of any such co-owners of our patent rights in order to enforce such patents against third parties, and such cooperation may not be provided to us. Any of the foregoing could have a material adverse effect on our competitive position, business, financial conditions, results of operations, and prospects.

Our rights to develop and commercialize our gene editing platform technology and product candidates are subject, in part, to the terms and conditions of licenses granted to us by others.

We depend on intellectual property licensed from third parties, and our licensor may not always act in our best interest. If we fail to comply with our obligations under our intellectual property licenses, if the licenses are terminated, or if disputes regarding these licenses arise, we could lose significant rights that are important to our business.

We have licensed and are dependent on certain patent rights and proprietary technology from third parties that are important or necessary to the development of our gene editing technology and product candidates. For example, we are a party to a license agreement with Stanford pursuant to which we in-license key patent applications for our gene editing platform technology and product candidates (the Stanford License Agreement). This license agreement imposes various diligence, milestone payment, royalty, insurance, and other obligations on us. If we fail to comply with these obligations, our licensor may have the right to terminate our license, in which event we would not be able to develop or market our gene editing platform or any other technology or product candidates covered by the intellectual property licensed under this agreement. For example, under the Stanford License Agreement, we are required to initiate clinical trial programs in accordance with the development plan and development milestones for the development of a licensed product covered by the licensed patent rights. If we fail to initiate such clinical trial programs, our rights with respect to the licensed patent rights may terminate. For more information regarding this agreement, please see the section titled "Business—Our Material Agreements."

These and other licenses may not provide exclusive rights to use such intellectual property and technology in all relevant fields of use and in all territories in which we may wish to develop or commercialize our gene editing platform technology and product candidates in the future. Some licenses granted to us are expressly subject to certain preexisting rights held by the licensor or certain third parties. As a result, we may not be able to prevent competitors from developing and commercializing competitive products in certain territories or fields. For example, the Stanford License Agreement provides that our field of use is solely for the development of prophylactics and therapeutics for sickle cell disease, XSCID, and beta-thalassemia. If we determine that rights to such additional fields are necessary to commercialize our product candidates or maintain our competitive advantage, we may will need to obtain a license from Stanford and/or other third parties in order to continue developing, manufacturing or marketing our product candidates. We may not be able to obtain such a license on an exclusive basis, on commercially reasonable terms, or at all, which could prevent us from commercializing our product candidates or allow our competitors or others the chance to access technology that is important to our business.

We do not have complete control in the preparation, filing, prosecution, and maintenance of the patent applications covering the technology that we license from third parties. For example, pursuant to our intellectual property license with Stanford, our licensor retains control of preparation, filing, prosecution, and maintenance of their patent applications. We cannot be certain that these patent applications will be prepared, filed, prosecuted, maintained, and defended in a manner consistent with the best interests of our business. If our licensor fails to prosecute, and maintain such patent applications, or lose rights to those patent applications, the rights we have licensed may be reduced or eliminated, our right to develop and commercialize any of our product candidates that are the subject of such licensed rights could be adversely affected and we may not be able to prevent competitors from making, using, and selling competing products.

Our licensor has also relied on third-party collaborators or on funds from third parties such that our licensor is not the sole and exclusive owner of the patent rights we have in-licensed. For example, our in-licensed patent rights from the Stanford License are jointly owned by Stanford and Agilent Technologies, Inc. (Agilent). If we are unable to secure licenses to the rights of Agilent, the license granted to us in jurisdictions where the consent of a co-owner is necessary to grant such a license may not be valid, and Agilent may be able to license such patent rights to our competitors, and our competitors could market competing products and technology. In addition, our rights to our in-licensed patent applications are dependent, in part, on inter-institutional or other operating agreements between Stanford and Agilent. If Stanford or Agilent breaches such inter-institutional or operating agreements, our rights to such in-licensed patents and patent applications may be adversely affected. Any of these events could have a material adverse effect on our competitive position, business, financial conditions, results of operations, and prospects.

Furthermore, inventions contained within some of our in-licensed patent applications were made using U.S. government funding. We rely on our licensor to ensure compliance with applicable obligations arising from such

funding, such as timely reporting, an obligation associated with our in-licensed patents and patent applications. The failure of our licensor to meet their obligations may lead to a loss of rights or the unenforceability of relevant patents. For example, the U.S. government could have certain rights in such in-licensed patent applications, including a non-exclusive license authorizing the U.S. government to use the invention or to have others use the invention on its behalf. If the U.S. government decides to exercise these rights, it is not required to engage us as its contractor in connection with doing so. The U.S. government's rights may also permit it to disclose the funded inventions and technology to third parties and to exercise march-in rights to use or allow third parties to use the technology we have licensed that was developed using U.S. government funding. The U.S. government may also exercise its march-in rights if it determines that action is necessary because we or our licensor failed to achieve practical application of the U.S. government-funded technology, because action is necessary to alleviate health or safety needs, to meet requirements of federal regulations, or to give preference to U.S. industry. In addition, our rights in such in-licensed U.S. government-funded inventions may be subject to certain requirements to manufacture product candidates embodying such inventions in the United States. Any of the foregoing could harm our business, financial condition, results of operations, and prospects significantly.

In the event that our third-party licensor determines that, in spite of our efforts, we have materially breached a license agreement or have failed to meet certain obligations thereunder, it may elect to terminate the license agreement or, in some cases, one or more license(s) under the applicable license agreement and such termination would result in us no longer having the ability to develop and commercialize product candidates and technology covered by that license agreement. In the event of such termination of a third-party in-license, or if the underlying patent rights under a third-party in-license fail to provide the intended exclusivity, competitors would have the freedom to seek regulatory approval of, and to market, products identical to ours. Any of these events could have a material adverse effect on our competitive position, business, financial conditions, results of operations, and prospects.

Our owned and in-licensed patent applications may not provide sufficient protection of our gene editing platform technologies, our product candidates and our future product candidates or result in any competitive advantage.

We own and have in-licensed a number of patent applications that cover gene editing and gene targeting technologies. We have applied for provisional patent applications intended to specifically cover our gene editing platform technology and uses with respect to treatment of particular diseases and conditions, but do not currently own any issued U.S. patents. Each U.S. provisional patent application is not eligible to become an issued patent until, among other things, we file a non-provisional patent application within 12 months of the filing date of the applicable provisional patent application. Any failure to file a non-provisional patent application within this timeline could cause us to lose the ability to obtain patent protection for the intentions disclosed in the associated provisional patent applications. We cannot be certain that any of these patent applications will issue as patents, and if they do, that such patents will cover or adequately protect our gene editing platform technologies or our product candidates, or that such patents will not be challenged, narrowed, circumvented, invalidated or held unenforceable. Any failure to obtain or maintain patent protection with respect to our gene editing platform technology and product candidates could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

Our owned and in-licensed patent applications contain claims directed to compositions of matter on our gene editing product candidates, as well as methods directed to the use of such product candidates for gene therapy treatment. Method-of-use patents do not prevent a competitor or other third party from developing or marketing an identical product for an indication that is outside the scope of the patented method. Moreover, with respect to method-of-use patents, even if competitors or other third parties do not actively promote their product for our targeted indications or uses for which we may obtain patents, providers may recommend that patients use these products off-label, or patients may do so themselves.

The strength of patents in the biotechnology and pharmaceutical field involves complex legal and scientific questions and can be uncertain. The patent applications that we own or in-license may fail to result in issued

patents with claims that cover our product candidates or uses thereof in the United States or in other foreign countries. For example, while our patent applications are pending, we may be subject to a third party pre-issuance submission of prior art to the United States Patent and Trademark Office (USPTO), or become involved in interference or derivation proceedings, or equivalent proceedings in foreign jurisdictions. Even if patents do successfully issue, third parties may challenge their inventorship, validity, enforceability or scope, including through opposition, revocation, reexamination, post-grant and *inter partes* review proceedings. An adverse determination in any such submission, proceeding or litigation could reduce the scope of, or invalidate or render unenforceable, our owned or in-licensed patent rights, allow third parties to commercialize our technology or product candidates and compete directly with us, without payment to us, or result in our inability to manufacture or commercialize products without infringing third-party patent rights. Moreover, we, or our licensor, may have to participate in interference proceedings declared by the USPTO to determine priority of invention or in post-grant challenge proceedings, such as oppositions in a foreign patent office, that challenge our or our licensor's priority of invention or other features of patentability with respect to our owned or in-licensed patent applications. Such challenges may result in loss of patent rights, loss of exclusivity, or in patent claims being narrowed, invalidated, or held unenforceable, which could limit our ability to stop others from using or commercializing similar or identical technology and products, or limit the duration of the patent protection of our technology and product candidates. Furthermore, even if they are unchallenged, our patent rights may not adequately protect our intellectual property or prevent others from designing around our platform technology or product candidates. If the breadth or strength of protection provided by the patent applications we own or in-license with respect to our gene editing platform technology and product candidates is threatened, it could dissuade companies from collaborating with us to develop, and threaten our ability to commercialize, our product candidates. Further, if we encounter delays in development, testing, and regulatory review of new product candidates, the period of time during which we could market our product candidates under patent protection would be reduced.

Given that patent applications in the United States and other countries are confidential for a period of time after filing, at any moment in time, we cannot be certain that we or our licensor were in the past or will be in the future the first to file any patent application related to our gene editing technology or product candidates. In addition, some patent applications in the United States may be maintained in secrecy until the patents are issued. As a result, there may be prior art of which we or our licensor are not aware that may affect the validity or enforceability of a patent claim, and we or our licensor may be subject to priority disputes. For our in-licensed patent portfolios, we rely on our licensor to determine inventorship, and obtain and file inventor assignments of priority applications before their conversion as PCT applications. A failure to do so in a timely fashion may give rise to a challenge to entitlement of priority for foreign applications nationalized from such PCT applications. We or our licensor may in the future become a party to proceedings or priority disputes in Europe or other foreign jurisdictions. The loss of priority for, or the loss of, these European patents could have a material adverse effect on the conduct of our business.

We may be required to disclaim part or all of the term of certain patent applications. There may be prior art of which we are not aware that may affect the validity or enforceability of a patent claim. There also may be prior art of which we or our licensor are aware, but which we or our licensor do not believe affects the validity or enforceability of a claim, which may, nonetheless, ultimately be found to affect the validity or enforceability of a claim. No assurance can be given that, if challenged, our patent applications, if issued, would be declared by a court, patent office or other governmental authority to be valid or enforceable or that even if found valid and enforceable, a competitor's technology or product would be found by a court to infringe our patent rights. We may analyze patents or patent applications of our competitors that we believe are relevant to our activities, and consider that we are free to operate in relation to our product candidates, but our competitors may achieve issued claims, including in patents we consider to be unrelated, that block our efforts or potentially result in our product candidates or our activities infringing such claims. It is possible that our competitors may have filed, and may in the future file, patent applications covering our products or gene editing technology similar to ours. Those patent applications may have priority over our owned patent applications and in-licensed patent applications or patents, which could require us to obtain rights to issued patents covering such technologies. The possibility also exists

that others will develop products that have the same effect as our product candidates on an independent basis that do not infringe our patents or other intellectual property rights, or will design around the claims of our patent applications or our in-licensed patents or patent applications that cover our product candidates.

Likewise, our currently owned patent applications, if issued as patents, and in-licensed patents and patent applications, if issued as patents, directed to our proprietary gene editing technologies and our product candidates are expected to expire from 2036 through 2042, without taking into account any possible patent term adjustments or extensions. Our owned or in-licensed patent applications, if issued as patents, may expire before, or soon after, our first product candidate achieves marketing approval in the United States or foreign jurisdictions. Additionally, no assurance can be given that the USPTO or relevant foreign patent offices will grant any of the pending patent applications we own or in-license currently or in the future. Upon the expiration of our current in-licensed patent applications, if issued as patents, we may lose the right to exclude others from practicing these inventions. The expiration of these patent rights could also have a similar material adverse effect on our business, financial condition, results of operations and prospects

Our owned patent applications and in-licensed patents and patent applications and other intellectual property may be subject to inventorship or ownership disputes and similar proceedings. If we or our licensor are unsuccessful in any of these proceedings, we may be required to obtain licenses from third parties, which may not be available on commercially reasonable terms or at all, or to cease the development, manufacture, and commercialization of one or more of our product candidates, which could have a material adverse impact on our business.

We or our licensor may also be subject to claims that former employees, collaborators, or other third parties have an interest in our owned or in-licensed patent applications or other intellectual property as an inventor or co-inventor. If we are unable to obtain an exclusive license to any such third-party co-owners' interest in such patent applications, such co-owners may be able to license their rights to other third parties, including our competitors. In addition, we may need the cooperation of any such co-owners to enforce any patents that issue from such patent applications against third parties, and such cooperation may not be provided to us.

If we or our licensor are unsuccessful in any inventorship or ownership disputes to which we or they are subject, we may lose valuable intellectual property rights through the loss of part or all of our owned, licensed, or optioned patent rights, or such patent claims may be narrowed, invalidated, or held unenforceable, or through loss of exclusive ownership of or the exclusive right to use our owned or in-licensed patent rights. In the event of loss of patent rights as a result of any of these disputes, we may be required to obtain and maintain licenses from third parties, including parties involved in any such inventorship or ownership disputes. Such licenses may not be available on commercially reasonable terms or at all, or may be non-exclusive. If we are unable to obtain and maintain such licenses, we may need to cease the development, manufacture, and commercialization of one or more of our product candidates. The loss of exclusivity or the narrowing of our patent rights could limit our ability to stop others from using or commercializing similar or identical technology and product candidates. Even if we or our licensor are successful in an inventorship or ownership dispute, it could result in substantial costs and be a distraction to management and other employees. Any of the foregoing could result in a material adverse effect on our business, financial condition, results of operations, or prospects.

We have limited foreign intellectual property rights and may not be able to protect our intellectual property and proprietary rights throughout the world.

We may have limited intellectual property rights outside the United States. Filing, prosecuting, and defending patents on product candidates in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States can be less extensive than those in the United States. In addition, the laws of foreign countries do not protect intellectual property rights to the same extent as federal and state laws of the United States. In addition, our intellectual property license agreements may not always include worldwide rights. Consequently, we may not be able to prevent third parties from practicing

our inventions in all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and, further, may export otherwise infringing products to territories where we have patent protection but where enforcement is not as strong as that in the United States. These products may compete with our product candidates and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets, and other intellectual property protection, particularly those relating to biotechnology and pharmaceutical products, which could make it difficult for us to stop the infringement of our patents or marketing of competing products against third parties in violation of our intellectual property and proprietary rights generally. Proceedings to enforce our patents and intellectual property rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing, and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate, and the damages or other remedies awarded, if any, may not be commercially meaningful. Moreover, the initiation of proceedings by third parties to challenge the scope or validity of our patent rights in foreign jurisdictions could result in substantial cost and divert our efforts and attention from other aspects of our business. Accordingly, our efforts to enforce our intellectual property and proprietary rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

Many countries have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In addition, many countries limit the enforceability of patents against government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of such patent. If we or our licensor is forced to grant a license to third parties with respect to any patents relevant to our business, our competitive position may be impaired, and our business, financial condition, results of operations, and prospects may be adversely affected.

If we fail to comply with our obligations in the agreement under which we license intellectual property rights from our licensor or otherwise experience disruptions to our business relationships with our licensor, we could lose license rights that are important to our business.

We have entered into a license agreement with Stanford related to our platform technology and certain of our product candidates, and may need to obtain licenses to additional intellectual property rights from Stanford and others to advance our ongoing and planned research and development programs or to allow commercialization of our product candidates. It is possible that we may be unable to obtain any licenses to such additional intellectual property rights at a reasonable cost or on reasonable terms, if at all. In either event, we may be required to expend significant time and resources to redesign our technology, product candidates, or the methods for manufacturing them or to develop or license replacement technology, all of which may not be feasible on a technical or commercial basis. If we are unable to do so, we may be unable to develop or commercialize the affected product candidates or expand our platform capabilities, which could harm our business, financial condition, results of operations, and prospects significantly. We cannot provide any assurances that third-party patents do not exist which might be enforced against our current technology, including gene editing technology, manufacturing methods, product candidates, or future methods or products resulting in either an injunction prohibiting our manufacture or future sales, or, with respect to our future sales, an obligation on our part to pay royalties and/or other forms of compensation to third parties, which could be significant.

Pursuant to our license agreement with Stanford, we are generally responsible for bringing any actions against any third party for infringing on the patent rights we have licensed. Certain provisions of our license agreement also require us to meet development thresholds to maintain the license, including establishing a set

timeline for developing and commercializing products. In spite of our efforts, Stanford or any future licensor from whom we may seek to license intellectual property rights might conclude that we have materially breached our obligations under such license agreements and might therefore terminate the license agreements, thereby removing or limiting our ability to develop and commercialize products and technology covered by these license agreements. If these in-licenses are terminated, or if the underlying patent rights fail to provide the intended exclusivity, competitors or other third parties would have the freedom to seek regulatory approval of, and to market, products identical to ours and we may be required to cease our development and commercialization of or gene editing platform technology or product candidates. Any of the foregoing could have a material adverse effect on our competitive position, business, financial condition, results of operations, and growth prospects. Disputes may arise regarding intellectual property subject to a licensing agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- the extent to which our technology and processes infringe on intellectual property of the licensor that is not subject to the licensing agreement;
- the sublicensing of patent rights to third parties under our collaborative development relationships;
- our diligence obligations under the license agreement with respect to the use of the licensed technology in relation to our development and commercialization of our product candidates and what activities satisfy those diligence obligations;
- the inventorship and ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensor and us and our partners; and
- the priority of invention of patented technology.

In addition, the agreement under which we currently license intellectual property rights from Stanford are complex, and certain provisions in such agreement may be susceptible to multiple interpretations. The resolution of any contract interpretation disagreement that may arise under our existing license agreement with Stanford or future license agreements into which we may enter could narrow what we believe to be the scope of our rights to the relevant intellectual property or technology or broaden what we believe to be the scope of the licensor's rights to our intellectual property and technology, or increase what we believe to be our financial or other obligations under the relevant agreement, any of which could have a material adverse effect on our business, financial condition, results of operations, and prospects. Moreover, if disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on commercially acceptable terms, we may be unable to successfully develop and commercialize the affected product candidates. As a result, any termination of or disputes over our intellectual property license could result in the loss of our ability to develop and commercialize our gene editing platform or other product candidates or we could lose other significant rights, any of which could have a material adverse effect on our business, financial conditions, results of operations, and prospects. It is also possible that a third party could be granted limited licenses to some of the same technology, in certain circumstances.

We may not be successful in acquiring orin-licensing necessary rights to key technologies or any product candidates we may develop.

We currently have rights to intellectual property, through a license from a third party, to identify and develop product candidates, and we expect to seek to expand our product candidate pipeline in part by in-licensing the rights to key technologies. The future growth of our business will depend in part on our ability to in-license or otherwise acquire the rights to additional product candidates and technologies. Although we have succeeded in licensing technologies from a third-party licensor, Stanford, in the past, we cannot assure you that we will be able to in-license or acquire additional rights to any product candidates or technologies from Stanford or other third parties on acceptable terms or at all. For example, there are third parties who possess technologies related to gene editing or other technologies which we may need to in-license.

For example, our agreement with Stanford provides that our field of use is solely for the development of prophylactics and therapeutics for sickle cell disease, XSCID, and beta-thalassemia. If we determine that rights outside such field are necessary to commercialize our drug candidates or maintain our competitive advantage, we may need to obtain an additional license from Stanford University in order to continue developing, manufacturing or marketing our drug candidates. We may not be able to obtain such a license on an exclusive basis, on commercially reasonable terms, or at all, which could prevent us from commercializing our drug candidates or allow our competitors or others the chance to access technology that is important to our business. For more information regarding these agreements, please see the section titled "Business—Our Material Agreements."

Furthermore, there has been extensive patenting activity in the field of gene editing, and pharmaceutical companies, biotechnology companies, and academic institutions are competing with us or are expected to compete with us in the in the field of gene editing technology and filing patent applications potentially relevant to our business and we are aware of certain third-party patent applications that, if issued, may allow the third party to circumvent our patent rights. For example, we are aware of several third-party patents, and patent applications, that if issued, may be construed to be relevant to our gene editing technology and product candidates. In order to market our product candidates, we may find it necessary or prudent to obtain licenses from such third-party intellectual property holders. However, we may be unable to secure such licenses or otherwise acquire or in-license any compositions, methods of use, processes, or other intellectual property rights from third parties that we identify as necessary for product candidates we may develop and gene editing technology. We may also require licenses from third parties for certain additional technologies, including technologies relating to gene editing such as high-fidelity nucleases, guide RNA modification and target sequences, as well as technologies for cell manufacturing that we are evaluating for use with our product candidates. In addition, some of our in-licensed patent applications are co-owned with third parties. With respect to any patents co-owned with third parties, we may require licenses to such co-owners' interest to such patents. If we are unable to obtain an exclusive license to any such third-party co-owners' interest in such patent applications, such co-owners may be able to license their rights to other third parties, including our competitors, and our competitors could market competing products and technology. In addition, we may need the cooperation of any such co-owners of our patent applications in order to enforce such patent rights against third parties, and such cooperation may not be provided to us.

Additionally, we may collaborate with academic institutions to accelerate our preclinical research or development under written agreements with these institutions. In certain cases, these institutions provide us with an option to negotiate a license to any of the institution's rights in technology resulting from the collaboration. Even if we hold such an option, we may be unable to negotiate a license from the institution within the specified timeframe or under terms that are acceptable to us. If we are unable to do so, the institution may offer the intellectual property rights to others, potentially blocking our ability to pursue our program.

In addition, the licensing or acquisition of third-party intellectual property rights is a highly competitive area, and a number of more established companies are also pursuing strategies to license or acquire third-party intellectual property rights that we may consider attractive or necessary. These established companies may have a competitive advantage over us due to their size, capital resources and greater clinical development and commercialization capabilities. In addition, companies that perceive us to be a competitor may be unwilling to assign or license rights to us. We also may be unable to license or acquire third-party intellectual property rights on terms that would allow us to make an appropriate return on our investment or at all. If we are unable to successfully obtain rights to required third party intellectual property rights or maintain the existing intellectual property rights we have, we may have to abandon development of the relevant program or product candidate, which could have a material adverse effect on our business, financial condition, results of operations, and prospects.

The intellectual property landscape around the technologies we use or plan to use, including gene editing technology, is highly dynamic, and third parties may initiate legal proceedings alleging that we are infringing, misappropriating, or otherwise violating their intellectual property rights, the outcome of which would be uncertain and may prevent, delay or otherwise interfere with our product discovery and development efforts.

Because of the large number of patents issued and patent applications filed in our field, third parties may allege they have patent rights encompassing our product candidates, technologies or methods. Third parties may assert that we are employing their proprietary technology without authorization and may file patent infringement claims or lawsuits against us, and if we are found to infringe such third-party patents, we may be required to pay damages, cease commercialization of the infringing technology, or obtain a license from such third parties, which may not be available on commercially reasonable terms or at all. In addition, we have in the past, and may in the future, receive an offer for license from third parties regarding their proprietary intellectual property for which they may believe encompass our product candidates and technologies. We will evaluate such offers for relevance to our business.

The field of gene editing is still in its infancy, and no such therapeutic product candidates have reached the market. Due to the intense research and development that is taking place by several companies, including us and our competitors, in this field, the intellectual property landscape is evolving and in flux, and it may remain uncertain for the coming years. There may be significant intellectual property related litigation and proceedings relating to our owned and in-licensed, and other third-party, intellectual property and proprietary rights in the future.

Our commercial success depends upon our ability and the ability of our collaborators and present and future licensors to develop, manufacture, market, and sell any product candidates that we may develop and use our proprietary technologies without infringing, misappropriating, or otherwise violating the intellectual property and proprietary rights of third parties. The biotechnology and pharmaceutical industries are characterized by extensive litigation regarding patents and other intellectual property rights as well as administrative proceedings for challenging patents, including interference, derivation, *inter partes* review, post grant review, and reexamination proceedings before the USPTO or oppositions and other comparable proceedings in foreign jurisdictions. We may be subject to and may in the future become party to, or threatened with, adversarial proceedings or litigation regarding intellectual property rights with respect to our gene editing platform technology and our product candidates, including interference proceedings, post-grant review, *inter partes* review, and derivation proceedings before the USPTO and similar proceedings in foreign jurisdictions such as oppositions before the EPO. Numerous U.S. and foreign issued patents and pending patent applications that are owned by third parties exist in the fields in which we are developing our product candidates and they may assert infringement claims against us based on existing patents or patents that may be granted in the future, regardless of their merit.

As the biotechnology and pharmaceutical industries expand and more patents are issued, the risk increases that our gene editing platform technology and product candidates may give rise to claims of infringement of the patent rights of others. Moreover, it is not always clear to industry participants, including us, which patents cover various types of therapies, products or their methods of use or manufacture. There may also be third-party patents of which we are currently unaware with claims to technologies, methods of manufacture or methods for treatment related to the use or manufacture of our product candidates. Because patent applications can take many years to issue, there may be currently pending patent applications that may later result in issued patents that our product candidates may infringe. In addition, third parties may obtain patents in the future and claim that use of our technologies infringes upon these patents.

Numerous third-party U.S. and foreign issued patents and pending patent applications exist in the fields in which we are developing product candidates. Our product candidates make use of CRISPR-based technology, which is a field that is highly active for patent filings. As of June 2019, it was reported that approximately 2072 patent families worldwide related to CRISPR gene editing inventions and uses as the description and/or claims of

these patent families specifically focus on a CRISPR-type system. The extensive patent filings related to CRISPR make it difficult for us to assess the full extent of relevant patents and pending applications that may cover our gene editing platform technology and product candidates and their use or manufacture. There may be third-party patents or patent applications with claims to materials, formulations, methods of manufacture or methods for treatment related to the use or manufacture of our gene editing platform technology and product candidates. For example, we are aware of a patent portfolio that is co-owned by the University of California, University of Vienna and Emmanuelle Charpentier, or the University of California Portfolio, which contains multiple patents and pending applications directed to gene editing. We are also aware of patents and patent applications directed to gene editing owned or co-owned by the Broad Institute, MIT and Harvard University, Toolgen, and Sigma Aldrich. Our ability to commercialize our product candidates may be adversely affected if we do not obtain a license to these patents. We may not be able to obtain any required license on commercially reasonable terms or at all. Even if we were able to obtain a license, it could be nonexclusive, thereby giving our competitors and other third parties access to the same technologies licensed to us, and it could require us to make substantial licensing and royalty payments. If we are unable to obtain a necessary license to a third-party patent on commercially reasonable terms, we may be unable to commercialize our gene editing platform technology or product candidates or such commercialization efforts may be significantly delayed, which could in turn significantly harm our business.

Our ability to commercialize our product candidates in the United States and abroad may be adversely affected if we cannot obtain a license on commercially reasonable terms to relevant third-party patents that cover our product candidates or gene editing platform technology. Even if we believe third-party intellectual property claims are without merit, there is no assurance that a court would find in our favor on questions of infringement, validity, enforceability, or priority. A court of competent jurisdiction could hold that these third-party patents are valid, enforceable, and infringed, which could materially and adversely affect our ability to commercialize our product candidates and any other product candidates or technologies covered by the asserted third-party patents. In order to successfully challenge the validity of any such U.S. patent in federal court, we would need to overcome a presumption of validity. As this burden is a high one requiring us to present clear and convincing evidence as to the invalidity of any such U.S. patent claim, there is no assurance that a court of competent jurisdiction would invalidate the claims of any such U.S. patent. If we are found to infringe a third-party's intellectual property rights, and we are unsuccessful in demonstrating that such patents are invalid or unenforceable, we could be required to obtain a license from such third-party to continue developing, manufacturing, and marketing our product candidates and our technology. However, we may not be able to obtain any required license on commercially reasonable terms or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors and other third parties access to the same technologies licensed to us, and it could require us to make substantial licensing and royalty payments. If we are unable to obtain a necessary license to a third-party patent on commercially reasonable terms, we may be unable to commercialize our gene editing platform technology or product candidates or such commercialization efforts may be significantly delayed, which could in turn significantly harm our business. We also could be forced, including by court order, to cease developing, manufacturing, and commercializing the infringing technology or product candidates. In addition, we could be found liable for significant monetary damages, including treble damages and attorneys' fees, if we are found to have willfully infringed a patent or other intellectual property right. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar material adverse effect on our business, financial condition, results of operations, and prospects.

Defense of third-party claims of infringement of misappropriation, or violation of intellectual property rights involves substantial litigation expense and would be a substantial diversion of management and employee time and resources from our business. Some third parties may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources. In addition, any uncertainties resulting from the initiation and continuation of any litigation could have a material adverse effect on our ability to raise the funds necessary to continue our operations or could otherwise have a material adverse effect on our business, financial condition, results of operations and prospects. There could also be public announcements of the results of hearings, motions, or other interim proceedings or developments, and if securities analysts

or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Any of the foregoing events could have a material adverse effect on our business, financial condition, results of operations and prospects.

Third parties may assert that our employees or consultants have wrongfully used or disclosed confidential information or misappropriated trade secrets.

As is common in the biotechnology and biopharmaceutical industries, we employ individuals who were previously employed at universities or other biotechnology or biopharmaceutical companies, including our competitors or potential competitors. Although no claims against us are currently pending, and although we try to ensure that our employees and consultants do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that we or our employees, consultants or independent contractors have inadvertently or otherwise used or disclosed intellectual property, including trade secrets or other proprietary information, of a former employer or other third parties. Litigation may be necessary to defend against these claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. Even if we are successful in defending against such claims, litigation or other legal proceedings relating to intellectual property claims may cause us to incur significant expenses, and could distract our technical and management personnel from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments, and, if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. This type of litigation or proceeding could substantially increase our operating losses and reduce our resources available for development activities. We may not have sufficient financial or other resources to adequately conduct such litigation or proceedings. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their substantially greater financial resources. Uncertainties resulting from the initiation and continuation of patent litigation or other intellectual property related proceedings could adversely affect our ability to compete in the marketplace.

We may become involved in lawsuits to protect or enforce our future patents or the patents of our licensor, which could be expensive, time consuming, and unsuccessful and could result in a finding that such patents are unenforceable or invalid.

Competitors may infringe our future patents or the patents of our licensor, or we may be required to defend against claims of infringement. In addition, our future patents or the patents of our licensor also are, and may in the future become, involved in inventorship, priority, validity or enforceability disputes. Countering or defending against such claims can be expensive and time consuming. In an infringement proceeding, a court may decide that a patent owned or in-licensed by us is invalid or unenforceable, or may refuse to stop the other party from using the technology at issue on the grounds that our owned and in-licensed patents do not cover the technology in question. An adverse result in any litigation proceeding could put one or more of our owned or in-licensed patents at risk of being invalidated or interpreted narrowly.

In patent litigation in the United States, defendant counterclaims alleging invalidity and/or unenforceability are commonplace, and there are numerous grounds upon which a third party can assert invalidity or unenforceability of a patent. Third parties may also raise similar claims before administrative bodies in the United States or abroad, even outside the context of litigation. These types of mechanisms include re-examination, post-grant review, *inter partes* review, interference proceedings, derivation proceedings, and equivalent proceedings in foreign jurisdictions (e.g., opposition proceedings). These types of proceedings could result in revocation or amendment to our patents such that they no longer cover our product candidates. The outcome for any particular patent following legal assertions of invalidity and unenforceability is unpredictable. With respect to the validity question, for example, we cannot be certain that there is no invalidating prior art, of which we, our licensor, our patent counsel and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, or if we are otherwise unable

to adequately protect our rights, we would lose at least part, and perhaps all, of the patent protection on our technology and/or product candidates. Defense of these types of claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of employee resources from our business.

Conversely, we may choose to challenge the patentability of claims in a third party's U.S. patent by requesting that the USPTO review the patent claims in re-examination, post-grant review, *inter partes* review, interference proceedings, derivation proceedings, and equivalent proceedings in foreign jurisdictions (e.g., opposition proceedings). We are currently challenging, and in the future may choose to challenge, third-party patents in patent opposition proceedings in the EPO or another foreign patent office. Even if successful, the costs of these opposition proceedings could be substantial, and may consume our time or other resources. If we fail to obtain a favorable result at the USPTO, EPO or other patent office then we may be exposed to litigation by a third party alleging that the patent may be infringed by our product candidates, gene editing platform technology or other or proprietary technologies.

Even if resolved in our favor, litigation or other legal proceedings relating to intellectual property claims may cause us to incur significant expenses and could distract our personnel from their normal responsibilities. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, there could be public announcements of the results of hearings, motions, or other interim proceedings or developments, and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Such litigation or proceedings could substantially increase our operating losses and reduce the resources available for development activities or any future sales, marketing, or distribution activities. We may not have sufficient financial or other resources to conduct such litigation or proceedings adequately. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources and more mature and developed intellectual property portfolios. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace.

Obtaining and maintaining our patent protection depends on compliance with various procedural, document submission, fee payment, and other requirements imposed by government patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.

Periodic maintenance fees, renewal fees, annuity fees, and various other government fees on patents and applications are due to be paid to the USPTO and foreign patent agencies outside of the United States over the lifetime of our owned or licensed patents and applications. In certain circumstances, we rely on our licensor to pay these fees due to U.S. and non-U.S. patent agencies. The USPTO and foreign patent agencies require compliance with several procedural, documentary, fee payment, and other similar provisions during the patent application process. We are also dependent on our licensor to take the necessary action to comply with these requirements with respect to our licensed intellectual property. While an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations, however, in which non-compliance can result a partial or complete loss of patent rights in the relevant jurisdiction. Were a noncompliance event to occur, our competitors might be able to enter the market with similar or identical products or technology, which could have a material adverse effect on our business, financial condition, results of operations, and prospects.

Changes in patent law in the United States and in non-U.S. jurisdictions could diminish the value of patents in general, thereby impairing our ability to protect our gene editing platform technology and product candidates.

As is the case with other biotech and pharmaceutical companies, our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the biopharmaceutical industry involve both technological and legal complexity, and is therefore costly, time-consuming and inherently uncertain.

Changes in either the patent laws or interpretation of the patent laws could increase the uncertainties and costs surrounding the prosecution of patent applications and the enforcement or defense of our issued patents. For example, in March 2013, under the Leahy-Smith America Invents Act (America Invents Act), the United States transitioned from a "first to invent" to a "first-to-file" patent system. Under a "first-to-file" system, assuming that other requirements for patentability are met, the first inventor to file a patent application generally will be entitled to a patent on an invention regardless of whether another inventor had made the invention earlier. A third party that files a patent application in the USPTO after March 2013, but before us could therefore be awarded a patent covering an invention of ours even if we had made the invention before it was made by such third party. This will require us to be cognizant going forward of the time from invention to filing of a patent application. Since patent applications in the United States and most other countries are confidential for a period of time after filing or until issuance, we cannot be certain that we or our licensor were the first to either file any patent application related to our technology or product candidates or invent any of the inventions claimed in our or our licensor's patents or patent applications. The America Invents Act also includes a number of other significant changes to U.S. patent law, including provisions that affect the way patent applications will be prosecuted, allowing third party submission of prior art and establish a new post-grant review system including post-grant review, *inter partes* review, and derivation proceedings. Because of a lower evidentiary standard in USPTO proceedings compared to the evidentiary standard in United States federal courts necessary to invalidate a patent claim, a third party could potentially provide evidence in a USPTO proceeding sufficient for the USPTO to hold a claim invalid even though the same evidence would be insufficient to invalidate the claim if first presented in a district court action. Accordingly, a third party may attempt to use the USPTO procedures to invalidate our patent claims that would not have been invalidated if first challenged by the third party as a defendant in a district court action. The effects of these changes are currently unclear as the USPTO continues to promulgate new regulations and procedures in connection with the America Invents Act and many of the substantive changes to patent law, including the "first-to-file" provisions, only became effective in March 2013. In addition, the courts have yet to address many of these provisions and the applicability of the act and new regulations on the specific patents discussed in this filing have not been determined and would need to be reviewed. However, the America Invents Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents.

In addition, recent U.S. Supreme Court rulings have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the validity and enforceability of patents, once obtained. Depending on future actions by the U.S. Congress, the federal courts, and the USPTO, the laws and regulations governing patents could change in unpredictable ways that could weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future. For example, in the case, *Assoc. for Molecular Pathology v. Myriad Genetics, Inc.,* the U.S. Supreme Court held that certain claims to DNA molecules are not patentable. We cannot predict how this and future decisions by the courts, the U.S. Congress or the USPTO may impact the value of our patents. Any similar adverse changes in the patent laws of other jurisdictions could also have a material adverse effect on our business, financial condition, results of operations and prospects.

Patent terms may be inadequate to protect our competitive position on our product candidates for an adequate amount of time.

Patents have a limited lifespan. The terms of individual patents depend upon the legal term for patents in the countries in which they are granted. In most countries, including the United States, if all maintenance fees are timely paid, the natural expiration of a patent is generally 20 years from its earliest non-provisional filing date in the applicable country. However, the actual protection afforded by a patent varies from country to country, and depends upon many factors, including the type of patent, the scope of its coverage, the availability of regulatory-related extensions, the availability of legal remedies in a particular country and the validity and enforceability of the patent. Various extensions including PTE and PTA, may be available, but the life of a patent, and the protection it affords, is limited. For more information regarding PTA and PTE, please see the section titled

"Business—Intellectual Property". Even if patents covering our product candidates are obtained, once the patent life has expired, we may be open to competition from competitive products, including generics or biosimilars. Given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting our product candidates might expire before or shortly after we or our partners commercialize those candidates. As a result, our owned and licensed patent portfolio may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours.

If we do not obtain PTE and data exclusivity for our product candidates, our business may be materially harmed.

Depending upon the timing, duration and specifics of any FDA marketing approval of our product candidates, one or more of our U.S. patents may be eligible for limited PTE under the Drug Price Competition and Patent Term Restoration Act of 1984 (Hatch-Waxman Amendments). The Hatch-Waxman Amendments PTE term of up to five years as compensation for patent term lost during the FDA regulatory review process. A PTE cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval, only one patent per product may be extended and only those claims covering the approved drug, a method for using it, or a method for manufacturing it may be extended. However, even if we were to seek a PTE, it may not be granted because of, for example, the failure to exercise due diligence during the testing phase or regulatory review process, the failure to apply within applicable deadlines, the failure to apply prior to expiration of relevant patents, or any other failure to satisfy applicable requirements. Moreover, the applicable time period or the scope of patent protection afforded could be less than we request. If we are unable to obtain PTE or term of any such extension is less than we request, our competitors may obtain approval of competing products following our patent expiration, and our business, financial condition, results of operations, and prospects could be materially harmed.

If we are unable to protect the confidentiality of our trade secrets, our business and competitive position would be harmed.

In addition to seeking patents for our technology and product candidates, we also rely onknow-how and trade secret protection, as well as confidentiality agreements, non-disclosure agreements and invention assignment agreements with our employees, consultants and third-parties, to protect our confidential and proprietary information, especially where we do not believe patent protection is appropriate or obtainable.

It is our policy to require our employees, corporate collaborators, outside scientific collaborators, CROs, contract manufacturers, consultants, advisors, and other third parties to execute confidentiality agreements upon the commencement of employment or consulting relationships with us. These agreements provide that all confidential information concerning our business or financial affairs developed by or made known to the individual or entity during the course of the party's relationship with us is to be kept confidential and not disclosed to third parties, except in certain specified circumstances. In the case of employees, the agreements provide that all inventions conceived by the individual, and that are related to our current or planned business or research and development or made during normal working hours, on our premises or using our equipment or proprietary information, are our exclusive property. In the case of consultants and other third parties, the agreements provide that all inventions conceived in connection with the services provided are our exclusive property. However, we cannot guarantee that we have entered into such agreements with each party that may have or have had access to our trade secrets or proprietary technology and processes. Additionally, the assignment of intellectual property rights may not be self-executing, or the assignment agreements may be breached, and we may be forced to bring claims against third parties, or defend claims that they may bring against us, to determine the ownership of what we regard as our intellectual property. Any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive, and time-consuming, and the outcome is unpredictable.

In addition to contractual measures, we try to protect the confidential nature of our proprietary information through other appropriate precautions, such as physical and technological security measures. However, trade secrets and know-how can be difficult to protect. These measures may not, for example, in the case of misappropriation of a trade secret by an employee or third party with authorized access, provide adequate protection for our proprietary information. Our security measures may not prevent an employee or consultant from misappropriating our trade secrets and providing them to a competitor, and any recourse we might take against this type of misconduct may not provide an adequate remedy to protect our interests fully. In addition, trade secrets may be independently developed by others in a manner that could prevent us from receiving legal recourse. If any of our confidential or proprietary information, such as our trade secrets, were to be disclosed or misappropriated, or if any of that information was independently developed by a competitor, our competitive position could be harmed.

In addition, some courts inside and outside the United States are sometimes less willing or unwilling to protect trade secrets. If we choose to go to court to stop a third party from using any of our trade secrets, we may incur substantial costs. Even if we are successful, these types of lawsuits may consume our time and other resources. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

If our trademarks and trade names are not adequately protected, then we may not be able to build name recognition in our markets of interest and our business may be adversely affected.

Our registered or unregistered trademarks or trade names may be challenged, infringed, circumvented or declared generic or determined to be infringing on other marks. We may not be able to protect our rights to these trademarks and trade names, which we need to build name recognition among potential partners or customers in our markets of interest. At times, competitors or other third parties may adopt trade names or trademarks similar to ours, thereby impeding our ability to build brand identity and possibly leading to market confusion. In addition, there could be potential trade name or trademark infringement claims brought by owners of other registered trademarks or trademarks that incorporate variations of our registered or unregistered trademarks or trade names. Over the long term, if we are unable to establish name recognition based on our trademarks and trade names, then we may not be able to compete effectively and our business may be adversely affected. Our efforts to enforce or protect our proprietary rights related to trademarks, trade secrets, domain names, copyrights or other intellectual property may be ineffective and could result in substantial costs and diversion of resources and could adversely affect our business, financial condition, results of operations and growth prospects.

Intellectual property rights do not necessarily address all potential threats.

The degree of future protection afforded by our intellectual property rights is uncertain because intellectual property rights have limitations and may not adequately protect our business or permit us to maintain our competitive advantage. For example:

- our product candidates will eventually become commercially available in generic or biosimilar product forms;
- others may be able to make gene therapy products that are similar to our product candidates or utilize similar gene editing technology but that are not covered by the claims of the patents that we license or may own in the future;
- we, our licensor, or our current or future collaborators, might not have been the first to make the inventions covered by the pending patent application that we license or may own in the future;
- we, our licensor, or our current or future collaborators, might not have been the first to file patent applications covering certain of our or their inventions;

- we, our licensor, or our current or future collaborators, may fail to meet our obligations to the U.S. government regarding any in-licensed patents and patent applications funded by U.S. government grants, leading to the loss or unenforceability of patent rights;
- others may independently develop similar or alternative technologies or duplicate any of our technologies without infringing our owned or licensed intellectual property rights;
- it is possible that our pending, owned or licensed patent applications or those that we may own in the future will not lead to issued patents;
- it is possible that there are prior public disclosures that could invalidate our owned or in-licensed patent rights, or parts of our owned or in-licensed patent rights;
- it is possible that there are unpublished patent applications or patent applications maintained in secrecy that may later issue with claims covering our product candidates or technology similar to ours;
- it is possible that our owned or in-licensed patent applications omit individual(s) that should be listed as inventor(s) or include individual(s) that should not be listed as inventor(s), which may cause these patents or patents issuing from these patent applications to be held invalid or unenforceable;
- issued patents that we obtain in the future may be held invalid, unenforceable, or narrowed in scope, including as a result of legal challenges by our competitors;
- the claims of our owned or in-licensed issued patent applications, if and when issued, may not cover our product candidates;
- the laws of foreign countries may not protect our proprietary rights or the proprietary rights of license partners or current or future collaborators to the same extent as the laws of the United States;
- the inventors of our owned or in-licensed patent applications may become involved with competitors, develop products or processes that design around our patents, or become hostile to us or the patents or patent applications on which they are named as inventors;
- our competitors might conduct research and development activities in countries where we do not have patent rights and then use the information learned from such activities to develop competitive products for sale in our major commercial markets;
- we have engaged in scientific collaborations in the past and will continue to do so in the future and our collaborators may develop adjacent or competing products that are outside the scope of our patents;
- we may not develop additional proprietary technologies that are patentable;
- any product candidates we develop may be covered by third-parties' patents or other exclusive rights;
- the patents of others may harm our business; or
- we may choose not to file a patent in order to maintain certain trade secrets or know-how, and a third party may subsequently file a patent covering such intellectual property.

Should any of these events occur, they could have a material adverse effect on our business, financial condition, results of operations, and prospects.

Risks Related to Regulatory and Other Legal Compliance Matters

Because gene editing is novel and the regulatory landscape that will govern our product candidates is uncertain and may change, we cannot predict the time and cost of obtaining regulatory approval, if we receive it at all, for our product candidates.

The regulatory requirements that will govern any novel gene editing product candidates we develop may continue to evolve. Within the broader genetic medicine field, a limited number of gene therapy products have

received marketing authorization from the FDA and the EMA to date. Even with respect to more established products that fit into the categories of gene therapies or cell therapies, the regulatory landscape is still developing. Regulatory requirements governing gene therapy products and cell therapy products have changed frequently and may continue to change in the future. Moreover, there is substantial, and sometimes uncoordinated, overlap in those responsible for regulation of existing gene therapy products and cell therapy products. For example, in the United States, the FDA has established the Office of Tissues and Advanced Therapies within its Center for Biologics Evaluation and Research (CBER), to consolidate the review of gene therapy and related products, and the Cellular, Tissue and Gene Therapies Advisory Committee to advise CBER on its review. Gene therapy clinical trials are also subject to review and oversight by an institutional biosafety committee (IBC), a local institutional committee that reviews and oversees basic and clinical research conducted at the institution participating in the clinical trial. Although the FDA decides whether individual gene therapy protocols may proceed, the review process and determinations of other reviewing bodies, such as an IBC, can impede or delay the initiation of a clinical trial, even if the FDA has reviewed the trial and approved its initiation.

The same applies in the EU. The EMA's Committee for Advanced Therapies (CAT), is responsible for assessing the quality, safety, and efficacy of advanced-therapy medicinal products. The role of the CAT is to prepare a draft opinion on an application for marketing authorization for a gene therapy medicinal candidate that is submitted to the Committee for Medicinal Products for Human Use (CHMP), before CHMP adopts its final opinion. In the European Union, the development and evaluation of a gene therapy medicinal products must be considered in the context of the relevant European Union guidelines. The EMA may issue new guidelines concerning the development and marketing authorization for gene therapy medicinal products and require that we comply with these new guidelines. As a result, the procedures and standards applied to gene therapy products and cell therapy products may be applied to our product candidates, but that remains uncertain at this point.

Adverse developments in post-marketing experience or in clinical trials conducted by others of gene therapy products, cell therapy products, or products developed through the application of gene editing technology may cause the FDA, the EMA, and other regulatory bodies to revise the requirements for development or approval of our product candidates or limit the use of products utilizing gene editing technologies, either of which could materially harm our business. In addition, the clinical trial requirements of the FDA, the EMA, and other regulatory authorities and the criteria these regulators use to determine the safety and efficacy of a product candidate vary substantially according to the type, complexity, novelty, and intended use and market of the potential products. The regulatory approval process for novel product candidates such as our product candidates can be more expensive and take longer than for other, better known, or more extensively studied pharmaceutical or other product candidates. Regulatory agencies administering existing or future regulations or legislation may not allow production and marketing of products utilizing gene editing technology in a timely manner or under technically or commercially feasible conditions. In addition, regulatory action or private litigation could result in expenses, delays, or other impediments to our research programs or the commercialization of resulting products.

The regulatory review committees and advisory groups described above and the new guidelines they promulgate may lengthen the regulatory review process, require us to perform additional studies or trials, increase our development costs, lead to changes in regulatory positions and interpretations, delay or prevent approval and commercialization of these treatment candidates, or lead to significant post-approval limitations or restrictions. As we advance our research programs and develop future product candidates, we will be required to consult with these regulatory and advisory groups and to comply with applicable guidelines. If we fail to do so, we may be required to delay or discontinue development of any product candidates we identify and develop.

Because we are developing product candidates in the field of gene editing, in which there is limited clinical experience, there is increased risk that the FDA, the EMA, or other regulatory authorities may not consider the endpoints of our clinical trials to provide clinically meaningful results and that these results may be difficult to analyze.

During the regulatory review process, we will need to identify success criteria and endpoints such that the FDA, the EMA, or other regulatory authorities will be able to determine the clinical efficacy and safety profile of

our product candidates. As we are initially seeking to identify and develop product candidates to treat diseases in which there is little clinical experience using new technologies, there is heightened risk that the FDA, the EMA, or other regulatory authorities may not consider the clinical trial endpoints that we propose to provide clinically meaningful results (reflecting a tangible benefit to patients). In addition, the resulting clinical data and results may be difficult to analyze. Even if the FDA does find our success criteria to be sufficiently validated and clinically meaningful, we may not achieve the pre-specified endpoints to a degree of statistical significance. This may be a particularly significant risk for many of the genetically defined diseases for which we have developed or plan to develop product candidates because many of these diseases, including SCD, XSCID and Gaucher disease, have small patient populations, and designing and executing a rigorous clinical trial with appropriate statistical power is more difficult than with diseases that have larger patient populations. Further, even if we do achieve the pre-specified criteria, we may produce results that are unpredictable or inconsistent with the results of the non-primary endpoints or other relevant data. The FDA also weighs the benefits of a product against its risks, and the FDA may view the efficacy results in the context of safety as not being supportive of regulatory approval. Other regulatory authorities in the European Union and other countries may make similar comments with respect to these endpoints and data. Our product candidates will be based on a novel technology that makes it difficult to predict the time and cost of development and of subsequently obtaining regulatory approval. No gene editing therapeutic product has been approved in the United States or in Europe.

Clinical development involves a lengthy and expensive process, with an uncertain outcome. If clinical trials of any of our current or future product candidates fail to demonstrate safety and efficacy to the satisfaction of regulatory authorities or do not otherwise produce positive results, we may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of such product candidates.

We have not initiated any clinical trials to date for our IND application for GPH101 in sickle cell disease, and all of our other programs are in discovery or preclinical development. Before obtaining marketing approval from regulatory authorities for the sale of our product candidates, we must complete preclinical development and then conduct extensive clinical trials to demonstrate the safety and efficacy of the product in humans. It is impossible to predict when or if any of our programs will prove effective and safe in humans or will receive regulatory approval. Preclinical and clinical testing is expensive, difficult to design and implement, can take many years to complete and is uncertain as to outcome. A failure of one or more clinical trials can occur at any stage of clinical trials. Interim results of a clinical trial do not necessarily predict final results. We do not know whether any of our clinical trials will begin or be completed on schedule, if at all.

Moreover, preclinical and clinical data are often susceptible to varying interpretations and analyses. Many companies that have believed their product candidates performed satisfactorily in preclinical studies and clinical trials have nonetheless failed to obtain marketing approval of their product candidates.

We may experience numerous unforeseen events during, or as a result of, clinical trials that we conduct, which could delay or prevent our ability to receive marketing approval or commercialize our product candidates, including:

- challenges in obtaining regulatory clearance or approval to commence clinical trials in the United States from the FDA through an IND, or from other comparable regulatory agencies outside the United States through corresponding applications because these agencies have very limited or no experience with the clinical development of gene editing therapeutics, which may require additional significant testing or data compared to more traditional therapies;
- successfully developing processes for the safe administration of these products, including long-termfollow-up for patients who receive treatment with any of our product candidates;
- delays in reaching a consensus with regulators on trial design and product release specifications;
- delays in reaching or failing to reach agreement on acceptable clinical trial contracts or clinical trial protocols with prospective CROs, and clinical trial sites;

- clinical trials of our product candidates may fail to show safety or efficacy, or could produce negative or inconclusive results, and we may decide, or regulators may require us, to conduct additional preclinical studies or clinical trials or abandon product development or research programs;
- clinical trials due to ethical considerations which may render it inappropriate to conduct a trial with a control arm that can be effectively compared to a treatment arm;
- the number of patients required for clinical trials of our product candidates may be larger than we anticipate; enrollment of suitable participants in these clinical trials, which may be particularly challenging for some of the rare genetically defined diseases we are targeting in our most advanced programs, may be delayed or slower than we anticipate; or patients may drop out of these clinical trials at a higher rate than we anticipate;
- we will need to educate medical personnel, including clinical investigators, and patients regarding the potential benefits and side effect profile of each of our product candidates;
- regulatory agencies may require us to perform more extensive or lengthier clinical testing or generate more data, such as long-term toxicology studies, compared to existing therapeutic modalities, or may impose other requirements before permitting us to initiate or rely on a clinical trial;
- our third-party contractors may fail to comply with regulatory requirements or meet their contractual obligations to us in a timely manner, or at all, or may deviate from the clinical trial protocol or drop out of the trial, which may require that we add new clinical trial sites or investigators;
- regulators, IRBs, or independent ethics committees may require that we or our investigators suspend or terminate clinical research or clinical trials of our product candidates for various reasons, including noncompliance with regulatory requirements, a finding of undesirable side effects or other unexpected characteristics, or that the participants are being exposed to unacceptable health risks or after an inspection of our clinical trial operations or trial sites;
- the cost of clinical trials of our product candidates may be greater than we anticipate;
- the supply or quality of our product candidates or other materials necessary to conduct clinical trials of our product candidates may be insufficient or inadequate, including as a result of delays in the testing, validation, manufacturing, and delivery of our product candidates to the clinical sites by us or by third parties with whom we have contracted to perform certain of those functions;
- we may face challenges in sourcing clinical and, if approved, commercial supplies for the materials used to manufacture and process our product candidates, which may include importing or exporting materials between different jurisdictions;
- we may be unable to develop a manufacturing process and distribution network with a cost of goods that allows for an attractive return on investment; and
- we may face challenges in establishing sales and marketing capabilities in anticipation of, and after obtaining, any regulatory approval to gain market authorization.

In addition, disruptions caused by the COVID-19 pandemic may increase the likelihood that we encounter such difficulties or delays in initiating, enrolling, conducting or completing our planned clinical trials. We could also encounter delays if a clinical trial is suspended or terminated by us, the IRBs of the institutions in which such trials are being conducted or the relevant ethics committee, the Data Safety Monitoring Board (DSMB), for such trial, or the FDA or other relevant regulatory authorities. We or such authorities may impose such a suspension or termination due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols, inspection of the clinical trial operations or trial site by the FDA or other regulatory authorities, resulting in the imposition of a clinical hold, manufacturing or quality control issues, unforeseen safety issues or adverse side effects, failure to demonstrate a benefit from using a product or treatment, failure to establish or achieve clinically meaningful trial endpoints, changes in

governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial. Many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may also ultimately lead to the denial of regulatory approval of our product candidates. Further, the FDA or other regulatory authorities may disagree with our clinical trial design and our interpretation of data from clinical trials or may change the requirements for approval even after they have reviewed and commented on the design for our clinical trials.

If we are required to conduct additional clinical trials or other testing of our product candidates beyond those that we currently contemplate, if we are unable to successfully complete clinical trials or other testing of our product candidates, or if the results of these trials or tests are not positive or are only modestly positive or if there are safety concerns, we may:

- be delayed in obtaining marketing approval for our such product candidates or not obtain marketing approval at all;
- obtain approval for indications or patient populations that are not as broad as intended or desired;
- obtain approval with labeling that includes significant use or distribution restrictions or safety warnings, including boxed warnings;
- be subject to changes in the way the product is administered;
- be required to perform additional clinical trials to support approval or be subject to additional post-marketing testing requirements;
- have regulatory authorities withdraw, or suspend, their approval of the product or impose restrictions on its distribution in the form of a REMS or through modification to an existing REMS;
- be sued; or
- experience damage to our reputation.

Product development costs will also increase if we or our collaborators experience delays in clinical trials or other testing or in obtaining marketing approvals. We do not know whether any clinical trials will begin as planned, will need to be restructured, or will be completed on schedule, or at all. Significant clinical trial delays also could shorten any periods during which we may have the exclusive right to commercialize our product candidates, could allow our competitors to bring products to market before we do, and could impair our ability to successfully commercialize our product candidates, any of which may harm our business, financial condition, results of operations, and prospects.

Failure to obtain marketing approval in foreign jurisdictions would prevent our product candidates from being marketed in such jurisdictions, which, in turn, would materially impair our ability to generate revenue.

In order to market and sell our product candidates in the European Union and other foreign jurisdictions, we or our third-party collaborators must obtain separate marketing approvals (a single one for the European Union) and comply with numerous and varying regulatory requirements. The approval procedure varies among countries and can involve additional testing. The time required to obtain approval may differ substantially from that required to obtain FDA approval. The regulatory approval process outside the United States generally includes all of the risks associated with obtaining FDA approval. In addition, in many countries outside the United States, it is required that the product candidate be approved for reimbursement before the product candidate can be approved for sale in that country. We or these third parties may not obtain approvals from regulatory authorities outside the United States on a timely basis, if at all. Approval by the FDA does not ensure approval by regulatory authorities in other countries or jurisdictions, and approval by one regulatory authority outside the United States does not ensure approval by regulatory authorities in other countries or jurisdictions or by the FDA. We may not be able to file for marketing approvals and may not receive necessary approvals to commercialize our product candidates in any jurisdiction, which would materially impair our ability to generate revenue.

On June 23, 2016, the UK electorate voted in favor of leaving the EU, commonly referred to as "Brexit." Thereafter, on March 29, 2017, the country formally notified the European Union of its intention to withdraw pursuant to Article 50 of the Lisbon Treaty and the withdrawal of the United Kingdom from the EU formally took effect on January 31, 2020 under the terms of the Withdrawal Agreement. Following the United Kingdom's departure from the EU, there was a "transition period" during which the United Kingdom was essentially treated as a Member State of the EU and the regulatory regime remained the same across the United Kingdom and the EU, while the future relationship between the United Kingdom and the EU was formally negotiated. This transition period ended on December 31, 2020. The United Kingdom and the EU have signed a EU-UK Trade and Cooperation Agreement, which became provisionally applicable on January 1, 2021 and will become formally applicable once ratified by both the United Kingdom and the EU. This agreement provides details on how some aspects of the UK and EU's relationship will operate going forwards however there are still many uncertainties.

Since the regulatory framework for pharmaceutical products in the United Kingdom relating to quality, safety and efficacy of pharmaceutical products, clinical trials, marketing authorization, commercial sales and distribution of pharmaceutical products is derived from EU directives and regulations, Brexit will materially impact the future regulatory regime which applies to products and the approval of product candidates in the United Kingdom, now that the United Kingdom legislation may diverge from EU legislation. For example, now the transition period has expired, Great Britain will no longer be covered by the centralized procedure for obtaining EEA-wide marketing authorization from the EMA and a separate process for authorization of drug products will be required in Great Britain resulting in an authorization covering the United Kingdom or Great Britain only. For a period of two years from January 1, 2021, the MHRA may rely on a decision taken by the European Commission on the approval of a new marketing authorization in the centralized procedure, in order to more quickly grant a UK marketing authorization. A separate application will, however, still be required. Longer term, the United Kingdom is likely to develop its own legislation that diverges from that in the EU.

Even if we, or any collaborators we may have, obtain marketing approvals for our product candidates, the terms of approvals and ongoing regulation of our product candidates could require the substantial expenditure of resources and may limit how we, or they, manufacture and market our product candidates, which could materially impair our ability to generate revenue.

Any product candidate for which we obtain marketing approval, along with the manufacturing processes, post-approval clinical data, labeling, advertising, and promotional activities for such product, will be subject to continual requirements of and review by the FDA, EMA and other regulatory authorities. These requirements include submissions of safety and other post-marketing information and reports, facility registration and drug listing requirements, cGMP requirements relating to quality control, quality assurance and corresponding maintenance of records and documents, and requirements regarding the distribution of samples to physicians and recordkeeping. Even if marketing approval of a product candidate is granted, the approval may be subject to limitations on the indicated uses for which the products may be marketed or to the conditions of approval, or contain requirements for costly post-marketing testing and surveillance to monitor the safety or efficacy of the products.

Accordingly, assuming we, or any collaborators we may have, receive marketing approval for one or more product candidates we develop, we, and such collaborators, and our and their contract manufacturers will continue to expend time, money, and effort in all areas of regulatory compliance, including manufacturing, production, product surveillance, and quality control. If we and such collaborators are not able to comply with post-approval regulatory requirements, we and such collaborators could have the marketing approvals for our products withdrawn by regulatory authorities and our, or such collaborators', ability to market any future products could be limited, which could adversely affect our ability to achieve or sustain profitability. Further, the cost of compliance with post-approval regulations may have a negative effect on our business, operating results, financial condition, and prospects.

Any product candidate for which we obtain marketing approval could be subject to restrictions or withdrawal from the market, and we may be subject to substantial penalties if we fail to comply with regulatory requirements or if we experience unanticipated problems with our product candidates, when and if any of them are approved.

The FDA, the EMA, and other regulatory agencies closely regulate the post-approval marketing and promotion of product candidates to ensure that they are marketed only for the approved indications and in accordance with the provisions of the approved labeling. The FDA, the EMA and other regulatory agencies impose stringent restrictions on manufacturers' communications regarding off-label use, and if we market our product candidates for off-label use, we may be subject to enforcement action foroff-label marketing by the FDA and other federal and state enforcement agencies, including the Department of Justice. Violation of the Federal Food, Drug, and Cosmetic Act (FDCA), and other statutes, including the False Claims Act (FCA), and equivalent legislation in other countries relating to the promotion and advertising of prescription products may also lead to investigations or allegations of violations of federal and state and other countries' health care fraud and abuse laws and state consumer protection laws. Even if it is later determined we were not in violation of these laws, we may be faced with negative publicity, incur significant expenses defending our actions and have to divert significant management resources from other matters.

In addition, later discovery of previously unknown problems with our products, manufacturers, or manufacturing processes, or failure to comply with regulatory requirements, may yield various negative consequences, including:

- restrictions on such products, manufacturers, or manufacturing processes;
- restrictions on the labeling or marketing of a therapy;
- restrictions on the distribution or use of a therapy;
- requirements to conduct post-marketing clinical trials;
- receipt of warning or untitled letters;
- withdrawal of the products from the market;
- refusal to approve pending applications or supplements to approved applications that we submit;
- recall of products;
- fines, restitution, or disgorgement of profits or revenue;
- restrictions on future procurements with governmental authorities;
- suspension or withdrawal of marketing approvals;
- suspension of any ongoing clinical trials;
- refusal to permit the import or export of our products;
- product seizure; and
- injunctions or the imposition of civil or criminal penalties.

Any government investigation of alleged violations of law could require us to expend significant time and resources in response and could generate negative publicity. The occurrence of any event or penalty described above may inhibit our ability to commercialize our product candidates and adversely affect our business, financial condition, results of operations, and prospects.

Our relationships with healthcare providers, physicians, and third-party payors will be subject to applicable anti-kickback, fraud and abuse, anti-bribery and other healthcare laws and regulations, which could expose us to criminal sanctions, civil penalties, contractual damages, reputational harm, and diminished profits and future earnings.

Healthcare providers, including physicians, and third-party payors play a primary role in the recommendation and prescription of any product candidates that we may develop for which we obtain marketing approval. Our current and future arrangements with third-party payors, healthcare providers and customers may expose us to broadly applicable fraud and abuse and other healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which we market, sell, and distribute our products for which we obtain marketing approval. Restrictions under applicable federal and state healthcare laws and regulations, including certain laws and regulations applicable only if we have marketed products, include the following:

- the civil FCA, prohibits knowingly presenting or causing the presentation of a false, fictitious or fraudulent claim for payment to the U.S. government. Actions under the FCA may be brought by the Attorney General or as a qui tam action by a private individual in the name of the government. Violations of the FCA can result in very significant monetary penalties, for each false claim and treble the amount of the government's damages. Manufacturers can be held liable under the FCA even when they do not submit claims directly to government payors if they are deemed to "cause" the submission of false or fraudulent claims;
- the federal Anti-Kickback Statute prohibits, among other things, persons from soliciting, receiving or providing remuneration, directly or indirectly, to induce either the referral of an individual, for an item or service or the purchasing or ordering of a good or service, for which payment may be made under federal healthcare programs such as Medicare and Medicaid. The federal Anti-Kickback Statute has been interpreted to apply to arrangements between manufacturers on one hand and prescribers, purchasers, and formulary managers on the other. A person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation. A violation of the federal Anti-Kickback Statute can also form the basis for FCA liability;
- the federal Health Insurance Portability and Accountability Act of 1996 (HIPAA), which, in addition to privacy protections applicable to healthcare providers and other entities, prohibits executing a scheme to defraud any healthcare benefit program or making false statements relating to healthcare matters. Similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009 (HITECH), and its implementing regulations, including the final omnibus rule published on January 25, 2013, imposes, among other things, certain requirements relating to the privacy, security and transmission of individually identifiable health information. Among other things, HITECH makes HIPAA's privacy and security standards directly applicable to "business associates," defined as independent contractors or agents of covered entities that create, receive, maintain, transmit, or obtain, protected health information in connection with providing a service for or on behalf of a covered entity, and their covered subcontractors. HITECH also increased the civil and criminal penalties that may be imposed against covered entities, business associates and possibly other persons, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce the federal HIPAA laws and seek attorney's fees and costs associated with pursuing federal civil actions;
- the FDCA, which among other things, strictly regulates drug marketing, prohibits manufacturers from marketing such products foroff-label use and regulates the distribution of samples;
- federal laws that require pharmaceutical manufacturers to report certain calculated product prices to the government or provide certain discounts or rebates to government authorities or private entities, often as a condition of reimbursement under government healthcare programs;

- federal transparency laws, including the federal Physician Payment Sunshine Act created under the Patient Protection and Affordable Care Act as amended by the Health Care and Education Reconciliation Act of 2010 (collectively, the ACA), and its implementing regulations, which requires manufacturers of certain drugs, devices, medical supplies, and biologics, among others, to track and disclose payments under Medicare, Medicaid or the Children's Health Insurance Program (with certain exceptions) and other transfers of value they make to U.S. physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors) and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members. Effective January 1, 2022, these reporting obligations will extend to include transfers of value made to certain non-physician providers such as physician assistants and nurse practitioners. This information is subsequently made publicly available in a searchable format on a Centers for Medicare & Medicaid Services (CMS), website. Failure to disclose required information may result in civil monetary penalties for all payments, transfers of value or ownership or investment interests that are not timely, accurately and completely reported in an annual submission. Certain states also mandate implementation of compliance programs, impose restrictions on drug manufacturer marketing practices and/or require the tracking and reporting of gifts, compensation and other remuneration to physicians and/or other healthcare providers; and
- analogous state and foreign laws and regulations, such as state anti-kickback, anti-bribery and false claims laws, which may apply to healthcare items or services that are reimbursed by non-governmental third-party payors, including private insurers.

Some state laws also require pharmaceutical companies to comply with specific compliance standards, restrict financial interactions between pharmaceutical companies and healthcare providers or require pharmaceutical companies to report information related to payments to health care providers or marketing expenditures.

Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. Given the breadth of the laws and regulations, limited guidance for certain laws and regulations and evolving government interpretations of the laws and regulations, governmental authorities may possibly conclude that our business practices may not comply with healthcare laws and regulations. If our operations are found to be in violation of any of the laws described above or any other government regulations that apply to us, we may be subject to significant penalties, including civil and criminal penalties, damages, fines, exclusion from participation in government health care programs, such as Medicare and Medicaid, individual imprisonment, and the curtailment or restructuring of our operations, any of which could adversely affect our business, financial condition, results of operations, and prospects.

The provision of benefits or advantages to physicians to induce or encourage the prescription, recommendation, endorsement, purchase, supply, order, or use of medicinal products is prohibited in the European Union. The provision of benefits or advantages to also induce or reward improper performance generally is governed by the national anti-bribery laws of European Union Member States, and the Bribery Act 2010 in the United Kingdom. Infringement of these laws could result in substantial fines and imprisonment. EU Directive 2001/83/EC, which is the EU Directive governing medicinal products for human use, further provides that, where medicinal products are being promoted to persons qualified to prescribe or supply them, no gifts, pecuniary advantages or benefits in kind may be supplied, offered or promised to such persons unless they are inexpensive and relevant to the practice of medicine or pharmacy. This provision has been transposed into the Human Medicines Regulations 2012 and so remains applicable in the United Kingdom despite its departure from the EU.

Payments made to physicians in certain European Union Member States must be publicly disclosed. Moreover, agreements with physicians often must be the subject of prior notification and approval by the physician's employer, his or her competent professional organization, and/or the regulatory authorities of the individual European Union Member States. These requirements are provided in the national laws, industry codes, or professional codes of conduct applicable in the European Union Member States. Failure to comply with these requirements could result in reputational risk, public reprimands, administrative penalties, fines or imprisonment.

Healthcare and other reform legislation may increase the difficulty and cost for us and any collaborators we may have to obtain marketing approval of and commercialize our product candidates and affect the prices we, or they, may obtain.

In the United States and some foreign jurisdictions, there have been and continue to be ongoing efforts to implement legislative and regulatory changes regarding the healthcare system. Such changes could prevent or delay marketing approval of any product candidates that we may develop, restrict or regulate post-approval activities, and affect our ability to profitably sell any product candidates for which we obtain marketing approval. Although we cannot predict what healthcare or other reform efforts will be successful, such efforts may result in more rigorous coverage criteria, in additional downward pressure on the price that we, or our future collaborators, may receive for any approved products or in other consequences that may adversely affect our ability to achieve or maintain profitability.

Within the United States, the federal government and individual states have aggressively pursued healthcare reform, as evidenced by the passing of the ACA and the ongoing efforts to modify or repeal that legislation. The ACA substantially changed the way healthcare is financed by both governmental and private insurers and contains a number of provisions that affect coverage and reimbursement of drug products and/or that could potentially reduce the demand for pharmaceutical products such as increasing drug rebates under state Medicaid programs for brand name prescription drugs and extending those rebates to Medicaid managed care and assessing a fee on manufacturers and importers of brand name prescription drugs reimbursed under certain government programs, including Medicare and Medicaid. Other aspects of healthcare reform, such as expanded government enforcement authority and heightened standards that could increase compliance-related costs, could also affect our business. Modifications have been implemented under the previous presidential administration and additional modifications or repeal may occur.

There have been executive, judicial and congressional challenges to certain aspects of the ACA. For example, the U.S. Supreme Court is currently reviewing the constitutionality of the ACA, but it is unknown when a decision will be reached. On February 10, 2021, the Biden administration withdrew the federal government's support for overturning the ACA. Although the Supreme Court has not yet ruled on the constitutionality of the ACA, on January 28, 2021, President Biden issued an executive order that initiated a special enrollment period for purposes of obtaining health insurance coverage through the ACA marketplace, which began on February 15, 2021 and will remain open through August 15, 2021. The executive order also instructed certain governmental agencies to review and reconsider their existing policies and rules that limit access to healthcare, including among others, reexamining Medicaid demonstration projects and waiver programs that include work requirements, and policies that create unnecessary barriers to obtaining access to health insurance coverage through Medicaid or the ACA. It is unclear how the Supreme Court ruling, other such litigation, and the healthcare reform measures of the Biden administration will impact the ACA. There is no assurance that federal or state health care reform will not adversely affect our future business and financial results, and we cannot predict how future federal or state legislative, judicial or administrative changes relating to healthcare reform will affect our business.

In addition, other legislative changes have been proposed and adopted in the United States since the ACA was enacted. For example, in August 2011, the Budget Control Act of 2011, among other things, created measures for spending reductions by Congress. Specifically, the Joint Select Committee on Deficit Reduction, asked with recommending a targeted deficit reduction of at least $1.2 trillion for the years 2013 through 2021, was unable to reach required goals, thereby triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions of Medicare payments to providers of up to 2% per fiscal year, which went into effect in April 2013, and, due to subsequent legislative amendments, will remain in effect through 2030 unless additional Congressional action is taken. However, COVID-19 relief legislation suspended the 2% Medicare sequester reductions from May 1, 2020 through December 31, 2021. On January 2, 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, further reduced Medicare payments to several providers, including hospitals, imaging centers and cancer treatment

centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. The Bipartisan Budget Act (BBA), also amended the ACA, effective January 1, 2019, by increasing the point-of-sale discount that is owed by pharmaceutical manufacturers who participate in Medicare Part D and closing the coverage gap in most Medicare drug plans, commonly referred to as the "donut hole."

Furthermore, there has been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products, which has resulted in several congressional inquiries and proposed legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient assistance programs and reform government program reimbursement methodologies for drug products. At the federal level, the Trump administration used several means to propose or implement drug pricing reform, including through federal budget proposals, executive orders and policy initiatives. For example, on July 24, 2020 and September 13, 2020, the Trump administration announced several executive orders related to prescription drug pricing that seek to implement several of the administration's proposals. As a result, the FDA released a final rule on September 24, 2020, effective November 30, 2020, providing guidance for states to build and submit importation plans for drugs from Canada. Further, on November 20, 2020, HHS finalized a regulation removing safe harbor protection for price reductions from pharmaceutical manufacturers to plan sponsors under Medicare Part D, either directly or through pharmacy benefit managers, unless the price reduction is required by law. The implementation of the rule has been delayed by the Biden administration from January 1, 2022 to January 1, 2023 in response to ongoing litigation. The rule also creates a new safe harbor for price reductions reflected at the point-of-sale, as well as a new safe harbor for certain fixed fee arrangements between pharmacy benefit managers and manufacturers, the implementation of which have also been delayed until January 1, 2023. On November 20, 2020, CMS, issued an interim final rule implementing the Trump administration's Most Favored Nation executive order, which would tie Medicare Part B payments for certain physician-administered drugs to the lowest price paid in other economically advanced countries, effective January 1, 2021. On December 28, 2020, the U.S. District Court in Northern California issued a nationwide preliminary injunction against implementation of the interim final rule. It is unclear whether the Biden administration will work to reverse these measures or pursue similar policy initiatives. Individual states in the United States have also become increasingly active in passing legislation and implementing regulations designed to control pharmaceutical product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. In addition, regional healthcare authorities and individual hospitals are increasingly using bidding procedures to determine what pharmaceutical products and which suppliers will be included in their prescription drug and other healthcare programs. It is difficult to predict the future legislative landscape in healthcare and the effect on our business, results of operations, financial condition and prospects. However, we expect that additional state and federal healthcare reform measures will be adopted in the future, particularly in light of the new presidential administration. Further, it is possible that additional governmental action is taken in response to the COVID-19 pandemic. At the state level, legislatures have also been increasingly passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing.

Fast track, breakthrough, or regenerative medicine advanced therapy designation by the FDA may not actually lead to a faster development or regulatory review or approval process, and does not assure FDA approval of our product candidates.

FDA's fast track, breakthrough, and regenerative medicine advanced therapy (RMAT), programs are intended to expedite the development of certain qualifying products intended for the treatment of serious diseases and conditions. If a product candidate is intended for the treatment of a serious or life-threatening condition and preclinical or clinical data demonstrate the product's potential to address an unmet medical need for this condition, the sponsor may apply for FDA fast track designation. A product candidate may be designated as a

breakthrough therapy if it is intended to treat a serious or life-threatening condition and preliminary clinical evidence indicates that the product candidate may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints. A product candidate may receive RMAT designation if it is a regenerative medicine therapy that is intended to treat, modify, reverse or cure a serious or life-threatening condition, and preliminary clinical evidence indicates that the product candidate has the potential to address an unmet medical need for such condition. While we may seek fast track, breakthrough, and/or RMAT designation, there is no guarantee that we will be successful in obtaining any such designation. Even if we do obtain such designation, we may not experience a faster development process, review or approval compared to conventional FDA procedures. A fast track, breakthrough, or RMAT designation does not ensure that the product candidate will receive marketing approval or that approval will be granted within any particular timeframe. In addition, the FDA may withdraw fast track, breakthrough, or RMAT designation if it believes that the designation is no longer supported by data from our clinical development program. Fast track, breakthrough, and/or RMAT designation alone do not guarantee qualification for the FDA's priority review procedures.

Priority review designation by the FDA may not lead to a faster regulatory review or approval process and, in any event, does not assure FDA approval of our product candidates.

If the FDA determines that a product candidate is intended to treat a serious disease or condition and, if approved, would provide a significant improvement in the safety or effectiveness of the treatment, prevention, or diagnosis of such disease or condition, the FDA may designate the product candidate for priority review. A priority review designation means that the goal for the FDA to review a marketing application is six months from filing of the application, rather than the standard review period of ten months. We may request priority review for certain of our product candidates. The FDA has broad discretion with respect to whether or not to grant priority review status to a product candidate, so even if we believe a particular product candidate is eligible for such designation or status, the FDA may disagree and decide not to grant it. Moreover, a priority review designation does not necessarily mean a faster regulatory review process or necessarily confer any advantage with respect to approval compared to conventional FDA procedures. Receiving priority review from the FDA does not guarantee approval within the six-month review cycle or thereafter.

We may not be able to obtain orphan drug exclusivity for one or more of our product candidates, and even if we do, that exclusivity may not prevent the FDA or the EMA from approving other competing products.

Under the Orphan Drug Act, the FDA may designate a product candidate as an orphan drug if it is a drug or biologic intended to treat a rare disease or condition. A similar regulatory scheme governs approval of orphan product candidates by the EMA in the European Union. Generally, if a product with an orphan drug designation subsequently receives the first marketing approval for the indication for which it has such designation, the product is entitled to a period of marketing exclusivity, which precludes the FDA or the EMA from approving another marketing application for another similar product candidate for the same orphan therapeutic indication for that time period. The applicable period is seven years in the United States and ten years in the European Union. The exclusivity period in the European Union can be reduced to six years if a product no longer meets the criteria for orphan drug designation, in particular if the product is sufficiently profitable so that market exclusivity is no longer justified.

In order for the FDA to grant orphan drug exclusivity to one of our product candidates, the agency must find that the product candidate is indicated for the treatment of a condition or disease that affects fewer than 200,000 individuals in the United States or that affects 200,000 or more individuals in the United States and for which there is no reasonable expectation that the cost of developing and making the product candidate available for the disease or condition will be recovered from sales of the product in the United States. The FDA may conclude that the condition or disease for which we seek orphan drug exclusivity does not meet this standard. Even if we obtain orphan drug exclusivity for a product candidate, that exclusivity may not effectively protect the product candidate from competition because different product candidates can be approved for the same condition. In addition, even after an orphan drug is approved, the FDA can subsequently approve the same product candidate

for the same condition if the FDA concludes that the later product candidate is clinically superior in that it is shown to be safer, more effective or makes a major contribution to patient care compared with the product that has orphan exclusivity. Orphan drug exclusivity may also be lost if the FDA or EMA determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the product to meet the needs of the patients with the rare disease or condition.

Our employees, principal investigators, consultants, and commercial partners may engage in misconduct or other improper activities, including non-compliance with regulatory standards and requirements and insider trading.

We are exposed to the risk of fraud or other misconduct by our employees, consultants, and commercial partners, and, if we commence clinical trials, our principal investigators. Misconduct by these parties could include intentional failures to comply with FDA regulations or the regulations applicable in the European Union and other jurisdictions, provide accurate information to the FDA, the EMA, and other regulatory authorities, comply with healthcare fraud and abuse laws and regulations in the United States and abroad, report financial information or data accurately, or disclose unauthorized activities to us. In particular, sales, marketing, and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, misconduct, kickbacks, self-dealing and other abusive practices. These laws and regulations restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs, and other business arrangements. Such misconduct also could involve the improper use of information obtained in the course of clinical trials or interactions with the FDA, the EMA or other regulatory authorities, which could result in regulatory sanctions and cause serious harm to our reputation. Upon the effectiveness of this registration statement, we will adopt a code of conduct applicable to all of our employees, but it is not always possible to identify and deter employee misconduct, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from government investigations or other actions or lawsuits stemming from a failure to comply with these laws or regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, financial condition, results of operations, and prospects, including the imposition of significant fines or other sanctions.

We are subject to U.S. and certain foreign export and import controls, sanctions, embargoes, anti-corruption laws, and anti-money laundering laws and regulations. Compliance with these legal standards could impair our ability to compete in domestic and international markets. We can face criminal liability and other serious consequences for violations, which can harm our business.

We are subject to export control and import laws and regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations, various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Control, the U.S. Foreign Corrupt Practices Act of 1977, as amended (FCPA), the U.S. domestic bribery statute contained in 18 U.S.C. § 201, the U.S. Travel Act, the USA PATRIOT Act, and other state and national anti-bribery and anti-money laundering laws in the countries in which we conduct activities. Anti-corruption laws are interpreted broadly and prohibit companies and their employees, agents, contractors, and other collaborators from authorizing, promising, offering, or providing, directly or indirectly, improper payments or anything else of value to recipients in the public or private sector. We may engage third parties to sell our products outside the United States, to conduct clinical trials, and/or to obtain necessary permits, licenses, patent registrations, and other regulatory approvals. We have direct or indirect interactions with officials and employees of government agencies or government-affiliated hospitals, universities, and other organizations. We can be held liable for the corrupt or other illegal activities of our employees, agents, contractors, and other collaborators, even if we do not explicitly authorize or have actual knowledge of such activities. Any violations of the laws and regulations described above may result in substantial civil and criminal fines and penalties, imprisonment, the loss of export or import privileges, debarment, tax reassessments, breach of contract and fraud litigation, reputational harm, and other consequences.

Inadequate funding for the FDA and other government agencies could hinder their ability to hire and retain key leadership and other personnel, prevent new products and services from being developed or commercialized in a timely manner or otherwise prevent those agencies from performing normal business functions on which the operation of our business may rely, which could negatively impact our business.

The ability of the FDA to review and approve new products can be affected by a variety of factors, including government budget and funding levels, ability to hire and retain key personnel and accept the payment of user fees, and statutory, regulatory, and policy changes. Average review times at the agency have fluctuated in recent years as a result. In addition, government funding of other agencies on which our operations may rely, including those that fund research and development activities, is subject to the political process, which is inherently fluid and unpredictable.

Disruptions at the FDA and other agencies may also slow the time necessary for new drugs to be reviewed and/or approved by necessary government agencies, which would adversely affect our business. For example, over the last several years the U.S. government has shut down several times and certain regulatory agencies, such as the FDA, have had to furlough critical FDA and other government employees and stop critical activities. Additionally, as of March 18, 2021, the FDA noted it is continuing to ensure timely reviews of applications for medical products during the COVID-19 pandemic in line with its user fee performance goals; however, the FDA may not be able to continue its current pace and review timelines could be extended, including where a pre-approval inspection or an inspection of clinical sites is required and due to theCOVID-19 pandemic and travel restrictions FDA is unable to complete such required inspections during the review period. Since March 2020 when foreign and domestic inspections of facilities were largely placed on hold, the FDA has been working to resume routine surveillance, bioresearch monitoring and pre-approval inspections on a prioritized basis. The FDA has developed a rating system to assist in determining when and where it is safest to conduct prioritized domestic inspections. In April 2021, the FDA issued industry guidance formally announcing plans to employ remote interactive evaluations using risk management methods to meet user fee commitments and goal dates, and in May 2021 announced plans to continue progress toward resuming standard operational levels. Should the FDA determine that an inspection is necessary for approval and an inspection cannot be completed during the review cycle due to restrictions on travel, the FDA has stated that it generally intends to issue a complete response letter or defer action on the application until an inspection can be completed. In 2020 and 2021, several companies announced receipt of complete response letters due to the FDA's inability to complete required inspections for their applications. Regulatory authorities outside the U.S. may adopt similar restrictions or other policy measures in response to the COVID-19 pandemic and may experience delays in their regulatory activities. If a prolonged government shutdown occurs, it could significantly impact the ability of the FDA to timely review and process our regulatory submissions, which could have a material adverse effect on our business. Further, future shutdowns of other government agencies, such as the SEC, may also impact our business through review of our public filings and our ability to access the public markets.

We are subject to stringent privacy laws, information security laws, regulations, policies and contractual obligations related to data privacy and security and changes in such laws, regulations, policies and contractual obligations could adversely affect our business.

We are subject to data privacy and protection laws and regulations that apply to the collection, transmission, storage and use of personally-identifying information, which among other things, impose certain requirements relating to the privacy, security and transmission of personal information, including comprehensive regulatory systems in the United States and EU. The legislative and regulatory landscape for privacy and data protection continues to evolve in jurisdictions worldwide, and there has been an increasing focus on privacy and data protection issues with the potential to affect our business. Failure to comply with any of these laws, regulations, contractual obligations, or standards could result in enforcement action against us, including fines, imprisonment of company officials and public censure, claims for damages by affected individuals, customers, or business partners, damage to our reputation and loss of goodwill, any of which could have a material adverse effect on our business, financial condition, results of operations or prospects.

There are numerous U.S. federal and state laws and regulations related to the privacy and security of personal information. In particular, regulations promulgated pursuant to the HIPAA establish privacy and security standards that limit the use and disclosure of individually identifiable health information, or protected health information, and require the implementation of administrative, physical and technological safeguards to protect the privacy of protected health information and ensure the confidentiality, integrity and availability of electronic protected health information. Determining whether protected health information has been handled in compliance with applicable privacy standards and our contractual obligations can be complex and may be subject to changing interpretation.

If we are unable to properly protect the privacy and security of protected health information, we could be alleged or actually found to have breached our contracts. Further, if we fail to comply with applicable privacy laws, including applicable HIPAA privacy and security standards, we could face civil and criminal penalties. The U.S. Department of Health and Human Services, of HHS, has the discretion to impose penalties without attempting to resolve violations through informal means. HHS enforcement activity can result in financial liability and reputational harm, and responses to such enforcement activity can consume significant internal resources. In addition, state attorneys general are authorized to bring civil actions seeking either injunctions or damages in response to violations that threaten the privacy of state residents. We cannot be sure how these regulations will be interpreted, enforced or applied to our operations. In addition to the risks associated with enforcement activities and potential contractual liabilities, our ongoing efforts to comply with evolving laws and regulations at the federal and state level may be costly and require ongoing modifications to our policies, procedures and systems.

Data privacy remains an evolving landscape at both the domestic and international level, with new regulations coming into effect and continued legal challenges, and our efforts to comply with the evolving data protection rules may be unsuccessful. It is possible that these laws may be interpreted and applied in a manner that is inconsistent with our practices. We must devote significant resources to understanding and complying with this changing landscape. Failure to comply with laws regarding data protection would expose us to risk of enforcement actions taken by data protection authorities and carries with it the potential for significant penalties if we are found to be non-compliant. Similarly, failure to comply with federal and state laws in the United States regarding privacy and security of personal information could expose us to penalties under such laws. Any such failure to comply with data protection and privacy laws could result in government-imposed fines or orders requiring that we change our practices, claims for damages or other liabilities, regulatory investigations and enforcement action, litigation and significant costs for remediation, any of which could adversely affect our business. Even if we are not determined to have violated these laws, government investigations into these issues typically require the expenditure of significant resources and generate negative publicity, which could harm our business, financial condition, results of operations or prospects.

Risks Related to Employee Matters, Managing Growth, Public Health and Information Technology

Our future success depends on our ability to retain our Chief Executive Officer, Chief Operating Officer, Chief Business Officer and other key executives and employees and to attract, retain, and motivate qualified personnel.

We are highly dependent on Josh Lehrer, M.D., our Chief Executive Officer, Ms. Katherine Vega Stultz, our Chief Operating Officer and Mr. Philip P. Gutry, our Chief Business Officer, Head of Finance & Investor Relations, as well as the other principal members of our management and scientific teams. Dr. Lehrer, Ms. Stultz and Mr. Gutry and such other principal members are employed “at will,” meaning we or they may terminate the employment at any time. We do not maintain “key person” insurance for any of our executives or other employees. The loss of the services of any of these persons could impede the achievement of our research, development, and commercialization objectives.

Recruiting and retaining qualified scientific, clinical, manufacturing, and sales and marketing personnel is critical to our success. We may not be able to attract and retain these personnel on acceptable terms given the competition among numerous pharmaceutical and biotechnology companies for similar personnel. We also experience competition for the hiring of scientific and clinical personnel from universities and research institutions. In addition, we rely on consultants and advisors, including scientific and clinical advisors, to assist us in formulating our research and development and commercialization strategy. Our consultants and advisors, including our scientific co-founders, may be employed by employers other than us and may have commitments under consulting or advisory contracts with other entities that may limit their availability to us. The inability to recruit, or loss of services of certain executives, key employees, consultants, or advisors, may impede the progress of our research, development, and commercialization objectives and have a material adverse effect on our business, financial condition, results of operations, and prospects.

We expect to expand our research and development, clinical and regulatory, and future sales and marketing capabilities, and as a result, we may encounter difficulties in managing our growth, which could disrupt our operations.

As of March 31, 2021, we had 27 full-time employees, and, in connection with the advancement of our development programs and becoming a public company, we expect to increase the number of our employees and the scope of our operations further, particularly in the areas of research and clinical development, regulatory affairs, and sales and marketing. To manage our anticipated future growth, we must continue to implement and improve our managerial, operational, and financial systems, expand our facilities, and continue to recruit and train additional qualified personnel. Due to our limited financial resources and the limited experience of our management team in managing a company with such anticipated growth, we may not be able to effectively manage the expected expansion of our operations or recruit and train additional qualified personnel. Moreover, the expected physical expansion of our operations may lead to significant costs and may divert our management and business development resources. Any inability to manage growth could delay the execution of our business plans or disrupt our operations.

As a growing biotechnology company, we are actively developing our platform technology and pursuing new product candidates in multiple therapeutic areas. Successfully developing product candidates for and fully understanding the regulatory and manufacturing pathways to all of these therapeutic areas and disease states requires a significant depth of talent, resources and corporate processes in order to allow simultaneous execution across multiple areas. Due to our limited resources, we may not be able to effectively manage this simultaneous execution and the expansion of our operations or recruit and train additional qualified personnel. This may result in weaknesses in our infrastructure, give rise to operational mistakes, legal or regulatory compliance failures, loss of business opportunities, loss of employees and reduced productivity among remaining employees. The expansion of our operations may lead to significant costs and may divert financial resources from other projects, such as the development of our product candidates. If our management is unable to effectively manage our expected development and expansion, our expenses may increase more than expected, our ability to generate or increase our revenue could be reduced and we may not be able to implement our business strategy. Our future financial performance and our ability to compete effectively and commercialize our product candidates, if approved, will depend in part on our ability to effectively manage the future development and expansion of our Company.

Our internal computer systems, or those of our third-party vendors, collaborators or other contractors or consultants, may fail or suffer security breaches, which could result in a material disruption of our product development programs, compromise sensitive information related to our business or prevent us from accessing critical information, potentially exposing us to liability or otherwise adversely affecting our business.

Our internal computer systems and those of our current and any future third-party vendors, collaborators and other contractors or consultants are vulnerable to damage or interruption from computer viruses, malware (including ransomware), phishing attacks, computer hackers, malicious code, employee theft or misuse,

intentional or accidental action or lack of action by our employees or any contractors with access to our systems that leads to the introduction of vulnerabilities, denial-of-service attacks, sophisticated nation-state and nation-state-supported actors, supply chain attacks, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failures. While we seek to protect our information technology systems from system failure, accident and security breach, if such an event were to occur and cause interruptions in our operations, it could result in a disruption of our development programs and our business operations, whether due to a loss of our trade secrets, personal information, or other proprietary information or other disruptions. For example, the loss of clinical trial data from future clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. If we were to experience a significant cybersecurity breach of our information systems or data, the costs associated with the investigation, remediation and potential notification of the breach to counter-parties and data subjects could be material. In addition, our remediation efforts may not be successful. If we do not allocate and effectively manage the resources necessary to build and sustain the proper technology and cybersecurity infrastructure, we could suffer significant business disruption, including transaction errors, supply chain or manufacturing interruptions, processing inefficiencies, data loss or the loss of or damage to intellectual property or other proprietary information.

To the extent that any disruption or security breach were to result in a loss of, or damage to, our or our third-party vendors', collaborators' or other contractors' or consultants' data or applications, or inappropriate disclosure of confidential, personal or proprietary information, we could incur liability including litigation exposure, penalties and fines, we could become the subject of regulatory action or investigation, our competitive position could be harmed and the further development and commercialization of our product candidates could be delayed. Any of the above could have a material adverse effect on our business, financial condition, results of operations or prospects.

Risks Related to This Offering and Ownership of Our Common Stock

We do not know whether a market will develop for our common stock or what the market price of our common stock will be, and, as a result, it may be difficult for you to sell your shares of our common stock.

Before this offering, there was no public trading market for our common stock. Although we expect to list our common stock on the Nasdaq Global Market, an active trading market for our common stock may never develop or be sustained following this offering. If a market for our common stock does not develop or is not sustained, it may be difficult for you to sell your shares of common stock at an attractive price or at all. We cannot predict the prices at which our common stock will trade. It is possible that in one or more future periods our results of operations may be below the expectations of public market analysts and investors, and, as a result of these and other factors, the price of our common stock may fall.

You will incur immediate and substantial dilution as a result of this offering.

If you purchase common stock in this offering, you will incur immediate and substantial dilution of $ per share, representing the difference between the assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, and our pro forma net tangible book value per share after giving effect to this offering and the automatic conversion of all outstanding shares of our preferred stock upon the closing of this offering. Moreover, we issued options in the past that allow the holders to acquire common stock at prices significantly below the assumed initial public offering price. As of , 2021, there were shares subject to outstanding options with a weighted-average exercise price of $ per share. To the extent that these outstanding options are ultimately exercised or the underwriters exercise their over-allotment option, you will incur further dilution. For a further description of the dilution you will experience immediately after this offering, see the section titled "Dilution."

The market price of our common stock may be volatile, which could result in substantial losses for investors purchasing shares in this offering.

The initial public offering price for our common stock was determined through negotiations with the underwriters. This initial public offering price may vary from the market price of our common stock after the offering. As a result, you may not be able to sell your common stock at or above the initial public offering price. The market price for our common stock may be influenced by those factors discussed in this "Risk Factors" section and many others, including:

- the success of existing or new competitive product candidates or technologies;
- the timing and results of preclinical studies and clinical trials for our product candidates;
- failure or discontinuation of any of our product development and research programs;
- results of preclinical studies, clinical trials, or regulatory approvals of product candidates of our competitors, or announcements about new research programs or product candidates of our competitors;
- developments or changing views regarding the use of genetic medicines, including those that involve gene editing;
- commencement or termination of collaborations for our product development and research programs;
- regulatory or legal developments in the United States and other countries;
- developments or disputes concerning patent applications, issued patents, or other proprietary rights;
- the recruitment or departure of key personnel;
- the level of expenses related to any of our research programs, clinical development programs, or product candidates that we may develop;
- the results of our efforts to develop additional product candidates or products;
- actual or anticipated changes in estimates as to financial results, development timelines, or recommendations by securities analysts, if any, that cover our stock;
- announcement or expectation of additional financing efforts;
- sales of our common stock by us, our insiders or other stockholders;
- expiration of market stand-off or lock-up agreements;
- variations in our financial results or those of companies that are perceived to be similar to us;
- changes in the structure of healthcare payment systems;
- market conditions in the pharmaceutical and biotechnology sectors;
- the COVID-19 pandemic, natural disasters, or major catastrophic events;
- general economic, industry, and market conditions; and
- the other factors described in this "Risk Factors" section.

In recent years, the stock market in general, and the market for pharmaceutical and biotechnology companies in particular, has experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to changes in the operating performance of the companies whose stock is experiencing those price and volume fluctuations. Broad market and industry factors may seriously affect the market price of our common stock, regardless of our actual operating performance. These fluctuations may be even more pronounced in the trading market for our stock shortly following this offering. Following periods of such volatility in the market price of a company's securities, securities class action litigation has often been brought against that company. Because of the potential volatility of our stock price, we may become the target of securities litigation in the future.

Securities litigation could result in substantial costs and divert management's attention and resources from our business.

A significant portion of our total outstanding shares is restricted from immediate resale but may be sold into the market in the near future, which could cause the market price of our common stock to decline significantly, even if our business is doing well.

Sales of a substantial number of shares of our common stock in the public market could occur at any time. These sales, or the perception in the market that the holders of a large number of shares of common stock intend to sell shares, could reduce the market price of our common stock. After this offering and after giving effect to the conversion of all outstanding shares of our preferred stock into shares of our common stock upon the closing of this offering, we will have shares of common stock outstanding, or shares if underwriters exercise their over-allotment option in full, in each case based on the 102,045,839 shares of our common stock outstanding as of March 31, 2021, which includes (i) our restricted common stock subject to vesting and (ii) 74,812,432 shares of common stock issuable upon the conversion of all outstanding shares of our redeemable convertible preferred stock immediately prior to the completion of this offering. Of these shares, the shares (or shares if the underwriters exercise their option to purchase additional shares in full) we are selling in this offering may be resold in the public market immediately, unless purchased by our affiliates. The remaining shares are currently restricted under securities laws or as a result of lock-up or other agreements, but will be able to be sold after this offering as described in the "Shares eligible for future sale" section of this prospectus. Moreover, after this offering, holders of an aggregate of shares of our common stock will have rights, subject to conditions, to require us to file registration statements covering their shares or to include their shares in registration statements that we may file for ourselves or other stockholders. We also plan to register all shares of common stock that we may issue under our equity compensation plans or that are issuable upon exercise of outstanding options. Once we register these shares, they can be freely sold in the public market upon issuance and once vested, subject to volume limitations applicable to affiliates and the lock-up agreements described in the "Underwriting" section of this prospectus. If any of these additional shares are sold, or if it is perceived that they will be sold, in the public market, the market price of our common stock could decline.

Our principal stockholders and management own a significant percentage of our stock and will be able to exert significant control over matters subject to stockholder approval.

Prior to this offering, our executive officers, directors, holders of 5% or more of our capital stock and their respective affiliates beneficially owned approximately % of our voting stock and, upon the closing of this offering, that same group will beneficially own approximately % of our outstanding voting stock (based on the number of shares of common stock outstanding as of March 31, 2021, assuming no exercise of the underwriters' over-allotment option, no exercise of outstanding options and no purchases of shares in this offering by any of this group), in each case assuming the conversion of all outstanding shares of our redeemable convertible preferred stock into shares of our common stock immediately prior to the closing of this offering. After this offering, this group of stockholders will have the ability to control us through this ownership position even if they do not purchase any additional shares in this offering. These stockholders may be able to determine all matters requiring stockholder approval. For example, these stockholders may be able to control elections of directors, amendments of our organizational documents or approval of any merger, sale of assets or other major corporate transaction. This may prevent or discourage unsolicited acquisition proposals or offers for our common stock that you may feel are in your best interest as one of our stockholders. The interests of this group of stockholders may not always coincide with your interests or the interests of other stockholders and they may act in a manner that advances their best interests and not necessarily those of other stockholders, including seeking a premium value for their common stock, and might affect the prevailing market price for our common stock.

We are an "emerging growth company" and a "smaller reporting company," and the reduced disclosure requirements applicable to emerging growth companies and smaller reporting companies may make our common stock less attractive to investors.

We are an "emerging growth company," as defined in the JOBS Act and may remain an emerging growth company for up to five years. For so long as we remain an emerging growth company, we are permitted and plan to rely on exemptions from certain disclosure requirements that are applicable to other public companies that are not emerging growth companies. These exemptions include not being required to comply with the auditor attestation requirements of Section 404 of SOX, not being required to comply with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and the financial statements, reduced disclosure obligations regarding executive compensation, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. As a result, the information we provide stockholders will be different than the information that is available with respect to other public companies. In this prospectus, we have not included all of the executive compensation related information that would be required if we were not an emerging growth company.

In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have taken advantage of reduced reporting requirements in this prospectus. Accordingly, the information contained herein may be different from the information you receive from other public companies in which you hold stock. We have elected to use this extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date we (i) are no longer an emerging growth company or (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, our financial statements may not be comparable to companies that comply with new or revised accounting pronouncements as of public company effective dates.

We are also a "smaller reporting company," meaning that the market value of our stock held bynon-affiliates plus the proposed aggregate amount of gross proceeds to us as a result of this offering is less than $700 million and our annual revenue is less than $100 million during the most recently completed fiscal year. We may continue to be a smaller reporting company after this offering if either (i) the market value of our stock held by non-affiliates is less than $250 million or (ii) our annual revenue is less than $100 million during the most recently completed fiscal year and the market value of our stock held by non-affiliates is less than $700 million. If we are a smaller reporting company at the time we cease to be an emerging growth company, we may continue to rely on exemptions from certain disclosure requirements that are available to smaller reporting companies. Specifically, as a smaller reporting company we may choose to present only the two most recent fiscal years of audited financial statements in our Annual Report on Form 10-K and, similar to emerging growth companies, smaller reporting companies have reduced disclosure obligations regarding executive compensation.

We cannot predict whether investors will find our common stock less attractive if we rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock, and our stock price may be more volatile.

We have broad discretion in the use of the net proceeds from this offering and may not use them effectively.

We cannot specify with certainty the particular uses of the net proceeds we will receive from this offering. Our management will have broad discretion in the application of the net proceeds, including for any of the purposes described in the section titled "Use of Proceeds." Accordingly, you will have to rely upon the judgment of our management with respect to the use of the proceeds, with only limited information concerning management's specific intentions. Our management may spend a portion or all of the net proceeds from this

offering in ways that our stockholders may not desire or that may not yield a favorable return. The failure by our management to apply these funds effectively could harm our business, financial condition, results of operations and prospects. Pending their use, we may invest the net proceeds from this offering in a manner that does not produce income or that loses value.

We do not expect to pay any dividends for the foreseeable future. Investors in this offering may never obtain a return on their investment.

You should not rely on an investment in our common stock to provide dividend income. We do not anticipate that we will pay any dividends to holders of our common stock in the foreseeable future. Instead, we plan to retain any earnings to maintain and expand our existing operations. In addition, any future credit facility may contain terms prohibiting or limiting the amount of dividends that may be declared or paid on our common stock. Accordingly, investors must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any return on their investment. As a result, investors seeking cash dividends should not purchase our common stock.

Provisions in our amended and restated certificate of incorporation, our amended and restated bylaws and Delaware law may have anti-takeover effects that could discourage an acquisition of us by others, even if an acquisition would be beneficial to our stockholders, and may prevent attempts by our stockholders to replace or remove our current management, which could depress the trading price of our common stock.

Our amended and restated certificate of incorporation, amended and restated bylaws and Delaware law contain provisions that may have the effect of discouraging, delaying or preventing a change in control of us or changes in our management that stockholders may consider favorable, including transactions in which you might otherwise receive a premium for your shares. Our amended and restated certificate of incorporation and bylaws, which will become effective upon the closing of this offering, include provisions that:

- authorize “blank check” preferred stock, which could be issued by our board of directors without stockholder approval and may contain voting, liquidation, dividend and other rights superior to our common stock;
- create a classified board of directors whose members serve staggered three-year terms;
- specify that special meetings of our stockholders can be called only by our board of directors;
- prohibit stockholder action by written consent;
- establish an advance notice procedure for stockholder approvals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to our board of directors;
- provide that vacancies on our board of directors may be filled only by a majority of directors then in office, even though less than a quorum;
- provide that our directors may be removed only for cause;
- specify that no stockholder is permitted to cumulate votes at any election of directors;
- expressly authorize our board of directors to make, alter, amend or repeal our amended and restated bylaws; and
- require supermajority votes of the holders of our common stock to amend specified provisions of our amended and restated certificate of incorporation and amended and restated bylaws.

These provisions, alone or together, could delay or prevent hostile takeovers and changes in control or changes in our management. These provisions could also limit the price that investors might be willing to pay in the future for shares of our common stock, thereby depressing the market price of our common stock.

In addition, because we are incorporated in the State of Delaware, we are governed by the provisions of Section 203 of the General Corporation Law of the State of Delaware (DGCL), which prohibits a person who owns in excess of 15% of our outstanding voting stock from merging or combining with us for a period of three years after the date of the transaction in which the person acquired in excess of 15% of our outstanding voting stock, unless the merger or combination is approved in a prescribed manner.

Any provision of our amended and restated certificate of incorporation, amended and restated bylaws or Delaware law that has the effect of delaying or deterring a change in control could limit the opportunity for our stockholders to receive a premium for their shares of our common stock, and could also affect the price that some investors are willing to pay for our common stock.

Our amended and restated bylaws will designate the Court of Chancery of the State of Delaware as the exclusive forum for certain state law litigation that may be initiated by our stockholders and the U.S. federal district courts as the exclusive forum for certain securities law actions, which could limit our stockholders' ability to litigate disputes with us in a different judicial forum and increase the costs for our stockholders to pursue certain claims against us.

Pursuant to our amended and restated bylaws, as will be in effect upon the completion of this offering, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law: (i) any derivative action or proceeding brought on our behalf; (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our current or former directors, officers or employees to us or our stockholders; (iii) any action asserting a claim arising pursuant to any provision of the DGCL, our amended and restated certificate of incorporation or our amended and restated bylaws (including their interpretation, validity or enforceability); or (iv) any action asserting a claim governed by the internal affairs doctrine. This exclusive forum provision will not apply to any causes of action arising under the Securities Act or the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction. Unless we consent in writing to the selection of an alternate forum, the United States federal district courts shall be the sole and exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act. In addition, our amended and restated bylaws provide that any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock is deemed to have notice of and consented to these exclusive forum provisions. The forum selection provisions in our amended and restated bylaws may limit our stockholders' ability to litigate disputes with us in a judicial forum that they find favorable for disputes with us or our directors, officers or employees, which may discourage the filing of lawsuits against us and our directors, officers and employees, even though an action, if successful, might benefit our stockholders. In addition, these forum selection provisions may impose additional litigation costs for stockholders who determine to pursue any such lawsuits against us.

Our operations are vulnerable to interruption by fire, earthquakes, power loss, telecommunications failure, terrorist activity, pandemics and other events beyond our control, which could harm our business.

Our facilities are located in California. We have not undertaken a systematic analysis of the potential consequences to our business and financial results from a major flood, fire, earthquake, power loss, terrorist activity, pandemics or other disasters and do not have a recovery plan for such disasters. In addition, we do not carry sufficient insurance to compensate us for actual losses from interruption of our business that may occur, and any losses or damages incurred by us could harm our business. The occurrence of any of these business disruptions could seriously harm our operations and financial condition and increase our costs and expenses.

General Risk Factors

If securities analysts do not publish research or reports about our business or if they publish negative evaluations of our stock, the price of our stock could decline.

The trading market for our common stock will rely in part on the research and reports that industry or financial analysts publish about us or our business. We do not currently have and may never obtain research coverage by industry or financial analysts. If no or few analysts commence coverage of us, the trading price of our stock would likely decrease. Even if we do obtain analyst coverage, if one or more of the analysts covering our business downgrade their evaluations of our stock, the price of our stock could decline. If one or more of these analysts cease to cover our stock, we could lose visibility in the market for our stock, which in turn could cause our stock price to decline.

If we fail to establish and maintain proper and effective internal control over financial reporting, investors may lose confidence in the accuracy and completeness of our financial reports and the market price of our common stock could decline significantly.

Ensuring that we have adequate internal financial and accounting controls and procedures in place so that we can produce accurate financial statements on a timely basis is a costly and time-consuming effort that needs to be re-evaluated frequently. As a public company, we will be required to maintain internal controls over financial reporting and to report any material weaknesses in such internal controls. Section 404 of SOX requires annual management assessment of the effectiveness of our internal control over financial reporting. However, our auditors will not be required to formally attest to the effectiveness of our internal control over financial reporting pursuant to Section 404 of SOX until we are no longer an emerging growth company if we continue to take advantage of the exemptions available to us through the JOBS Act.

Implementing any appropriate changes to our internal controls may distract our officers and employees, entail substantial costs to modify our existing processes and take significant time to complete. These changes may not, however, be effective in maintaining the adequacy of our internal controls, and any failure to maintain that adequacy, or consequent inability to produce accurate financial statements on a timely basis, could increase our operating costs and harm our business. In addition, investors' perceptions that our internal controls are inadequate or that we are unable to produce accurate financial statements on a timely basis could cause investors to lose confidence in the accuracy and completeness of our financial reports and could cause the market price of our common stock to decline significantly.

We will incur increased costs as a result of operating as a public company, and our management will be required to devote substantial time to new compliance initiatives and corporate governance practices.

As a public company, and particularly after we are no longer an "emerging growth company," we will incur significant legal, accounting, and other expenses that we did not incur as a private company. SOX, the Dodd-Frank Wall Street Reform and Consumer Protection Act, the listing requirements of The Nasdaq Global Select Market, and other applicable securities rules and regulations impose various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. We expect that we will need to hire additional accounting, finance, and other personnel in connection with our becoming, and our efforts to comply with the requirements of being, a public company, and our management and other personnel will need to devote a substantial amount of time towards maintaining compliance with these requirements. These requirements will increase our legal and financial compliance costs and will make some activities more time-consuming and costly. For example, we expect that the rules and regulations applicable to us as a public company may make it more difficult and more expensive for us to obtain director and officer liability insurance, which could make it more difficult for us to attract and retain qualified members of our board of directors. We are currently evaluating these rules and regulations and cannot predict or estimate the amount of additional costs we may incur or the timing of such costs. These rules and regulations are often subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their

application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices.

Pursuant to Section 404 of SOX, we will be required to furnish a report by our management on our internal control over financial reporting beginning with our second filing of an Annual Report on Form 10-K with the SEC after we become a public company. However, while we remain an emerging growth company, we will not be required to include an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. To achieve compliance with Section 404 of SOX within the prescribed period, we will be engaged in a process to document and evaluate our internal control over financial reporting, which is both costly and challenging. In this regard, we will need to continue to dedicate internal resources, potentially engage outside consultants, adopt a detailed work plan to assess and document the adequacy of internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing that controls are functioning as documented, and implement a continuous reporting and improvement process for internal control over financial reporting. Despite our efforts, there is a risk that we will not be able to conclude, within the prescribed timeframe or at all, that our internal control over financial reporting is effective as required by Section 404 of SOX. If we identify one or more material weaknesses, it could result in an adverse reaction in the financial markets due to a loss of confidence in the reliability of our financial statements.

Our disclosure controls and procedures may not prevent or detect all errors or acts of fraud.

Upon the closing of this offering, we will become subject to the periodic reporting requirements of the Exchange Act. We designed our disclosure controls and procedures to reasonably assure that information we must disclose in reports we file or submit under the Exchange Act is accumulated and communicated to management, and recorded, processed, summarized and reported within the time periods specified in the rules and forms of the SEC. We believe that any disclosure controls and procedures or internal controls and procedures, no matter how well-conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met.

These inherent limitations include the facts that judgments in decision-making can be faulty and that breakdowns can occur because of simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people or by an unauthorized override of the controls. Accordingly, because of the inherent limitations in our control system, misstatements due to error or fraud may occur and not be detected.

Unfavorable global economic conditions could adversely affect our business, financial condition, results of operations or prospects.

Our business, financial condition, results of operations or prospects could be adversely affected by general conditions in the global economy and in the global financial markets. A severe or prolonged economic downturn, or additional global financial crises, could result in a variety of risks to our business, including weakened demand for our product candidates, if approved, or our inability to raise additional capital when needed on acceptable terms, if at all. A weak or declining economy could also strain our suppliers, possibly resulting in supply disruption. Any of the foregoing could harm our business and we cannot anticipate all of the ways in which the current economic climate and financial market conditions could adversely impact our business.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, including the sections titled "Prospectus Summary," "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Business," contains forward-looking statements, within the meaning of the Private Securities Litigation Reform Act of 1995, concerning our business, operations and financial performance and condition, as well as our plans, objectives and expectations for our business operations and financial performance and condition that are based on our management's belief and assumptions and on information currently available to our management. Although we believe that the expectations reflected in these forward-looking statements are reasonable, these statements relate to our strategy, future operations, future financial position, future revenue, projected costs, prospects, plans, objectives of management and expected market growth, and involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements expressed or implied by these forward-looking statements. Forward-looking statements in this prospectus include, but are not limited to, statements about:

- the success, cost and timing of our product development activities and clinical trials of our lead product candidates, GPH101, GPH201 and GPH301, including the initiation and progress of, and results from, our planned Phase 1/2 clinical trial of GPH101 and whether the clinical trial will support the intended uses for treatment of sickle cell disease, and future clinical trials or these and any of our other product candidates;
- the therapeutic potential of our product candidates, and the disease indications for which we intend to develop our product candidates;
- the timing and likelihood of, and our ability to obtain and maintain, regulatory clearance of our IND applications for and regulatory approval of our product candidates;
- our ability and the ability of third-party suppliers upon which we rely to manufacture our product candidates for clinical development and, if approved, for commercialization, and the timing and costs of such manufacture;
- estimates of our expenses, ongoing losses, future revenue, capital requirements and our need for or ability to obtain additional funding before we can expect to generate any revenue from product sales;
- our ability to compete with companies currently marketing or engaged in targeted gene integration therapies;
- our ability to establish or maintain collaborations, partnerships or strategic relationships;
- our ability to create a pipeline of product candidates;
- our ability to advance any product candidate into, and successfully complete clinical trials;
- our ability to obtain and maintain intellectual property protection for our current and future product candidates, the duration of such protection and our ability to operate our business without infringing on the intellectual property rights of others;
- our ability to retain and recruit key personnel;
- our expectations regarding use of the proceeds from this offering;
- our financial performance;
- our competitive position and the development of and projections relating to our competitors or our industry, including in gene editing and gene therapy;
- the impact of the COVID-19 pandemic on our business or operations;
- the impact of laws and regulations in the United States and foreign countries; and

- our expectations regarding the time during which we will be an emerging growth company under the JOBS Act.

In some cases, you can identify forward-looking statements by terminology such as "may," "will," "should," "expects," "intends," "plans," "anticipates," "believes," "estimates," "predicts," "potential," "continue" or the negative of these terms or other comparable terminology. These statements are only predictions. You should not place undue reliance on forward-looking statements because they involve known and unknown risks, uncertainties and other factors, which are, in some cases, beyond our control and which could materially affect results. Factors that may cause actual results to differ materially from current expectations include, among other things, those listed under the section titled "Risk Factors" and elsewhere in this prospectus. If one or more of these risks or uncertainties occur, or if our underlying assumptions prove to be incorrect, actual events or results may vary significantly from those implied or projected by the forward-looking statements. No forward-looking statement is a guarantee of future performance. You should read this prospectus and the documents that we reference in this prospectus and have filed with the SEC as exhibits to the registration statement, of which this prospectus is a part, completely and with the understanding that our actual future results may be materially different from any future results expressed or implied by these forward-looking statements.

The forward-looking statements in this prospectus represent our views as of the date of this prospectus. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we assume no obligation to update or revise any forward-looking statements except to the extent required by applicable law. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this prospectus.

In addition, statements that "we believe" and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based upon information available to us as of the date of this prospectus, and while we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain and you are cautioned not to rely unduly upon these statements.

MARKET AND INDUSTRY DATA

We obtained the market, industry and competitive position data used throughout this prospectus from our own internal estimates and research, as well as from independent market research, industry and general publications and surveys, governmental agencies and publicly available information in addition to research, surveys and studies conducted by third parties. Internal estimates are derived from publicly available information released by industry analysts and third-party sources, our internal research and our industry experience, and are based on assumptions made by us based on such data and our knowledge of our industry and market, which we believe to be reasonable. In some cases, we do not expressly refer to the sources from which this data is derived. In that regard, when we refer to one or more sources of this type of data in any paragraph, you should assume that other data of this type appearing in the same paragraph is derived from the same sources, unless otherwise expressly stated or the context otherwise requires. In addition, while we believe the industry, market and competitive position data included in this prospectus are reliable and based on reasonable assumptions, such data involve risks and uncertainties and are subject to change based on various factors, including those discussed in the section titled "Risk Factors." These and other factors could cause results to differ materially from those expressed in the estimates made by the independent parties or by us.

USE OF PROCEEDS

We estimate that the net proceeds from this offering will be approximately $ million, or approximately $ million if the underwriters exercise their over-allotment option to purchase additional shares in full, assuming an initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

Each $1.00 increase or decrease in the assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, would increase or decrease, as applicable, the net proceeds to us from this offering by approximately $ million, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. We may also increase or decrease the number of shares we are offering. Similarly, each increase or decrease of 1.0 million shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase or decrease, as applicable, our net proceeds from this offering by approximately $ million, assuming the assumed initial public offering price to the public remains the same, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. We do not expect that a change in the initial price to the public or the number of shares by these amounts would have a material effect on the uses of the proceeds from this offering, although it may accelerate the time at which we will need to seek additional capital.

The principal purposes of this offering are to obtain additional capital to support our operations, to create a public market for our common stock and to facilitate our future access to the public equity markets.

We currently intend to use the net proceeds from this offering, together with our existing cash and cash equivalents, as follows:

- approximately $ million to fund our development of GPH101 for the treatment of SCD through ;
- approximately $ million to fund our development of GPH201 for the treatment of XSCID through ;
- approximately $ million to fund our development of GPH301 for the treatment of Gaucher disease through ;
- approximately $ million to fund our current discovery programs in CCR5 and alpha globin through ; and
- the remainder, if any, to fund our other research and development activities, working capital and other general corporate purposes.

We may also use a portion of the net proceeds to acquire or invest in new businesses, partnerships, technology or assets, although we have no present commitments or obligations to do so. We evaluate such opportunities and engage in related discussions with third parties from time to time.

Based on our current operating plan, we believe that our existing cash and cash equivalents, together with the net proceeds from this offering, will be sufficient to fund our operating expenses and meet our working capital and capital expenditure needs at least through . Our expected use of net proceeds from this offering represents our current intentions based upon present plans and business conditions. The net proceeds from this offering, together with our existing cash and cash equivalents, will not be sufficient to fund any of our product candidates through regulatory approval, and we anticipate needing to raise additional capital to complete the development of and commercialize our product candidates.

The expected use of net proceeds from this offering represents our intentions based upon our present plans and business conditions. We cannot specify with certainty all of the particular uses for the net proceeds to be received upon the closing of this offering. Due to uncertainties inherent in the product development process, it is difficult to estimate the exact amounts of the net proceeds that will be used for any particular purpose. We may use our existing cash and cash equivalents and the future payments, if any, generated from any future collaboration agreements to fund our operations, either of which may alter the amount of net proceeds used for a particular purpose. In addition, the amount, allocation and timing of our actual expenditures will depend upon numerous factors, including the results of our research and development efforts as well as our interactions with regulatory authorities. Accordingly, we will have broad discretion in using these proceeds.

Pending the uses described above, we plan to invest the net proceeds of this offering in short- and immediate-term, interest-bearing obligations, investment-grade instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government.

DIVIDEND POLICY

We have never declared or paid any cash dividends on our capital stock. We do not anticipate paying any dividends on our capital stock in the foreseeable future. We currently intend to retain all available funds and any future earnings to fund the development and growth of our business. Any future determination to declare dividends will be subject to the discretion of our board of directors and will depend on various factors, including applicable laws, our results of operations, financial condition, future prospects and any other factors deemed relevant by our board of directors. Investors should not purchase our common stock with the expectation of receiving cash dividends.

CAPITALIZATION

The following table sets forth our cash and cash equivalents and capitalization as of March 31, 2021:

- on an actual basis;
- on a pro forma basis to give effect to (i) the automatic conversion of all outstanding shares of our redeemable convertible preferred stock into an aggregate of 74,812,432 shares of our common stock immediately prior to the closing of this offering and (ii) the adoption, filing and effectiveness of our amended and restated certificate of incorporation immediately prior to the completion of this offering; and
- on a pro forma as adjusted basis to give effect to (i) the pro forma adjustments described above and (ii) the issuance and sale of shares of our common stock in this offering at the assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions, and estimated offering expenses payable by us.

You should read this information together with our audited financial statements and related notes appearing elsewhere in this prospectus and the information set forth in the sections titled "Selected Financial Data" and "Management's Discussion and Analysis of Financial Condition and Results of Operations."

	As of March 31, 2021		
	Actual	Pro Forma	Pro Forma As Adjusted(1)
	(in thousands, except share and per share data)		
	(unaudited)	(unaudited)	(unaudited)
Cash and cash equivalents	$ 177,015	$	$
Redeemable convertible preferred stock, par value $0.00001 per share; 74,812,432 shares authorized, 74,812,432 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	$ 260,532	$	$
Stockholders' deficit:			
Common stock, par value $0.00001 per share; 120,000,000 shares authorized, 27,233,407 shares issued and outstanding, actual; shares authorized, 102,045,839 shares issued and outstanding, pro forma; shares authorized, shares issued and outstanding, pro forma as adjusted	—		
Preferred stock, $0.00001 par value per share; no shares authorized, issued or outstanding, actual; shares authorized, no shares issued or outstanding, pro forma and pro forma as adjusted	—		
Additional paid-in capital	6,223		
Accumulated deficit	(90,300)		
Total stockholders' deficit	(84,077)		
Total capitalization	$ 176,455	$	$

(1) Each $1.00 increase or decrease in the assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, would increase or decrease, as applicable, each of our pro forma as adjusted cash and cash equivalents, additional paid-in capital, total stockholders' deficit, and total capitalization by approximately $ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated

underwriting discounts and commissions and estimated offering expenses payable by us. We may also increase or decrease the number of shares we are offering. Each increase or decrease of 1.0 million in the number of shares we are offering would increase or decrease, as applicable, each of our pro forma as adjusted cash and cash equivalents, additional paid-in capital, total stockholders' deficit, and total capitalization by approximately $ million, assuming the assumed initial public offering price per share, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. The pro forma as adjusted information is illustrative only, and we will adjust this information based on the actual initial public offering price and other terms of this offering determined at pricing.

The number of shares of our common stock outstanding on a pro forma and pro forma as adjusted basis in the table above is based on 102,045,839 shares of common stock outstanding as of March 31, 2021, including (i) our restricted common stock subject to vesting and (ii) the automatic conversion of all outstanding shares of our redeemable convertible preferred stock into an aggregate of 74,812,432 shares of our common stock immediately prior to the completion of this offering, and excludes:

- 5,538,444 shares of our common stock issuable upon the exercise of stock options outstanding as of March 31, 2021, with a weighted-average exercise price of $2.06 per share;
- 5,101,057 shares of our common stock issuable upon the exercise of outstanding stock options granted after March 31, 2021, with a weighted-average exercise price of $2.98 per share;
- 6,199,876 shares of our common stock reserved for future issuance under our 2020 Plan as of March 31, 2021;
- shares of our common stock reserved for future issuance under our 2021 Plan, which will become available for issuance upon the effectiveness of the registration statement of which this prospectus is a part, as well as any future increases in the number of shares of our common stock reserved for issuance under the 2021 Plan; and
- shares of our common stock reserved for future issuance under our 2021 ESPP, which will become available for issuance upon the effectiveness of the registration statement of which this prospectus is a part, as well as any future increases in the number of shares of our common stock reserved for issuance under the 2021 ESPP.

DILUTION

If you invest in our common stock in this offering, your ownership interest will be diluted to the extent of the difference between the initial public offering price per share of our common stock and the pro forma as adjusted net tangible book (deficit) value per share of our common stock immediately after this offering.

Our historical net tangible book (deficit) value per share is determined by dividing our total tangible assets (which excludes deferred offering costs) less our total liabilities and redeemable convertible preferred stock, which are not included within stockholders' deficit by the number of shares of common stock outstanding. Our historical net tangible book value (deficit) as of March 31, 2021 was $(84.8) million, or $(3.11) per share.

Our pro forma net tangible book (deficit) value as of March 31, 2021 was $ million, or $ per share. Our pro forma net tangible book (deficit) value per share represents the amount of our total tangible assets reduced by the amount of our total liabilities and divided by the total number of shares of our common stock outstanding as of March 31, 2021, assuming the conversion of all outstanding shares of our redeemable convertible preferred stock into an aggregate of 74,812,432 shares of common stock, which conversion will occur immediately prior to the completion of this offering.

Our pro forma as adjusted net tangible book (deficit) value represents our pro forma net tangible book (deficit) value, plus the effect of the sale of shares of common stock in this offering at an assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Net tangible book value dilution per share to new investors represents the difference between the amount per share paid by purchasers of shares of common stock in this offering and the pro forma as adjusted net tangible book value per share of common stock immediately after completion of this offering. After giving effect to our sale of shares of common stock in this offering at an assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of March 31, 2021 would have been $ million, or $ per share. This represents an immediate increase in net tangible book value of $ per share to existing stockholders and an immediate dilution in net tangible book value of $ per share to purchasers of common stock in this offering, as illustrated in the following table:

Assumed initial public offering price per share		$
Historical net tangible book value (deficit) per share as of March 31, 2021	$ (3.11)	
Pro forma increase in net tangible book value (deficit) per share as of March 31, 2021		
Pro forma net tangible book value per share as of March 31, 2021		
Increase in pro forma net tangible book value per share attributable to new investors participating in this offering		
Pro forma as adjusted net tangible book value per share after this offering		
Dilution per share to new investors participating in this offering		$

If the underwriters' over-allotment option is exercised in full, the pro forma as adjusted net tangible book value per share after this offering would be $ per share, the increase in pro forma as adjusted net tangible book value per share to existing stockholders would be $ per share and the dilution to new investors purchasing shares in this offering would be $ per share.

Each $1.00 increase or decrease in the assumed public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, would increase or decrease, as applicable, our pro forma as adjusted net tangible book value by $ million, or $ per share, and dilution per share to investors in this offering by $ per share, assuming that the number of shares offered by us, as set forth on the cover of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions, and estimated offering expenses payable by us. We may also increase or decrease the number of shares we are offering. Similarly, each increase or decrease of 1.0 million in the number of shares we are offering would increase or decrease, as applicable, our pro forma as adjusted net tangible book value by approximately $ million, or approximately $ per share and would increase or decrease, as applicable, dilution per share to investors in this offering by approximately $ per share, assuming the assumed initial public offering price per share remains the same and after deducting estimated underwriting discounts and commissions, and estimated offering expenses payable by us.

If the underwriters' over-allotment option is exercised in full, the pro forma as adjusted net tangible book value per share after this offering would be $ per share, the increase in pro forma as adjusted net tangible book value per share to existing stockholders would be $ per share and the dilution to new investors purchasing shares in this offering would be $ per share.

The following table summarizes, as of March 31, 2021, on a pro forma as adjusted basis (but before deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us), the differences between the existing stockholders and the purchasers of shares in this offering with respect to the number of shares purchased from us, the total consideration paid, which includes net proceeds received from the issuance of common stock and redeemable convertible preferred stock, cash received from the exercise of stock options, and the value of any stock issued for services and the weighted-average price paid per share:

	Shares Purchased		Total Consideration		Weighted-Average Price Per Share
	Number	Percent	Amount	Percent	
	(in thousands, except per share amounts and percentages)				
Existing stockholders before this offering		%	$	%	$
New investors participating in this offering					$
Totals		100.0%	$	100.0%	

The foregoing tables and calculations (other than the historical net tangible book value calculations) are based on 102,045,839 shares of our common stock outstanding as of March 31, 2021, including (i) our restricted common stock subject to vesting and (ii) an aggregate of 74,812,432 shares of our common stock issuable upon the conversion of our outstanding redeemable convertible preferred stock immediately prior to the completion of this offering, and excludes:

- 5,538,444 shares of our common stock issuable upon the exercise of stock options outstanding as of March 31, 2021, with a weighted-average exercise price of $2.06 per share;
- 5,101,057 shares of our common stock issuable upon the exercise of outstanding stock options granted after March 31, 2021, with a weighted-average exercise price of $2.98 per share;
- 6,199,876 shares of our common stock reserved for future issuance under our 2020 Plan as of March 31, 2021;
- shares of our common stock reserved for future issuance under our 2021 Plan, which will become available for issuance upon the effectiveness of the registration statement of which this prospectus is a part, as well as any future increases in the number of shares of our common stock reserved for issuance under the 2021 Plan; and
- shares of our common stock reserved for future issuance under our 2021 ESPP, which will become available for issuance upon the effectiveness of the registration statement of which this

prospectus is a part, as well as any future increases in the number of shares of our common stock reserved for issuance under the 2021 ESPP.

To the extent that any outstanding options are exercised, new options are issued under our stock-based compensation plans or we issue additional shares of common stock or convertible debt in the future, there will be further dilution to investors participating in this offering. In addition, we may choose to raise additional capital because of market conditions or strategic considerations, even if we believe that we have sufficient funds for our current or future operating plans. If we raise additional capital through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

SELECTED FINANCIAL DATA

The following tables set forth (i) our selected statements of operations and comprehensive loss data for the years ended December 31, 2019 and 2020 and our selected balance sheet data as of December 31, 2019 and 2020, which have been derived from our audited financial statements included elsewhere in this prospectus and (ii) our selected condensed statements of operations and comprehensive loss data for the three months ended March 31, 2020 and 2021 and our selected condensed balance sheet data as of March 31, 2021, which have been derived from our unaudited interim financial statements included elsewhere in this prospectus. We have prepared the unaudited interim condensed financial statements on the same basis as our audited financial statements and, in the opinion of management, these financial statements reflect all adjustments, consisting only of normal recurring adjustments, that are necessary for the fair statement of our unaudited interim condensed financial statements. Our historical results are not necessarily indicative of the results that may be expected in the future and our interim results are not necessarily indicative of results that may be expected for the full year. You should read the following selected financial data together with the "Management's Discussion and Analysis of Financial Condition and Results of Operations" section of this prospectus and our financial statements and the related notes included elsewhere in this prospectus. The selected financial data included in this section are not intended to replace the financial statements and the related notes included elsewhere in this prospectus and are qualified in their entirety by our financial statements and the related notes included elsewhere in this prospectus.

	Year Ended December 31,		Three Months Ended March 31,	
	2019	2020	2020	2021
	(in thousands, except share and per share amounts)		(unaudited)	
Statements of Operations and Comprehensive Loss Data:				
Operating expenses:				
Research and development	$ —	$ 9,123	$ —	$ 5,377
General and administrative	29	4,377	121	3,991
Total operating expenses	29	13,500	121	9,368
Loss from operations	(29)	(13,500)	(121)	(9,368)
Other income (expense), net:				
Related party convertible note interest expense	(80)	(40)	(20)	—
Change in fair value of the redeemable convertible preferred stock tranche liabilities	—	(54,833)	—	(10,341)
Total operating income (expense), net	(80)	(54,873)	(20)	(10,341)
Net loss and comprehensive loss	$ (109)	$ (68,373)	$ (141)	$ (19,709)
Net loss per share attributable to common stockholders, basic and diluted[1]	$ (109,000)	$ (12.31)	$(141,000)	$ (2.37)
Weighted-average shares used in computing net loss per share attributable to common stockholders, basic and diluted[1]	1	5,554,899	1	8,329,815
Pro forma net loss per share attributable to common stockholders, basic and diluted[2]		$ (0.38)		$
Weighted-average shares outstanding used in computing pro forma net loss per share attributable to common stockholders, basic and diluted[2]		35,574,844		

(1) See Notes 2 and 11 to our financial statements included elsewhere in this prospectus for an explanation of the calculations of our basic and diluted net loss per share and the weighted-average number of shares used in the computation of the per share amounts.

(2) See the section titled "Management's Discussion and Analysis of Financial Conditions and Results of Operations—Unaudited Pro Forma Information" for an explanation of the calculation of our basic and diluted pro forma net loss per share, and the weighted-average number of shares outstanding used in the computation of the per share amounts.

	As of December 31,		As of March 31,
	2019	2020	2021
		(in thousands)	(unaudited)
Condensed Balance Sheet Data:			
Cash and cash equivalents	$ 6	$ 19,782	$ 177,015
Working capital(1)	(2,218)	(10,945)	173,873
Total assets	6	22,564	182,912
Redeemable convertible preferred stock	—	55,608	260,532
Additional paid-in capital	—	5,183	6,223
Accumulated deficit	(2,218)	(70,591)	(90,300)
Total stockholders' deficit	(2,218)	(65,408)	(84,077)

(1) We define working capital as current assets less current liabilities. See our financial statements appearing elsewhere in this prospectus.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion and analysis of our financial condition and results of operations in conjunction with our financial statements and related notes and other financial information included elsewhere in this prospectus. This discussion and analysis and other parts of this prospectus contain forward-looking statements based upon our current plans and expectations that involve risks, uncertainties and assumptions, such as statements regarding our plans, objectives, expectations, intentions and beliefs. Our actual results and the timing of events could differ materially from those anticipated in these forward-looking statements as a result of various factors, including those set forth under the section titled "Risk Factors" and elsewhere in this prospectus. You should carefully read the "Risk Factors" section of this prospectus to gain an understanding of the important factors that could cause actual results to differ materially from our forward-looking statements. Please also see the section titled "Special Note Regarding Forward-Looking Statements."

Overview

We are a clinical-stage, next-generation gene editing company harnessing high efficiency targeted gene integration to develop a new class of therapies to potentially cure a wide range of serious and life-threatening diseases. We are pioneering a precision gene editing approach to achieve one of medicine's most elusive goals: to precisely "find & replace" any gene in the genome. Our next-generation gene editing platform allows us to precisely correct mutations, replace entire disease-causing genes with normal genes, or insert new genes into predetermined, safe locations. We believe our approach could enable broad applications to transform human health, including directly correcting mutations, engineering cells to permanently deliver therapeutic proteins, and precisely engineering effector cells to treat or cure a wide range of serious genetic and other diseases, including cancer, autoimmune and neurodegenerative diseases.

Our lead product candidate GPH101 is a highly differentiated approach with the potential to directly correct the mutation that causes SCD and restore normal HgbA expression. Curing sickle cell disease by correcting the disease-causing point mutation to normal is viewed as the gold-standard for curing SCD and has been the dream of treating physicians for generations. We have received clearance of our IND and we intend to enroll the first patient in a Phase 1/2 clinical trial of GPH101 in . We are also advancing our research programs and pipeline of potentially one-time curative therapies for a wide range of genetic and other serious diseases and intend to file an IND for a second program by .

We were incorporated in Ontario, Canada in June 2017 as Longbow Therapeutics Inc. and were reincorporated in the State of Delaware in October 2019. In February 2020, we changed our name to Integral Medicines, Inc. and in August 2020, we changed our name to Graphite Bio, Inc. Research and development of our initial technology ceased at the end of 2018 and we did not have any significant operations or any research and development activities in 2019. In March 2020, we identified new gene editing technology which we sought to further develop, and we licensed the related intellectual property rights from The Board of Trustees of the Leland Stanford Junior University (Stanford) in December 2020.

Since our inception in June 2017, we have devoted substantially all of our resources to performing research and development, enabling manufacturing activities in support of our product development efforts, hiring personnel, acquiring and developing our technology and product candidates, organizing and staffing our Company, performing business planning, establishing our intellectual property portfolio, raising capital and providing general and administrative support for these activities. We have one product candidate that has an accepted IND. All of our other product candidates are in preclinical development, and we do not have any products approved for sale and have not generated any revenue from product sales. To date, we have funded our operations primarily with an aggregate of $197.7 million in aggregate gross proceeds from the sales of our redeemable convertible preferred stock and the issuance of convertible notes. We will continue to require additional capital to develop our product candidates and fund operations for the foreseeable future. Accordingly, until such time as we can generate significant revenue from sales of our product candidates, if ever, we expect to

finance our cash needs through public or private equity or debt financings, and collaborations, strategic alliances and licensing arrangements with third parties.

We have incurred significant operating losses since inception. As of December 31, 2020 and March 31, 2021, we had cash and cash equivalents of $19.8 million and $177.0 million, respectively, and an accumulated deficit of $70.6 million and $90.3 million, respectively. We expect to continue to incur substantial losses for the foreseeable future, and our transition to profitability will depend upon successful development, approval and commercialization of our product candidates and upon achievement of sufficient revenues to support our cost structure. We do not expect to generate any revenue from commercial product sales unless and until we successfully complete development and obtain regulatory approval for one or more of our product candidates, which we expect will take at least several years. We may never achieve profitability, and unless and until then, we will need to continue to raise additional capital. Based upon our current operating plan, we estimate that our existing cash and cash equivalents as of the date of this prospectus will be sufficient to fund our operating expenses and capital expenditure requirements for at least the next months.

We expect our expenses will increase substantially in connection with our ongoing and planned activities, as we:

- advance product candidates through preclinical studies and clinical trials;
- manufacture supplies for our preclinical studies and clinical trials;
- acquire, discover, validate and develop additional product candidates and technologies;
- attract, hire and retain additional personnel;
- operate as a public company;
- implement operational, financial and management systems;
- pursue regulatory approval for any product candidates that successfully complete clinical trials;
- expand or establish additional facilities for our growing business and operations;
- establish a sales, marketing and distribution infrastructure to commercialize any product candidate for which we may obtain marketing approval and related commercial manufacturing build-out; and
- obtain, maintain, expand and protect our portfolio of intellectual property rights.

We rely and will continue to rely on third parties in the conduct of our preclinical studies and clinical trials and for manufacturing and supply of our product candidates. We have no internal manufacturing capabilities, and we may continue to rely on third parties for our preclinical and clinical trial materials, of which the main suppliers are single-source suppliers. Given our stage of development, we do not yet have a marketing or sales organization or commercial infrastructure. Accordingly, if we obtain regulatory approval for any of our product candidates, we also expect to incur significant commercialization expenses related to product sales, marketing, manufacturing and distribution.

Because of the numerous risks and uncertainties associated with product development, we are unable to predict the timing or amount of increased expenses or when or if we will be able to achieve or maintain profitability. Even if we are able to generate revenue from sales of any product for which we receive regulatory approval, we may not become profitable. If we fail to become profitable or are unable to sustain profitability on a continuing basis, we may be unable to continue our operations at planned levels and may be forced to reduce our operations.

Business Impact of COVID-19 Pandemic

In March 2020, the World Health Organization declared the global COVID-19 outbreak a pandemic. The ongoing COVID-19 pandemic may continue to affect our ability to initiate and complete preclinical studies, delay the initiation of our planned clinical trials or future clinical trials or the progress or completion of our ongoing clinical trials, impede regulatory activities, disrupt the supply chain and the manufacture or shipment of

drug substances and finished drug products for our product candidates for use in our clinical trials, impair testing, monitoring, data collection and analysis and other related activities or have other adverse effects on our business, financial condition, results of operations and prospects. In addition, the pandemic has caused substantial disruption in the financial markets and may adversely impact economies worldwide, both of which could result in adverse effects on our business and operations and our ability to raise additional funds to support our operations. For example and in light of the ongoing COVID-19 pandemic, our partner Stanford was delayed in making an IND filing. In addition, the trading prices for biopharmaceutical companies have been highly volatile as a result of the COVID-19 pandemic, and we may face similar volatility in our stock price.

We are following, and will continue to follow, recommendations from the U.S. Centers for Disease Control and Prevention as well as federal, state, and local governments regarding working-from-home practices for non-essential employees as well as return-to-work policies and procedures. We expect to continue to take actions as may be required or recommended by government authorities or as we determine are in the best interests of our employees and other business partners in light of the pandemic.

While our operations to date have not been significantly impacted by the COVID-19 pandemic, we cannot at this time predict the specific extent, duration, or full impact that the COVID-19 pandemic will have on our business, financial condition and operations, including planned clinical trials and clinical development timelines. The impact of the COVID-19 pandemic on our financial performance will depend on future developments, including the duration and spread of the pandemic, its impact on our clinical trial enrollment, trial sites, CROs, CMOs and other third parties with whom we do business, its impact on regulatory authorities and our key scientific and management personnel, progress of vaccination and related governmental advisories and restrictions. These developments and the impact of the COVID-19 pandemic on the financial markets and the overall economy are highly uncertain and cannot be predicted. If the financial markets or the overall economy are impacted for an extended period, our business may be materially adversely affected.

Stanford Exclusive License Agreement and Option Agreement

In December 2020, we entered into an exclusive license agreement (the License Agreement), with The Board of Trustees of the Leland Stanford Junior University (Stanford), pursuant to which Stanford granted us a worldwide license to specified technology and patent rights to develop, manufacture and commercialize human prophylactic and therapeutic products. Other than with respect to specified, broadly applicable assays and procedures and subject to retained rights by Stanford, the license is exclusive with respect to human prophylactic and therapeutic products for the treatment of SCD, XSCID and beta thalassemia. The license is non-exclusive with respect to those broadly applicable assays and procedures and with respect to all human prophylactic and therapeutic products other than for the treatment of SCD, XSCID and beta thalassemia. Please see the section titled “Business—Our Material Agreements” for additional information concerning the intellectual property related to the License Agreement.

To date, pursuant to the License Agreement, we have paid an upfront license fee to Stanford of $50,000 and issued to Stanford and its designees an aggregate of approximately 1.6 million shares of our common stock. The acquisition of the exclusive license, including patent rights and know-how, and clinical supplies was accounted for as an asset acquisition and as the acquired technology and inventories did not have an alternative use, the total consideration of $2.8 million was recorded as research and development expense in the statements of operations and comprehensive loss for the year ended December 31, 2020. We are obligated to pay Stanford an annual license maintenance fee on each anniversary of the effective date of the License Agreement. The annual license maintenance fee initially is $5,000 and will increase to $50,000 in three increments over the first seven anniversaries of the effective date of the License Agreement. After the first commercial sale of a product falling within the scope of the license (Licensed Product), the annual license maintenance fee is $200,000.

We are required to share with Stanford a portion of any non-royalty income we receive from sublicensing the licensed patent rights or technology, subject to specified exclusions. With respect to sublicenses granted to

products for the treatment of SCD, XSCID and beta thalassemia, the portion of sublicense income we must share with Stanford varies by indication and declines from between a mid-teens to a second quartile double-digit percentage prior to the filing of an IND to between a high single-digit to very low double-digit percentage upon achievement of a specified clinical milestone. With respect to sublicenses granted under the licensed technology rights and not licensed patent rights, the portion of sublicense income shared with Stanford declines from between a mid single-digit and very low double-digit percentage prior to the filing of an IND to a low single-digit percentage after filing of an IND.

We are obligated to make payments to Stanford with respect to each Licensed Product of up to an aggregate of $12.8 million upon the achievement of certain development, regulatory and commercial milestones. Such amounts are payable only once upon the first occurrence of a particular milestone event with respect to each Licensed Product and only once with respect to each new indication covered by any of the Licensed Products.

We also are obligated to pay Stanford low single-digit royalties based on worldwide annual net sales of any Licensed Product, subject to specified reductions. We will be obligated to continue to pay royalties on a Licensed Product-by-Licensed Product and country-by-country basis, until the latest of (i) the expiration of the last valid claim under the licensed patents that covers the sale or manufacture of such Licensed Product in such country, (ii) the expiration of any period of regulatory exclusivity with respect to such Licensed Product in such country or (iii) the expiration of ten years after the first commercial sale of such Licensed Product in such country.

The term of the License Agreement expires on the later of (i) the expiration of the last patent or abandonment of the last patent application within the license patent rights or (ii) the expiration of all royalty terms with respect to Licensed Products. The License Agreement may be terminated by us at will or by Stanford if we remain in breach of the License Agreement following a cure period to remedy the breach.

We are required to use diligent efforts to manufacture, market and sell Licensed Products for the treatment of each of SCD, XSCID and beta thalassemia. In addition, we are required to achieve specified milestones by specified dates with respect to Licensed Products for the treatment of each of SCD, XSCID and beta thalassemia. If we fail to satisfy our diligence obligations, Stanford may terminate the License Agreement for our breach. For more details on the License Agreement, please see the section titled “Business—Our Material Agreements.”

In January 2021, we entered into an option agreement (the First Option Agreement), with Stanford, pursuant to which Stanford granted us the right to obtain a license to specified patent rights relating to human prophylactic and therapeutic products. We may exercise the option in whole or in part to obtain a license under one or more of the optioned patent rights.

Subject to our exercise of the option under the First Option Agreement and our execution of an amendment to the License Agreement that incorporates the optioned patent rights and any optioned technology, we have agreed to issue to Stanford 321,358 shares of our common stock and pay a license execution fee of $10,000.

The term of the First Option Agreement expires 18 months after its effective date, subject to our right to extend such expiration date by up to an additional one year upon notice to Stanford and by another additional one year upon the reasonable agreement of Stanford. The First Option Agreement will terminate if the License Agreement terminates.

As of March 31, 2021, we have not exercised the option under the First Option Agreement.

Components of Results of Operations

Operating Expenses

Research and Development

Research and development costs consist primarily of external and internal costs incurred for our research activities and the development of our gene editing platform and associated rights which we licensed in December 2020.

External costs include:

- costs incurred under agreements with third-party CROs, CMOs and other third parties that conduct preclinical and clinical activities on our behalf and manufacture our product candidates;
- costs associated with acquiring technology and intellectual property licenses that have no alternative future uses; and
- other costs associated with our research and development programs, including laboratory materials and supplies and consulting fees.

Internal costs include:

- employee-related costs, including salaries, benefits and stock-based compensation expense, for our research and development personnel; and
- facilities and other expenses incurred in connection with our research and development programs, including expenses for allocated rent and facilities maintenance, and depreciation and amortization.

Research and development costs are expensed as incurred. In 2020, we did not track our internal indirect costs and external research and development costs by program. The intellectual property we licensed in late 2020 is fundamental to our platform and we did not focus on any specific programs. In the future, we expect to track research and development costs on a program by program basis as we identify the specific programs and product candidates to develop.

During 2020, we were eligible for a research and development tax credit. The tax incentive was available to us based on research and development activity within the United States and California during that year. These research and development tax incentives are recognized as a reduction to payroll tax expense when the right to receive has been attained and funds are collectible and are capped at $250,000 per year.

We expect our research and development expenses to increase substantially for the foreseeable future as we advance our product candidates into and through preclinical studies and clinical trials, pursue regulatory approval of our product candidates and expand our pipeline of product candidates. The process of conducting the necessary preclinical and clinical research to obtain regulatory approval is costly and time-consuming. The actual probability of success for our product candidates may be affected by a variety of factors, including the safety and efficacy of our product candidates, early clinical data, investment in our clinical programs, competition, manufacturing capability and commercial viability. We may never succeed in achieving regulatory approval for any of our product candidates. As a result of the uncertainties discussed above, we are unable to determine the duration and completion costs of our research and development projects or if, when and to what extent we will generate revenue from the commercialization and sale of our product candidates, if approved by the FDA and other applicable authorities.

Our future research and development costs may vary significantly based on factors such as:

- the scope, rate of progress, expense and results of our discovery and preclinical development activities;
- the costs and timing of our CMC activities, including fulfillingGMP-related standards and compliance, and identifying and qualifying suppliers;
- per patient clinical trial costs;
- the number and duration of clinical trials required for approval of our product candidates;
- the number of sites included in our clinical trials;
- the countries in which the trials are conducted;
- delays in adding a sufficient number of trial sites and recruiting suitable patients to participate in our clinical trials;

- the number of patients that participate in the trials;
- patient drop-out or discontinuation rates;
- potential partial reimbursement from governmental agencies for our clinical activities;
- potential additional safety monitoring requested by regulatory agencies;
- the duration of patient participation in the trials and follow-up;
- the cost and timing of manufacturing our product candidates;
- the phase of development of our product candidates;
- the efficacy and safety profile of our product candidates; the timing, receipt, and terms of any approvals from applicable regulatory authorities including the FDA and non-U.S. regulators;
- maintaining a continued acceptable safety profile of our product candidates following approval, if any, of our product candidates;
- significant and changing government regulation and regulatory guidance;
- changes in the standard of care on which a clinical development plan was based, which may require new or additional trials;
- the extent to which we establish additional strategic collaborations or other arrangements; and
- the impact of any business interruptions to our operations or to those of the third parties with whom we work, particularly in light of the current COVID-19 pandemic environment.

General and Administrative Expenses

General and administrative expenses consist primarily of expenses related to employee-related costs, including salaries, benefits and stock-based compensation expense, for our executive, business development, finance and accounting, human resources and other administrative functions; legal services, including relating to intellectual property and corporate matters; accounting, auditing, consulting and tax services; insurance; and facility and other allocated costs not otherwise included in research and development expenses. We expect our general and administrative expenses to increase substantially for the foreseeable future as we anticipate an increase in our personnel headcount to support expansion of research and development activities, as well as to support our operations generally. We also expect an increase in expenses associated with being a public company, including costs related to accounting, audit, legal, regulatory, and tax-related services associated with maintaining compliance with applicable Nasdaq and SEC requirements; additional director and officer insurance costs; and investor and public relations costs.

Other Income (Expense), Net

Other income (expense), net includes interest expense incurred on our convertible notes and changes in the fair value of our redeemable convertible preferred stock tranche liabilities (see the subsection titled "—Critical Accounting Policies and Significant Judgments and Estimates" below and Notes 2, 8 and 12 to our financial statements included elsewhere in this prospectus for more details).

Results of Operations

Three Months Ended March 31, 2020 and 2021

The following table summarizes our statements of operations and comprehensive loss for the respective periods (in thousands):

	Three Months Ended March 31,	
	2020	2021
	(unaudited)	
Operating expenses:		
Research and development	$ —	5,377
General and administrative	121	3,991
Total operating expenses	121	9,368
Loss from operations	(121)	(9,368)
Other income (expense), net:		
Related party convertible note interest expense	(20)	—
Change in fair value of the redeemable convertible preferred stock tranche liability	—	(10,341)
Total other income (expense), net	(20)	(10,341)
Net loss and comprehensive loss	$ (141)	$ (19,709)

Operating Expenses

Research and Development Expenses

The following table summarizes our external and internal research and development expenses by nature for the three months ended March 31, 2021 (in thousands):

	Three Months Ended March 31, 2021 (unaudited)
External costs:	
CRO, CMO and other third-party preclinical and clinical trial costs	$ 1,578
Technology and intellectual property license	3
Other research and development costs, including laboratory materials and supplies	2,181
Internal costs:	
Personnel-related expenses	1,234
Facilities and overhead expenses	381
Total research and development expenses	$ 5,377

General and Administrative Expenses

During the three months ended March 31, 2021, we incurred $4.0 million in general and administrative expenses. The expenses incurred during the three months ended March 31, 2021 were comprised of professional fees of $2.2 million, primarily related to accounting, audit and legal services; and employee-related expenses of $1.5 million, which included salaries, benefits and stock-based compensation expenses. For the three months ended March 31, 2020, we incurred total expenses of $0.1 million consisting primarily of professional legal, tax, and accounting service fees.

Other Income (Expense), Net

The other income (expense), net for the three months ended March 31, 2021 was comprised of the change in the fair value of our Series A redeemable convertible preferred stock tranche liability of $10.3 million. The other expense for the three months ended March 31, 2020 related to interest expense incurred on a convertible note from a related party.

Years Ended December 31, 2019 and 2020

The following table summarizes our statements of operations and comprehensive loss for the respective periods (in thousands):

	Year Ended December 31,	
	2019	2020
Operating expenses:		
Research and development	$ —	$ 9,123
General and administrative	29	4,377
Total operating expenses	29	13,500
Loss from operations	(29)	(13,500)
Other income (expense), net:		
Related party convertible note interest expense	(80)	(40)
Change in fair value of the redeemable convertible preferred stock tranche liability	—	(54,833)
Total other income (expense), net	(80)	(54,873)
Net loss and comprehensive loss	$ (109)	$ (68,373)

Operating Expenses

Research and Development Expenses

The following table summarizes our external and internal research and development expenses incurred for the year ended December 31, 2020 (in thousands):

	Year Ended December 31, 2020
External costs:	
CRO, CMO and other third party preclinical and clinical trial costs	$ 3,127
Technology and intellectual property license	2,822
Other research and development costs, including laboratory materials and supplies	1,060
Internal costs:	
Personnel-related expenses	1,357
Facilities and overhead expenses	757
Total research and development expenses	$ 9,123

(1) Primarily comprised of cost of common shares to be issued to Stanford under the License Agreement. For more details on this transaction, see Note 6 in our financial statements included elsewhere in this prospectus.

There were no research and development expenses incurred in the year ended December 31, 2019.

General and Administrative Expenses

In the year ended December 31, 2020, we incurred $4.4 million in general and administrative expenses, which comprised of (i) professional expenses of $1.7 million, primarily related to outside recruiting and marketing expenses; (ii) employee-related expenses of $1.3 million, which include salaries, benefits and stock-based compensation for our management and board members; and (iii) legal costs of $1.1 million.

For the year ended December 31, 2019, we incurred total expenses of $29,000 consisting primarily of professional legal, tax, and accounting service fees and other expenses related to the convertible note interest expense.

Other Income (Expense), Net

The other income (expense), net in the year ended December 31, 2020 was primarily comprised of the change in the fair value of the Series A redeemable convertible preferred stock tranche liabilities of $54.8 million, as well as interest expense on the convertible note from a related party. See Note 12 to our financial statements included elsewhere in this prospectus for more details.

The other income (expense), net in the year ended December 31, 2019 primarily comprised of the interest expense of the related party convertible note.

Unaudited Pro Forma Information

Our unaudited pro forma basic and diluted net loss per share for the year ended December 31, 2020 and for the three months ended March 31, 2021 have been computed to give effect to (i) the conversion of all outstanding shares of our redeemable convertible preferred stock into shares of our common stock (ii) and the removal of gains or losses resulting from the re-measurement of the redeemable convertible preferred stock liabilities as the preferred stock will be exercised for shares of common stock immediately prior to the closing of this offering. Pro forma net loss per share does not include the obligation to issue approximately 1.6 million shares of our common stock to Stanford under the License Agreement, as these shares were not outstanding as of December 31, 2020 and March 31, 2021. In addition, pro forma net loss per share does not include the shares expected to be sold in this offering.

The following table sets forth the computation of the unaudited pro forma basic and diluted net loss per share of common stock for the period presented (in thousands, except for share and per share amounts):

	Year Ended December 31, 2020	Three Months Ended March 31, 2021
		(unaudited)
Net loss attributable to common stockholders	$ (68,373)	$ (19,709)
Pro forma adjustment to reflect the removal of gains or losses resulting from the re-measurement of the Series A redeemable convertible preferred stock tranche liability	54,833	10,341
Pro forma net loss	$ (13,540)	$ (9,368)
Weighted-average shares outstanding used in computing net loss per share attributable to common stockholders, basic and diluted	5,554,899	8,329,815
Pro forma adjustment to reflect the assumed conversion of the Series A redeemable convertible preferred stock	30,019,945	45,019,945
Pro forma adjustment to reflect the assumed conversion of the Series B redeemable convertible preferred stock	—	29,792,487
Pro forma weighted-average shares outstanding used in computing pro forma net loss per share — basic and diluted	35,574,844	83,142,247
Pro forma net loss per share — basic and diluted	$ (0.38)	$ (0.11)

Liquidity and Capital Resources

We have incurred losses since inception and have incurred negative cash flows from operations from inception through March 31, 2021. As of December 31, 2020 and March 31, 2021, we had $19.8 million and $177.0 million, respectively, of cash and cash equivalents and our accumulated deficit was $70.6 million and $90.3 million, respectively. We have funded our operations to date primarily from the sale of redeemable convertible preferred stock and issuance of convertible promissory notes. Through March 31, 2021, we have raised $197.7 million in aggregate gross proceeds through such means.

Future Funding Requirements

Our primary uses of cash are to fund our operations, which consist primarily of research and development expenditures related to our programs and, to a lesser extent, general and administrative expenditures. We anticipate that we will continue to incur significant expenses for the foreseeable future as we continue to advance our product candidates, expand our corporate infrastructure, including the costs associated with being a public company, further our research and development initiatives for our product candidates, scale our laboratory and manufacturing operations, and incur marketing costs associated with potential commercialization. We are subject to all of the risks typically related to the development of new drug candidates, and we may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect our business. We anticipate that we will need substantial additional funding in connection with our continuing operations.

Based upon our current operating plan, we estimate that our existing cash and cash equivalents as of the date of this prospectus, together with the estimated net proceeds from this offering, will be sufficient to fund our operating expenses and capital expenditure requirements for at least the next months. Until we can generate a sufficient amount of revenue from the commercialization of our product candidates or from collaboration agreements with third parties, if ever, we expect to finance our future cash needs through public or private equity or debt financings, including this offering, collaborations and other strategic alliances and licensing arrangements, or any combination of these approaches. The sale of equity or convertible debt securities may result in dilution to our stockholders and, in the case of preferred equity securities or convertible debt, those securities could provide for rights, preferences or privileges senior to those of our common stock. Debt financings may subject us to covenant limitations or restrictions on our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. Our ability to raise additional funds may be adversely impacted by negative global economic conditions and any disruptions to and volatility in the credit and financial markets in the United States and worldwide that may result from the ongoing COVID-19 pandemic or other factors. There can be no assurance that we will be successful in acquiring additional funding at levels sufficient to fund our operations or on terms favorable or acceptable to us. If we are unable to obtain adequate financing when needed or on terms favorable or acceptable to us, we may be forced to delay, reduce the scope of or eliminate one or more of our research and development programs.

Our future capital requirements will depend on many factors, including:

- the timing, scope, progress, results and costs of research and development, discovery, preclinical and non-clinical studies and clinical trials for our current and future product candidates;
- the number, scope and duration of clinical trials required for regulatory approval of our current and future product candidates;
- the outcome, timing and cost of seeking and obtaining regulatory approvals from the FDA and comparable foreign regulatory authorities for our product candidates, including any requirement to conduct more studies or generate additional data beyond that which we currently expect would be required to support a marketing application;
- the cost of manufacturing clinical and commercial supplies of our current and future product candidates;
- the costs and timing of future commercialization activities, including product manufacturing, marketing, sales and distribution, for any of our product candidates for which we receive marketing approval;
- our ability to maintain existing, and establish new, strategic collaborations, licensing or other arrangements and the financial terms of any such agreements, including the timing and amount of any future milestone, royalty or other payments due under any such agreement;
- any product liability or other lawsuits related to our products;

- the revenue, if any, received from commercial sales of any product candidates for which we may receive marketing approval;
- our ability to establish a commercially viable pricing structure and obtain approval for coverage and adequate reimbursement from third-party and government payers;
- the costs to establish, maintain, expand, enforce and defend the scope of our intellectual property portfolio, including the amount and timing of any payments we may be required to make, or that we may receive, in connection with licensing, preparing, filing, prosecuting, defending and enforcing our patents or other intellectual property rights;
- expenses needed to attract, hire and retain skilled personnel;
- the costs of operating as a public company; and
- the impact of the COVID-19 pandemic, which may exacerbate the magnitude of the factors discussed above.

A change in the outcome of any of these or other variables could significantly change the costs and timing associated with the development of our product candidates. Furthermore, our operating plans may change in the future, and we may need additional funds to meet operational needs and capital requirements associated with such change.

Cash Flows

The following table summarizes our sources and uses of cash for the periods presented (in thousands):

	Year Ended December 31,		Three Months Ended March 31,	
	2019	2020	2020	2021
			(unaudited)	
Net cash used in operating activities	$ (19)	$ (8,721)	$ (4)	$ (8,060)
Net cash used in investing activities	—	(1,545)	—	(360)
Net cash provided by financing activities	—	30,077	—	165,767
Net (decrease) increase in cash, cash equivalents and restricted cash	$ (19)	$19,811	$ (4)	$ 157,347

Cash Flows from Operating Activities

Cash used in operating activities during the three months ended March 31, 2021 was primarily due to our net loss for the quarter of $19.7 million adjusted by non-cash charges of $11.5 million and a net change of $0.2 million in our net operating assets and liabilities. The non-cash charges consisted of a $10.3 million change in the fair value of the Series A redeemable convertible preferred stock tranche liability and $1.0 million of stock-based compensation expense. The change in our net operating assets and liabilities was primarily due to an increase of $2.1 million in accrued expenses and other current liabilities, offset by a $1.8 million decrease in prepaid expenses and other current assets. Cash used in operating activities during the three months ended March 31, 2020 was immaterial.

Cash used in operating activities in the year ended December 31, 2020 was primarily due to our net loss for the year of $68.4 million adjusted by non-cash charges of $57.9 million and a net change of $1.7 million in our net operating assets and liabilities. The non-cash charges consisted of a $54.8 million change in the fair value of the redeemable convertible preferred stock tranche liabilities and $2.8 million for the shares of common stock issuable to Stanford pursuant to the License Agreement. The changes in our net operating assets and liabilities were primarily due to an increase of $2.5 million in accounts payable and accrued expenses, and $0.4 million increase in accrued compensation, offset by a $1.2 million increase in prepaid expenses. Cash used in operating activities in the year ended December 31, 2019 was immaterial.

Cash Flows from Investing Activities

During the three months ended March 31, 2021, cash used in investing activities was $0.4 million and related primarily to the purchase of lab equipment.

During the year ended December 31, 2020, cash used in investing activities was $1.5 million and related primarily to the purchase of lab equipment.

Cash Flows from Financing Activities

Cash provided by financing activities during the three months ended March 31, 2021 was $165.8 million, which consisted primarily of net proceeds from the issuance of the shares of our Series A and Series B redeemable convertible preferred stock of $15.0 million ($15.0 million, net of issuance costs of $4,000) and $150.7 million ($150.6 million, net of issuance costs of $0.1 million), respectively.

Cash provided by financing activities for the year ended December 31, 2020 was $30.1 million, which consisted primarily of net proceeds from the issuance of shares of our Series A redeemable convertible preferred stock of $25.0 million ($24.8 million, net of issuance costs of $0.2 million) in two tranches, as well as $5.0 million from the issuance of a convertible note.

Recently Adopted Accounting Pronouncements

For information on new accounting standards, see Note 2 to our financial statements included elsewhere in this prospectus.

Contractual Obligations and Commitments

The following table summarizes our contractual obligations and commitments at December 31, 2020:

	Payments Due by Period				
	Less than 1 Year	1 - 3 Years	3 - 5 Years	More than 5 Years	Total
	(in thousands)				
Operating lease obligations(1)	$ 209.2	$ —	$ —	$ —	$209.2
Stanford license agreement(2)	5.0	20.0	75.0	—	100.0
Total	$ 214.2	$ 20.0	$ 75.0	$ —	$309.2

(1) Consists of our corporate headquarters lease in South San Francisco, California that expires in June 2021. In March 2021, we amended our lease agreement and extended the term of the lease to September 30, 2021. This resulted in an additional commitment of $0.1 million for the year ended December 31, 2021, which is not included above.

(2) Represents annual license maintenance fees under the exclusive license agreement with Stanford. The table above does not include the maintenance fees for the periods after year six as the timing and likelihood of commercial sale is unknown and hard to estimate. In addition, these amounts do not include any potential contingent payments, including those due upon the achievement by us of specified clinical, regulatory and commercial milestones, as applicable, or patent prosecution, and royalty payments we may be required to make under this agreement. We have excluded these potential payments in the contractual obligations table because the timing and likelihood of these contingent payments are not currently known and would be difficult to predict or estimate. For more information about potential payments thereunder, see Note 6 to our financial statements included elsewhere in this prospectus.

In addition, in February 2021, we entered into a new lease agreement for a new facility in South San Francisco, CA, which will commence on October 1, 2021. The term of the lease is 42 months with a right to extend the term for an additional two years on the same terms and conditions. The initial annual base rent is approximately $1.4 million, and such amount will increase by 3.0% annually on each anniversary of the commencement date.

We enter into contracts in the normal course of business with CROs for clinical trials, with CMOs for the manufacture of clinical supplies and with other vendors for preclinical studies, supplies and other services and products for operating purposes. These contracts generally provide for termination on notice or may have a potential termination fee if a purchase order is cancelled within a specified time, and therefore are cancelable contracts and not included in the table above.

Critical Accounting Policies and Significant Judgments and Estimates

Our management's discussion and analysis of our financial condition and results of operations are based on our financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States of America. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, and expenses and the disclosure of contingent assets and liabilities in our financial statements. On an ongoing basis, we evaluate our estimates and judgments, including but not limited to those related to accrued research and development costs, the fair value of derivative redeemable convertible preferred stock tranche liabilities, the fair value of redeemable convertible preferred stock and common stock and stock-based compensation expense, the valuation of deferred tax assets, and uncertain income tax positions. We base our estimates on historical experience, known trends and events and various other factors that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

While our significant accounting policies are described in more detail in Note 2 to our financial statements included elsewhere in this prospectus, we believe the following accounting policies and estimates to be most critical to the judgments and estimates used in the preparation of our financial statements.

Accrued Research and Development Expenses

We have entered into various agreements with CMOs and may enter into contracts with CROs in the future. As part of the process of preparing our financial statements, we are required to estimate our accrued research and development expenses as of each balance sheet date. This process involves reviewing open contracts and purchase orders, communicating with our personnel and third parties to identify services that have been performed on our behalf and estimating the level of service performed and the associated cost incurred for the service when we have not yet been invoiced or otherwise notified of the actual cost. We make estimates of our accrued research and development expenses as of each balance sheet date based on facts and circumstances known to us at that time. We periodically confirm the accuracy of our estimates with the service providers and make adjustments, if necessary. The significant estimates in our accrued research and development expenses include the costs incurred for services performed by our vendors in connection with research and development activities for which we have not yet been invoiced.

We accrue for costs related to research and development activities based on our estimates of the services received and efforts expended pursuant to quotes and contracts with vendors, including CROs and CMOs, that conduct research and development on our behalf. The financial terms of these agreements are subject to negotiation, vary from contract to contract and may result in uneven payment flows. There may be instances in which payments made to our vendors will exceed the level of services provided and result in a prepayment of the research and development expense. Advance payments for goods and services that will be used in future research and development activities are expensed when the activity has been performed or when the goods have been received. We make significant judgments and estimates in determining accrued research and development liabilities as of each reporting period based on the estimated time period over which services will be performed and the level of effort to be expended. If the actual timing of the performance of services or the level of effort varies from our estimate, we adjust the accrual or prepaid expense accordingly.

Although we do not expect our estimates to be materially different from amounts actually incurred, if our estimates of the status and timing of services performed differ from the actual status and timing of services

performed, it could result in us reporting amounts that are too high or too low in any particular period. To date, there have been no material differences between our estimates of such expenses and the amounts actually incurred.

Series A Redeemable Convertible Preferred Stock Tranche Liability

We utilize the Black-Scholes option-pricing model, which incorporates assumptions and estimates, to value each preferred stock tranche liability. On a quarterly basis, we assess these assumptions and estimates as additional information impacting the assumptions is obtained. Estimates and assumptions impacting the fair value measurement include the fair value of the preferred stock, the expected term when the tranche liability will be settled, expected volatility, risk-free interest rate, and expected dividend yield.

We determine the fair value per share of the underlying preferred stock by taking into consideration our most recent sales of our preferred stock as well as additional factors that we deem relevant. We are a private company and lack company-specific historical and implied volatility information of our stock. Therefore, we determine expected stock volatility based on the historical volatility of publicly traded peer companies. We estimate the risk-free interest rate by reference to the U.S. Treasury yield curve for time periods approximately equal to the remaining contractual term of the outstanding tranche liability. We have assumed a 0% dividend considering that our board of directors has no history of declaring dividends and does not intend to declare.

As of December 31, 2020, we had outstanding tranche liability of $29.1 million related to the third tranche of the Series A redeemable convertible preferred stock, which subsequently settled on February 16, 2021. See Note 8 to our financial statements included elsewhere in this prospectus.

Stock-Based Compensation Expense

Our stock-based equity awards include restricted stock awards and stock options that are granted to employees and consultants and accounted for at fair value on the award grant date. Stock-based compensation expense is recognized over the awards' vesting period on a straight-line basis and recorded as either research and development or general and administrative expenses in the statements of operations and comprehensive loss based on the function to which the related services are provided. Forfeitures are accounted for as they occur.

The Black-Scholes option-pricing model, used to estimate fair value of stock-based awards, requires the use of the following assumptions:

- *Fair Value of Common Stock*—See the subsection titled "—Common Stock Valuations" below for more information.
- *Expected Term*—The expected term represents the period that the stock-based awards are expected to be outstanding. The expected term for our stock options was calculated based on the weighted-average vesting term of the awards and the contract period.
- *Expected Volatility*—Since we are not yet a public company and do not have any trading history for our common stock, the expected volatility was estimated based on the average historical volatilities of common stock of comparable publicly traded entities over a period equal to the expected term of the stock option grants. The comparable companies were chosen based on their size, stage in the life cycle or area of specialty. We will continue to apply this process until enough historical information regarding the volatility of our stock price becomes available.
- *Risk-Free Interest Rate*—The risk-free interest rate is based on the U.S. Treasury yield in effect at the time of grant for zero-coupon U.S. Treasury notes with maturities approximately equal to the expected term of the awards.
- *Expected Dividend Yield*—We have never paid dividends on the common stock and have no plans to pay dividends on our common stock. Therefore, we used an expected dividend yield of zero.

Changes in the assumptions can materially affect the fair value and ultimately how much stock-based compensation expense is recognized. These inputs are subjective and generally require significant analysis and judgment to develop. See Notes 2 and 10 to our financial statements included elsewhere in this prospectus for information concerning certain of the specific assumptions we used in applying the Black-Scholes option pricing model to determine the estimated fair value of our stock options granted in the year ended December 31, 2020 and for the three months ended March 31, 2021.

As of December 31, 2020 and March 31, 2021, the unrecognized stock-based compensation expense related to stock options was $2.9 million and $16.0 million, respectively, and is expected to be recognized as expense over a weighted-average period of approximately 3.7 years in each period, respectively. We expect to continue to grant stock options and other equity-based awards in the future, and to the extent that we do, our stock-based compensation expense recognized in future periods will likely increase.

The intrinsic value of all outstanding stock options as of , 2021 was approximately $ million, based on the assumed initial public offering price of $ per share, which is the midpoint of the estimated offering price range set forth on the cover page of this prospectus, of which approximately $ million related to vested share-based awards and approximately $ million related to unvested share-based awards.

Common Stock Valuations

We are required to estimate the fair value of the common stock underlying our equity awards when performing fair value calculations. The fair value of the common stock underlying our equity awards was approved on each grant date by our board of directors. The fair value of our common stock was determined by management, considering input from independent third-party valuation analyses. All options to purchase shares of our common stock are intended to be granted with an exercise price per share no less than the fair value per share of our common stock underlying those options on the date of grant, based on the information known to us on the date of grant. In the absence of a public trading market for our common stock, on each grant date we develop an estimate of the fair value of our common stock in order to determine an exercise price for the option grants. Our determinations of the fair value of our common stock were made using methodologies, approaches and assumptions consistent with the American Institute of Certified Public Accountants Accounting and Valuation Guide: *Valuation of Privately Held Company Equity Securities Issued as Compensation* (the Practice Aid). Because shares of our common stock are not publicly traded, estimating their fair values can be highly complex and subjective.

Management considered various objective and subjective factors to determine the fair value of our common stock, including:

- valuations of our common stock performed with the assistance of independent third-party valuation specialists;
- our stage of development and business strategy, including the status of research and development efforts of our product candidates, and the material risks related to our business and industry;
- our results of operations and financial position, including our levels of available capital resources;
- the valuation of publicly traded companies in the life sciences and biotechnology sectors, as well as recently completed mergers and acquisitions of peer companies;
- the lack of marketability of our common stock;
- the prices of our redeemable convertible preferred stock sold to investors in arm's length transactions and the rights, preferences and privileges of our redeemable convertible preferred stock relative to those of our common stock;
- the likelihood of achieving a liquidity event for the holders of our common and redeemable convertible preferred stock, such as an initial public offering or a sale of our company, given prevailing market conditions;

- trends and developments in our industry; and
- external market conditions affecting the life sciences and biotechnology industry sectors.

The Practice Aid prescribes several valuation approaches for setting the value of an enterprise, such as the cost, income and market approaches, and various methodologies for allocating the value of an enterprise to our common stock. The cost approach establishes the value of an enterprise based on the cost of reproducing or replacing the property less depreciation and functional or economic obsolescence, if present. The income approach establishes the value of an enterprise based on the present value of future cash flows that are reasonably reflective of our future operations, discounting to the present value with an appropriate risk adjusted discount rate or capitalization rate. The market approach is based on the assumption that the value of an asset is equal to the value of a substitute asset with the same characteristics. Each valuation method was considered in our analysis.

For our valuation performed as of June 30, 2020, in accordance with the Practice Aid, we utilized an Option Pricing Method (OPM), based analysis (primarily the OPM Backsolve methodology) to determine the estimated fair value of our common stock as we concluded it was the most appropriate method to utilize based on our stage of development and other relevant factors. Within the OPM framework, the Backsolve method for inferring the total equity value implied by a recent financing transaction involves the construction of an allocation model that takes into account our capital structure and the rights and preferences of each class of stock, then assumes reasonable inputs for the other OPM variables (expected time to liquidity, volatility, risk-free rate, etc.). The total equity value is then iterated in the model until the model output value for the equity class sold in a recent financing round equals the price paid in that round. The OPM is generally utilized when specific future liquidity events are difficult to forecast, i.e., the enterprise has many choices and options available, and the enterprise's value depends on how well it follows an uncharted path through the various possible opportunities and challenges. In determining the estimated fair value of our common stock, management also considered the fact that our stockholders could not freely trade our common stock in the public markets. Accordingly, we applied discounts to reflect the lack of marketability of our common stock based on the weighted-average expected time to liquidity. The estimated fair value of our common stock at each grant date reflected a non-marketability discount partially based on the anticipated likelihood and timing of a future liquidity event.

For valuations performed after June 30, 2020, in accordance with the Practice Aid, we utilized a hybrid method that combined the Probability-Weighted Expected Return Method (PWERM), and the OPM, as we concluded these were the most appropriate methods to utilize based on our stage of development and other relevant factors. The PWERM is a scenario-based analysis that estimates the value per share of common stock based on the probability-weighted present value of expected future equity values for the common stock, under various possible future liquidity event scenarios, considering the rights and preferences of each class of stock, discounted for a lack of marketability. Under the hybrid method, an OPM Backsolve was utilized to determine the fair value of our common stock in certain of the PWERM scenarios (capturing situations where our development path and future liquidity events were difficult to forecast) and potential initial public offering exit events were explicitly modeled in the other PWERM scenarios. A discount for lack of marketability was applied to the value derived under each scenario to account for a lack of access to an active public market.

We also considered the amount of time between the independent third-party valuation dates and the grant dates and performed an interpolation of the fair value between the two valuation dates to estimate common stock fair value at each grant date. This determination included an evaluation of whether the subsequent valuation indicated that any significant change in valuation had occurred between the previous valuation and the grant date.

Following the completion of this offering, the fair value of our common stock will be based on the closing quoted market price of our common stock as reported on the date of grant on the primary stock exchange on which our common stock is traded. Estimating the fair value of our common stock will not be necessary to determine the fair values of new awards once the underlying shares begin trading.

Off-Balance Sheet Arrangements

During the periods presented we did not have, nor do we currently have,any off-balance sheet arrangements as defined in the rules and regulations of the SEC.

Quantitative and Qualitative Disclosures About Market Risk

The primary objectives of our investment activities are to ensure liquidity and to preserve capital. We are exposed to market risks in the ordinary course of our business. Our primary risks include interest rate sensitivities.

Interest Rate Risk

We had cash and cash equivalents and of $19.8 million and $177.0 million as of December 31, 2020 and March 31, 2021, respectively, which consisted of bank deposits and highly liquid money market funds. To minimize the risk in the future, we intend to maintain our portfolio of cash equivalents in institutional market funds that are composed of U.S. Treasury and U.S. Treasury-backed repurchase agreements or short-term U.S. Treasury securities. We do not believe that inflation, interest rate changes, or exchange rate fluctuations had a significant impact on our results of operations for any periods presented herein.

Foreign Currency Exchange Risk

All of our employees and our operations are currently located in the United States and our expenses are denominated in U.S. dollars. We therefore are not currently exposed to significant market risk related to changes in foreign currency exchange rates. However, we have contracted with and may continue to contract with non-U.S. vendors who we may pay in local currency. Our operations may be subject to fluctuations in foreign currency exchange rates in the future. To date, foreign currency transaction gains and losses have not been material to our financial statements, and we have not had a formal hedging program with respect to foreign currency. We believe a hypothetical 1% chance in exchange rates during any of the periods presented would not have a material effect on our financial statements included elsewhere in this prospectus.

Effects of Inflation

Inflation generally affects us by increasing our cost of labor and in the future our clinical trial costs. We believe that inflation has not had a material effect on our financial statements included elsewhere in this prospectus.

Emerging Growth Company and Smaller Reporting Entity Status

We are an emerging growth company, as defined in the JOBS Act. Under the JOBS Act, emerging growth companies can delay the adoption of new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. Other exemptions and reduced reporting requirements under the JOBS Act for emerging growth companies include presentation of only two years of audited financial statements in a registration statement for an initial public offering, an exemption from the requirement to provide an auditor’s report on internal controls over financial reporting pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, as amended, an exemption from any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation and less extensive disclosure about our executive compensation arrangements. We have elected to use the extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date that (i) we are no longer an emerging growth company or (ii) we affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. However as described in Note 2 to our financial statements included elsewhere in this prospectus, we early

adopted certain accounting standards, as the JOBS Act does not preclude an emerging growth company from adopting a new or revised accounting standard earlier than the time that such standard applies to private companies to the extent early adoption is permitted. As a result, our financial statements may not be comparable to companies that comply with the new or revised accounting pronouncements as of public company effective dates.

We will remain an emerging growth company until the earliest of (i) the last day of our first fiscal year in which we have total annual gross revenues of $1.07 billion or more, (ii) the last day of our fiscal year following the fifth anniversary of the completion of this offering, (iii) the date on which we are deemed to be a "large accelerated filer," under the rules of the SEC, which means the market value of equity securities that is held by non-affiliates exceeds $700.0 million as of the prior June 30th and (iv) the date on which we have issued more than $1.0 billion in non-convertible debt securities during the prior three-year period.

If we are a "smaller reporting company" at the time we cease to be an emerging growth company, we may continue to rely on exemptions from certain disclosure requirements that are available to smaller reporting companies. Specifically, as a smaller reporting company we may choose to present only the two most recent fiscal years of audited financial statements in our Annual Report on Form 10-K and, similar to emerging growth companies, smaller reporting companies have reduced disclosure obligations regarding executive compensation.

BUSINESS

Overview

We are a clinical-stage, next-generation gene editing company harnessing high efficiency targeted gene integration to develop a new class of therapies to potentially cure a wide range of serious and life-threatening diseases. We are pioneering a precision gene editing approach to achieve one of medicine's most elusive goals: to precisely "find & replace" any gene in the genome. Our next-generation gene editing platform allows us to precisely correct mutations, replace entire disease-causing genes with normal genes, or insert new genes into predetermined, safe locations. We believe our approach could enable broad applications to transform human health, including directly correcting mutations, engineering cells to permanently deliver therapeutic proteins, and precisely engineering effector cells to treat or cure a wide range of serious genetic and other diseases, including cancer, autoimmune and neurodegenerative diseases.

Our lead product candidate GPH101 is a highly differentiated approach with the potential to directly correct the mutation that causes SCD and restore normal HgbA expression. Curing sickle cell disease by correcting the disease-causing point mutation to normal is viewed as the gold-standard for curing SCD and has been the dream of treating physicians for generations. We have received clearance of our IND and we intend to enroll the first patient in a Phase 1/2 clinical trial of GPH101 in . We are also advancing our research programs and pipeline of potentially one-time curative therapies for a wide range of genetic and other serious diseases and intend to file an IND for a second program by .

Our technology builds on first-generation proven CRISPR technology to achieve high rates of targeted gene integration. Our platform technology includes patent rights and proprietary technology exclusively licensed from Stanford and developed in the Stanford laboratories of two of our scientific founders, both pioneers in gene therapy and gene editing: Matthew Porteus, M.D., Ph.D., and Maria Grazia Roncarolo, M.D. Dr. Porteus is considered to be one of the founders of the field of gene editing and was a scientific founder of CRISPR Therapeutics AG. He was the first to demonstrate that an engineered nuclease could be used to correct genes by harnessing precision cellular DNA repair machinery. Dr. Roncarolo is a pioneer in multipotent HSC gene therapy and her work led to the first approved HSC gene therapy product. She established and is Director of the Stanford Center for Definitive and Curative Medicine to treat patients with currently incurable diseases through the development of innovative stem cell- and gene-based therapies. Drs. Porteus and Roncarolo, both practicing physicians, came together with the conviction that targeted gene integration could lead to an entirely new class of potentially curative therapies.

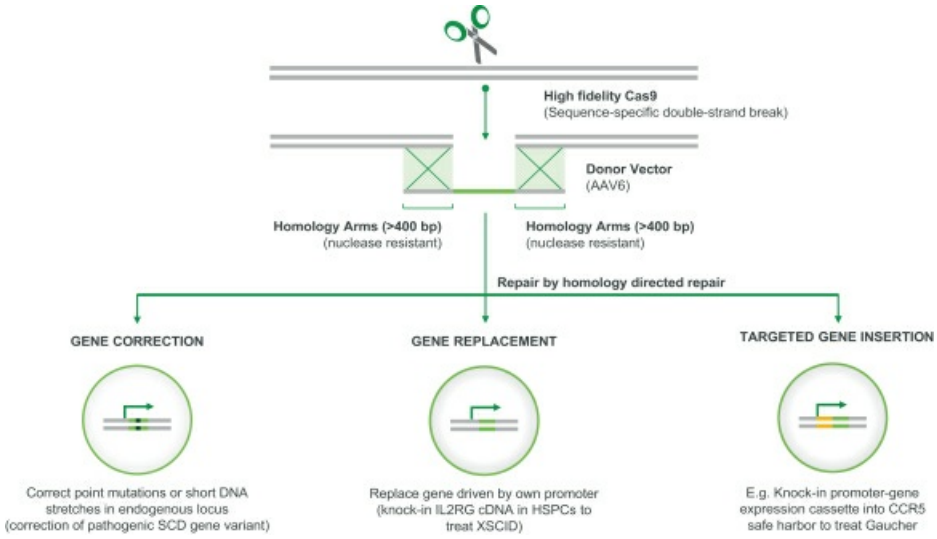
Our approach has broad therapeutic applications and has enabled high efficiency targeted gene integration in a wide range of primary human cell types. In our initial programs, we apply our approach *ex vivo* in a patient's own HSCs which are reinfused after gene integration (autologous HSCT). HSCs are multipotent stem and progenitor cells that can give rise to all cells of the blood and immune system and have proven their curative potential across dozens of diseases as demonstrated by allo-HSCT.

Our approach can be thought of as "find & replace," using CRISPR to find a target gene and HDR to replace DNA in the target gene with DNA copied from a template. We create a precise incision in a target gene using a modified, high fidelity CRISPR-based nuclease and then induce conditions in target cells that overwhelmingly favor HDR, a natural and precise cellular DNA repair process. Using a non-integrating AAV6 vector, we deliver a donor DNA template strand to the target gene which is copied via HDR to create a new coding strand. We then apply our HSC biology expertise to optimally engineer and manufacture HSCs, a historically intractable cell type for harnessing HDR. Using our next-generation gene editing approach, we have achieved gene integration efficiencies in excess of curative thresholds and demonstrated preclinical proof-of-concept across multiple diseases models. Beyond GPH101, our pipeline includes multiple programs including GPH201 for XSCID, our first gene replacement program, and GPH301 for Gaucher disease, our first targeted gene insertion program, and multiple undisclosed programs in both HSCs and other cell types.

Our approach differs from first generation gene and base editing technologies due to:

- **Direct targeting and correction of genetic lesions:** We harness HDR to replace the disease-causing mutation or the entire disease-causing gene with the normal, wild-type genetic sequence. This is in contrast to first generation gene editing approaches that have focused on knocking-out genes.
- **Efficiency of targeted gene integration:** In our GPH101 sickle cell gene correction program, we have demonstrated up to approximately 70% gene correction efficiency in HSPCs in *ex vivo* studies. In gene replacement and targeted gene insertion applications, we have consistently demonstrated efficiencies of approximately 30-50% in HSPCs across a range of gene targets and templates. We believe these efficiencies are above the curative threshold for a broad array of indications, including SCD. Prior to the development of our gene integration platform efficiencies using HDR in HSPCs were approximately 10%.
- **Breadth of applications:** We can replace genes of up to 4 kb allowing us to correct not only single point mutations but also multiple mutations within the same gene, and to address gene deletions. We can also precisely insert genes under control of a native promoter for naturally regulated expression, into a safe harbor location under the control of an exogenous promoter, or under the control of a lineage specific cellular promoter.
- **Uniquely suited to expand the patient population eligible for potential one-time curative HSC therapies:** We believe that the high efficiency and precision of our targeted gene integration platform could potentially reduce threshold bone marrow engraftment levels. This could potentially obviate the need for full chemotherapeutic myeloablative bone marrow conditioning (the current standard for allo-HSCT and most gene editing and gene therapy approaches in development). In addition, our approach is designed to avoid the theoretical risk of insertional oncogenesis, an increased risk of cancer that can arise from the insertion of a functional gene near a gene that is important in cell growth or division results in uncontrolled cell division, from integrating viral vectors. Our approach also incorporates a high fidelity CRISPR-based nuclease for potentially improved safety. Pairing these advantages with targeted and safer bone marrow conditioning could bring HSC-based curative therapies to much larger numbers of patients.

We are applying our technology in three settings: Gene Correction, Gene Replacement, and Targeted Gene Insertion.



Gene Correction

Our approach is designed to allow us to precisely correct pathogenic genes by directly targeting and correcting the specific disease-causing mutation to restore the normal, wild-type sequence.

We are developing GPH101, our lead product candidate for SCD, which is designed to directly correct the genetic mutation responsible for SCD. The mortality and morbidity associated with SCD, all caused by a single mutation, has made curing SCD a dream of many clinicians. Multiple genetic therapies are in development to address SCD, but due to technical limitations, these therapies are primarily focused on expressing alternate hemoglobin genes such as fetal hemoglobin or a transgenic hemoglobin. Our approach is the first in industry to directly the SCD-causing mutation and restore the natural genetic sequence to thereby restore normal adult hemoglobin expression. We have optimized our process to correct the majority of HSPCs. Of the remaining cells, which are not corrected, many contain two INDEL sickle globin alleles (knockout alleles). These knockout stem cells are not able to produce sickle red blood cells, and have the effect of increasing the proportion of functional stem cells which have been corrected. This increases our confidence in our ability to exceed the 20% predicted curative threshold in patients. Under IND-enabling GMP manufacturing conditions, we can precisely correct the SCD mutation in over 55% of treated cells, which we believe can achieve the threshold required to cure patients (estimated to be engraftment of 20% corrected cells). These treated HSPCs are fully functional and can engraft *in vivo* in a humanized mouse, and can produce functionally normal red blood cells expressing normal adult hemoglobin *ex vivo.* Furthermore, we have demonstrated in a mouse model of SCD that our approach significantly increased normal HbA expression, extended RBC lifespan from two days in sickle mice to up to 19 days in gene corrected mice, and eliminated RBC sickling. We believe this data supports the curative potential of our approach. We have received clearance of our IND and intend to enroll the first patient in a Phase 1/2 trial of GPH101 in .

Gene Replacement

Our gene replacement approach is designed to allow us to replace dysfunctional genes with a new normal copy of an entire gene at its normal location in the chromosome.

We are developing GPH201 for the treatment of XSCID, a rare, life-threatening disease where multiple mutations in a single gene (IL2RG) prevent normal immune system function. In preclinical studies, we demonstrated that GPH201 treatment of HPSCs from healthy donors led to a consistent rate of IL2RG gene replacement of greater than 40%. Furthermore, treatment of HSPCs from an XSCID patient led to a significant increase in the number of T cells and natural killer (NK) cells, in *in vitro* differentiation assays and in a mouse model, consistent with a reversal of the XSCID phenotype. We believe our gene replacement approach leading to normal regulated expression of the IL2RG gene could be an optimal cure for XSCID. We believe that the survival advantage of the progeny of gene edited cells combined with our high efficiency of gene replacement could enable patients to benefit from GPH201 without undergoing chemotherapy-based conditioning. We have an agreement with Jasper Therapeutics, Inc. (Jasper) to investigate the potential use of JSP191, Jasper's clinical-stage non-genotoxic HSC targeted antibody-based bone-marrow conditioning (non-genotoxic HSC targeted conditioning) regimen, with GPH201. We and Jasper will each retain commercial rights to our respective technologies under the agreement. We believe that GPH201 will generate preliminary data on combining our autologous HSC therapies with non-genotoxic HSC targeted conditioning, and our clinical experience could accelerate our ability to use non-genotoxic HSC targeted conditioning with our other product candidates.

Targeted Gene Insertion

Our technology aims to enable the targeted insertion of entire gene cassettes into chosen chromosomal locations. We believe that this could have broad therapeutic applications by allowing for permanent production of therapeutic proteins and enzymes, in specific cell lineages, and from targeted genomic locations. This prevents the variability in gene expression, and the potential risk of insertional oncogenesis which are limitations of random gene integration approaches using LVV. Permanent therapeutic protein production applications of HSC targeted integration include expression of proteins and enzymes in target organs including the CNS by tissue

resident HSC-derived myeloid cells, as well as efficient systemic delivery of secreted proteins in the circulation. Potential applications include enzyme replacement for metabolic disease, CNS delivery of therapeutic proteins or antibodies for neurodegenerative diseases, and production of plasma proteins for coagulation and complement disorders.

We currently harness two genomic locations for targeted insertion, the CCR5 safe harbor locus and the alpha globin locus:

Our lead product candidate from our CCR5 locus technology is GPH301, which we are developing for the treatment of Gaucher disease, a genetic disorder that results in a deficiency in the glucocerebrosidase (GCase) enzyme. The CCR5 gene encodes the C-C chemokine receptor type 5 (CCR5) protein and is considered a non-essential gene because its inactivation has been observed to have no general detrimental impact on human health. With GPH301, we insert a functional copy of the gene for GCase into the chromosomal locus of the CCR5 gene. This locus is known as a "safe harbor" both because of the lack of deleterious effects associated with gene insertions that occur there and because the expression of inserted genes can be reliably and precisely controlled by regulatory elements inserted together with the gene of interest. We use a lineage specific promoter so that GCase expression is limited to monocytes and macrophages which can migrate into tissues including crossing the blood brain barrier into the CNS. We inserted GCase into approximately 35% of targeted CCR5 alleles in HSPCs (resulting in ~50% of cells having at least one allele targeted) which subsequently engrafted, differentiated, and expressed GCase from macrophages at levels which could lead to a functional cure. This same approach can be used for therapeutic protein production in many other diseases including other lysosomal storage diseases. We believe that proof of concept in Gaucher disease can accelerate development of a CCR5 safe harbor protein production pipeline. We believe there are significant synergies and regulatory efficiencies because these programs will use the same RNA guide and preclinical safety assessment.

Our other approach for therapeutic protein production harnesses the alpha-globin locus, which uses the alpha-globin promoter to express high protein levels from the red blood cell lineage and normalize plasma protein levels to potentially develop HSC-based cures and treatments for additional indications.

We intend to pursue applications of our technology platform to develop potential therapies for a number of serious diseases. Our high efficiency gene editing technology has been shown using human cells and/or animal models to be applicable to a broad range of HSC-based indications (e.g. MPS I, Krabbe, beta-thalassemia) as well as other tissues, such as airway stem cells (cystic fibrosis), neural stem cells, pluripotent stem cells and keratinocytes (wound healing). We intend to investigate the potential of developing therapies for other diseases based on these findings.

Our Pipeline

Our Team and Investors

Our team is led by executives who have deep experience in drug development and company-building in the biopharmaceutical industry. Josh Lehrer, M.D., our Chief Executive Officer, previously served as Chief Medical Officer at Global Blood Therapeutics, Inc. (GBT), where he led development for the marketed SCD treatment Oxbryta™ from pre-IND stages through its commercial launch. Prior to GBT, he served in clinical roles at Genentech, Inc. (Genentech) and as a practicing cardiologist at Stanford. Katherine Stultz, our Chief Operating Officer, has extensive experience in developing brands and building teams, as a global project leader and general manager at Celgene Corporation and in early commercialization roles at Eli Lilly and Company. Philip Gutry, our Chief Business Officer and Head of Finance & Investor Relations, previously served as Chief Business Officer at Kronos Bio, Inc. and in senior business development and finance roles at Regeneron Pharmaceuticals, Inc., MPM Capital, and Gilead Sciences, Inc. Jerry Cacia, our Chief Technical Officer, most recently served as Head of Global Technical Development at Roche/Genentech, where he supported a pipeline that included over 80 new molecular entities and more than 100 development projects in various stages, including a number of cell and gene therapies. Jane Grogan, Ph.D., our Chief Scientific Officer, most recently served as chief scientific officer and a member of the executive leadership team at ArsenalBio and has over 15 years of experience at Genentech. Our people function is led by SVP Julia Tran, a three-time executive with more than 20 years of experience in building and growing companies in the biotechnology industry including Amyris, Inc., CV Therapeutics, Inc. and Millennium Pharmaceuticals Inc. and in technology companies including vArmour Networks, SilverTail Systems and most recently Blue Lava where she was a co-founder, Chief Operating Officer and Chief Community Officer. Our third scientific founder, Daniel Dever, Ph.D., serves as our Head of Discovery Research. We are building a broader team that is passionate about our mission of urgently translating groundbreaking science to transform lives.

Since our inception, we have raised approximately $197.7 million in funding from leading investors, including Cormorant Asset Management, Deerfield Management Company, Federated Hermes Kaufmann Funds, Fidelity Management & Research Company, Janus Henderson Investors, Logos Capital, OrbiMed, Perceptive Advisors, RA Capital, Rock Springs Capital, Samsara BioCapital, Surveyor Capital (a Citadel company), Venrock Healthcare Capital Partners, and our founding investor Versant Ventures. Stanford also participated in our Series B preferred stock financing in March 2021.

Our Strategy

We are a next-generation gene editing company harnessing high efficiency targeted gene integration to develop a new class of therapies to cure a wide range of serious and life-threatening diseases. Our goal is to advance a portfolio of one-time curative therapies which can ultimately be administered in the outpatient setting. The key components of our strategy are as follows:

- **Demonstrate clinical proof-of-concept for gene correction with our lead product candidate, GPH101, for the treatment of sickle disease.** We are advancing our lead product candidate, GPH101, which we believe is the first approach in our industry to directly correct the SCD-causing mutation to restore normal adult hemoglobin expression, for the treatment of SCD. We have shown gene correction rates, engraftment, and effects in preclinical models all supporting the curative potential of our approach. Under IND-enabling GMP manufacturing conditions, we can precisely correct the SCD mutation in over 55% of treated cells, which we believe can achieve the threshold required to cure patients (estimated to be engraftment of 20% corrected cells). We have received clearance of our IND and intend to enroll the first patient in a Phase 1/2 trial in . We believe that this program will serve as proof-of-concept for our overall platform and for the ability to precisely correct a dysfunctional gene by directly correcting the specific mutation and restoring the normal genotype.
- **Advance the gene replacement application of our technology with GPH201 for the treatment of XSCID.**We are developing GPH201 for the treatment of XSCID, where multiple mutations in a single gene prevent normal immune system function. In preclinical studies, we demonstrated that GPH201

treatment of HSPCs from healthy donors led to a consistent rate of gene replacement of greater than 40% and immune reconstitution in a mouse model. We believe that this program will serve as proof-of-concept for our platform's ability to replace a dysfunctional gene with a new normal copy of an entire gene at its normal chromosomal location.

- **Establish the broad potential of targeted gene insertion with GPH301 for the treatment of Gaucher disease.** By precisely integrating genes into the CCR5 "safe harbor" locus or into the alpha globin locus, we can insert genes precisely to permanently produce therapeutic proteins to potentially address many diseases of protein deficiency. Initially, we intend to develop GPH301 for the treatment of Gaucher disease, caused by a deficiency in the glucocerebrosidase (GCase) enzyme, which we believe will establish proof-of-concept for therapeutic protein production and allow us to rapidly expand into other indications, including other lysosomal storage diseases. We have demonstrated that GPH301 treatment of HSPCs resulted in approximately 35% insertion and normal GCase production which we believe can potentially be curative. Our other therapeutic protein production approach uses the alpha-globin locus to express high protein levels from the red blood cell lineage and normalize plasma protein levels to potentially develop HSC-based cures and treatments for additional indications.

- **Expand the patient population and indications eligible for one-time curative HSC therapies by harnessing industry advances in non-genotoxic HSC targeted conditioning regimens.** We believe that the high efficiency and precision of our targeted gene integration platform can reduce threshold bone marrow engraftment levels. This could potentially obviate the need for full chemotherapeutic myeloablative bone marrow conditioning (the current standard for allo-HSCT and most gene editing and gene therapy approaches in development). We have an agreement with Jasper to investigate the potential use of a clinical-stage non-genotoxic HSC targeted conditioning regimen with GPH201. We believe that GPH201 will generate preliminary data on combining our autologous HSC therapies with non-genotoxic HSC targeted conditioning, and our clinical experience could accelerate our ability to use non-genotoxic HSC targeted conditioning with our other product candidates.

- **Leverage high efficiency targeted gene integration in other cell types.** We have demonstrated vast potential for our technology across a wide range of cell types. Our platform has been shown to achieve high and potentially therapeutic targeted gene integration efficiencies, and in some cases preclinical efficacy, in airway stem cells, keratinocytes, mesenchymal stem cells, neural stem cells, pluripotent stem cells, and T-cells. We intend to advance research programs in these cell types with a focus on developing highly differentiated therapeutics which can address serious diseases.

- **Continue to optimize and expand our next-generation gene editing technology to reinforce our leadership in targeted gene integration.** We have established a leading position in targeted gene integration by building on the pioneering work of our founders and technologies licensed from Stanford. We are continuing to build our research organization with particular focus on HDR platform improvements, advancing new pipeline targets in HSCs and effector cells, and discovering next generation targeted integration technologies and delivery systems.

- **Evaluate potential strategic collaborations to maximize the broad therapeutic potential of our technology and product candidates.** Given the broad applicability of our technology and differentiated product candidates to address serious genetic diseases, we plan to selectively evaluate, and if appropriate, enter into strategic collaborations to maximize their potential. We may selectively collaborate with potential future partners that provide us with complementary technologies or resources that could accelerate our programs or expand into new applications.

Current Approaches to Gene Therapy and Gene Editing and Their Limitations

Background on Genetic Disorders

A genetic disorder is a disease caused by an abnormal change in a person's DNA. Most genetic disorders are caused by a mutation in a single gene (monogenic disorder) which results in deficient or defective protein function. These mutations come in many different forms, including:

- Single point mutations—caused by a single base point mutation that causes a "misspelling" in diseases such as SCD.
- Multiple point mutations in the same gene—in diseases such as XSCID.
- Gene deletions—most or all of a gene is missing, in diseases such as beta-thalassemia.
- Gene expansion—extra abnormal DNA is inserted in diseases such as Huntington's disease.

Mutations that cause genetic disease can either cause loss of function or a toxic gain of function of an important protein. For example, XSCID is caused by lack of functional IL2RG protein, Gaucher is caused by loss-of-function mutations in the GBA1 gene leading to dysfunctional GCase, and cystic fibrosis is caused by the lack of functional CFTR protein. Examples of toxic gain of function, where mutations can cause a protein to have an abnormal and disease-causing function, include SCD where sickle hemoglobin (HgbS), which has a tendency to polymerize in red blood cells, causes damage to the red blood cells, or Huntington's disease where the huntingtin proteins injure neurons.

Evolution of Genetic Medicines

Genetic medicines have advanced rapidly over the past decade. Initial gene addition approaches have yielded multiple approved products. CRISPR-Cas9 approaches for gene knock-outs are now being translated into the clinic. Base editing builds upon CRISPR-Cas9 and enables targeted editing of certain point mutations.

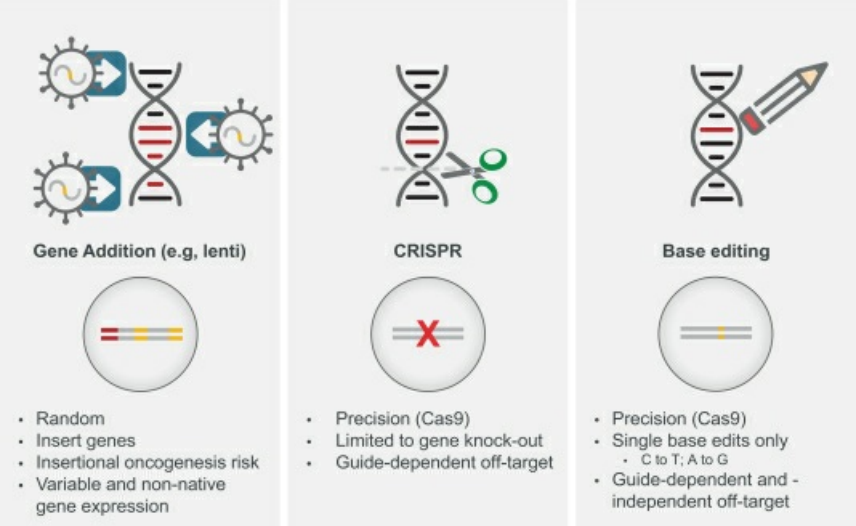


Figure: Evolution of Genetic Medicines

Gene Addition

In gene addition, a functional copy of a normal gene is introduced into a cell, typically by a non-integrating viral vector, to drive expression of a normal protein. Recently approved therapies use this approach for spinal muscular atrophy and mutation-associated retinal dystrophy. Other approaches use viral vectors, such as retroviruses and LVV, which randomly integrate a therapeutic gene into the genome for permanent expression.

The principal limitations of gene addition approaches are:

- limited durability for non-integrating viral vectors;
- risk of insertional oncogenesis for permanent integrating viral vector (e.g. LVV);
- variability in vector copy number per cell leading to variable gene expression;
- lack of normal endogenous regulation of gene expression;
- inability to correct the disease-causing mutation; and
- potentially curative only for loss of function mutations.

Gene Editing

Gene editing approaches using CRISPR-Cas9 or similar CRISPR nuclease-based technologies are in, or will shortly be initiating, clinical development. CRISPR-Cas9 creates double-stranded breaks in DNA which can be repaired in two primary ways: 1) non-homologous end joining (NHEJ) which creates targeted insertions or deletions (INDELs) or 2) HDR, which can precisely replace DNA at the target cut site by copying from a template. When CRISPR was first shown to be a gene editing tool in human cells, the primary goal and most powerful anticipated application was to use CRISPR with HDR to allow precise gene correction, replacement and insertion. However, repair following CRISPR overwhelmingly favors NHEJ, and due to technical challenges and limitations, efficient use of HDR was not possible in human cells. For this reason current CRISPR nuclease-based technology is being developed using NHEJ to create INDELs which cannot repair genes, but can alter gene expression. Because RNA guides are used to target Cas9 enzyme (or other CRISPR nucleases) to specific DNA sites, gene editing has much higher precision than earlier methods of permanently modifying the genome, such as gene addition by viral vector integration, and reduces the theoretical risks of insertional oncogenesis with these methods.

CRISPR-Cas9 mediated INDEL (insertions or deletion of bases in an organism's genome) formation is well suited to introducing new mutations that can disrupt and knock out a target gene. Because the vast majority of genetic diseases are caused by a mutation resulting in loss of function of an important protein, CRISPR INDEL approaches to potentially cure genetic diseases generally require an indirect approach to treat disease and are not able to directly correct the disease-causing mutation. For instance, in SCD, emerging approaches in preclinical and clinical development attempt to knock out Bcl11a function in order to induce fetal hemoglobin expression, rather than directly correcting the point mutation in sickle globin which causes SCD. Three programs using CRISPR INDEL approaches are currently in clinical development of which one program has provided initial clinical validation for the safety and potential efficacy of using such approaches for autologous cell therapies.

The principal limitations of gene editing using CRISPR-Cas9 are:

- introduces new mutations at the target;
- generally requires an indirect approach (i.e. knocking out another gene rather than fixing the disease causing gene); and
- an indirect approach may provide clinical benefit but is unlikely to be the optimal curative approach to most serious genetic diseases.

Base Editing

Base editing harnesses CRISPR-Cas9 to deliver a deaminase to a target DNA site, resulting in making a single nucleotide change in the target DNA. This is potentially an advance over nuclease only approaches because it allows direct targeting of a subset of mutations that cause genetic disease. To our knowledge, no base editors have entered clinical development.

The principal limitations of base editing are:

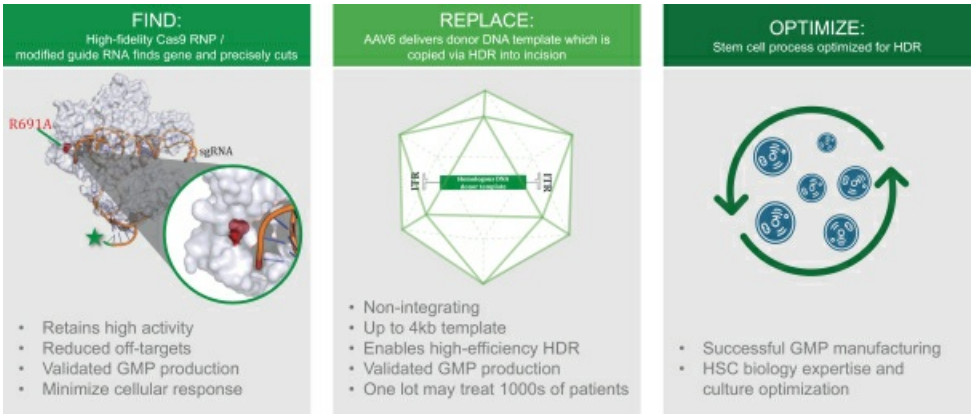
- base editing programs currently in development can only correct two of six potential nucleotide changes (e.g. cannot change A to T (adenine to thymine) as is required to correct the sickle mutation and convert sickle hemoglobin to normal adult hemoglobin);
- can only correct or introduce a single point mutation at a time; and
- guide-independent potential off target risks to both DNA and RNA resulting from deaminases modifying bases which are not being targeted.

Our Next-Generation Gene Editing Approach

Our approach builds on the precision and clinical validation for current gene editing approaches to achieve an entirely new outcome—high efficiency targeted gene integration. This has the potential to expand the therapeutic opportunities for gene editing beyond conventional gene editing and base editing to enable efficient correction of any type of disease-causing genetic lesion. Beyond gene correction and replacement, this approach is designed to allow the insertion of new therapeutic genes into cells with significantly greater precision and efficiency than existing approaches. We believe this enables broad therapeutic applications ranging from correcting mutations, engineering cells to permanently deliver therapeutic proteins, and precisely engineering effector cells to treat or cure a wide range of serious genetic and other diseases, including cancer, autoimmune and neurodegenerative diseases.

Our innovative approach is a new platform technology built using our deep stem cell biology experience and proven CRISPR technology to efficiently harness a high-fidelity DNA repair process called HDR to integrate DNA copied from a DNA template into genes. Our approach can be described as “find & replace.” We employ CRISPR technology to find and cut a target gene and harness HDR to “copy and paste” replacement DNA from a template. We have demonstrated high efficiency targeted gene integration across numerous cell types and curative potential in multiple animal models.

Our next generation gene editing technology creates a precise incision in a target gene using a modified, high fidelity CRISPR-based nuclease and we then induce conditions in target cells that overwhelmingly favor DNA repair by a mechanism that relies on HDR rather than the less desirable and more error-prone repair mechanism known as non-homologous end joining or NHEJ. HDR repairs DNA using a DNA template and results in high fidelity copying of template DNA into the correction site while reducing the introduction of DNA mutations that occur with first generation NHEJ gene editing approaches. We achieve HDR-mediated repair by using a non-integrating AAV6 viral vector to deliver template DNA (also called donor DNA) to the target gene. The donor DNA contains 400 base pair DNA segments homologous to sequences (homology arms) on either side of the targeted DNA break, and up to 4 kb of new DNA sequences between these homology arms. The cell’s natural DNA repair process uses the homology arms to align the template in the correct location, and then copies and pastes the new DNA into the genome at the targeted gene cleavage site. This process enables correction or replacement of a mutated gene, or insertion of a new therapeutic gene in a precise location.

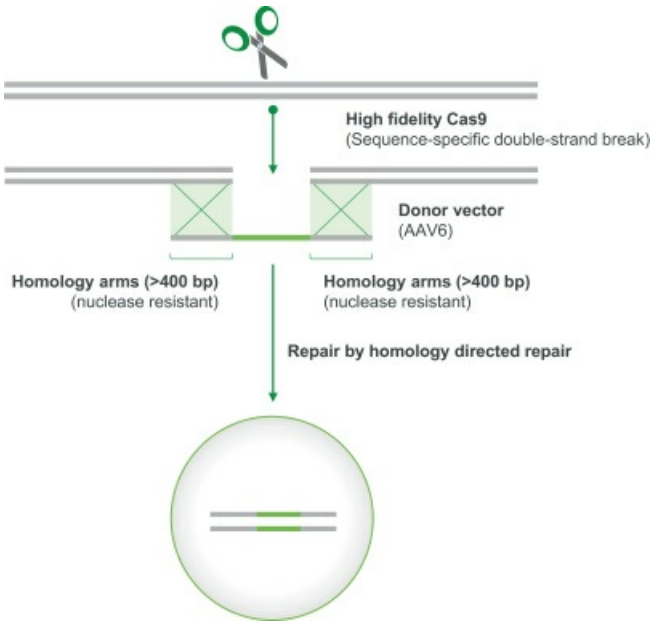


High Precision CRISPR-Based Nuclease

Our founders discovered that chemically modified guide RNAs can enhance Cas9 activity and subsequently showed that delivering Cas9 as a recombinant protein instead of as mRNA further increased cutting efficiency. These approaches are now widely used and widely considered to be state of the art for gene editing. We have continued to optimize the CRISPR component of our platform and employ an improved Cas9 enzyme with dramatically reduced off-target activity. We employ high fidelity Cas9, which was co-discovered by our founders, to reduce off target cutting by 20-fold on average and 30-fold on average for the SCD gene, thus providing potential improved safety. We believe this is a unique advantage for our programs.

Harnessing HDR

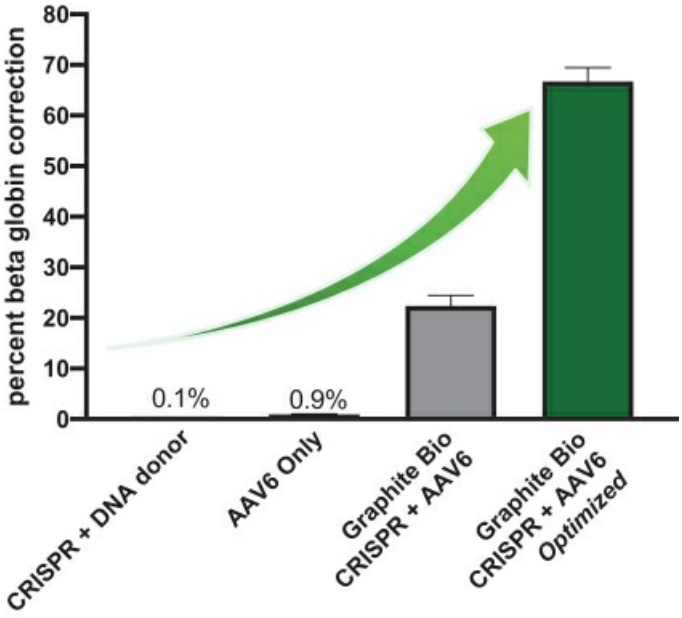
Cells naturally have the ability to repair their DNA if damaged. One highly specialized repair pathway is called HDR because the cell uses a homologous template to precisely “copy and paste” DNA sequences to repair a DNA break without introducing errors. Normally, the template used in HDR comes from the sister chromosome. Because of its precision and ability to use a template, harnessing the HDR pathway to achieve therapeutic targeted gene integration has been a long-sought but elusive goal due to its potential to dramatically expand gene editing’s applications and curative potential.



To achieve "find & replace," as described above, we deliver an optimized, synthetic DNA template via a non-integrating AAV6 viral vector which is transduced into cells. Our founders evaluated various approaches before discovering that AAV6 achieved the most efficient transduction in comparison to nine other AAV serotypes, while optimally preserving stem cell function. Our AAV6 donor DNA template was iteratively optimized to maximize the efficiency of targeted gene integration. No viral genes are present in the template, and the template itself exists only transiently in the target cell population.

Process Optimization

HDR is most active during cell division and is inefficient in slowly dividing cells like HSCs. Achieving HDR at potentially curative efficiency in HSCs has been an elusive and highly-sought goal because HSCs are long-term multi-potent stem cells with broad therapeutic potential and potential lifetime durability. We believe this has now been achieved with the development of our platform. In our process, we use clinically validated and standard methods to isolate HSPCs from patients, which are comprised of both slowly dividing HSCs (lower rates of HDR) and more rapidly dividing progenitors (higher rates of HDR). Although edited HSPCs are the standard drug product for any gene edited autologous stem cell therapy, the therapeutic effect comes from the long-term HSCs that are a subset of the cells in the drug product. Harnessing our stem cell biology expertise, we optimized the timing of template delivery and cell culture conditions to improve gene correction frequency from approximately 20% in initial experiments to approximately 70% in human HSPCs in GPH101, our sickle cell program. We believe this gene correction rate in HSPCs ensures that the correction rate in the long-term stem cells can achieve the threshold required to cure patients (estimated to be engraftment of 20% corrected cells).

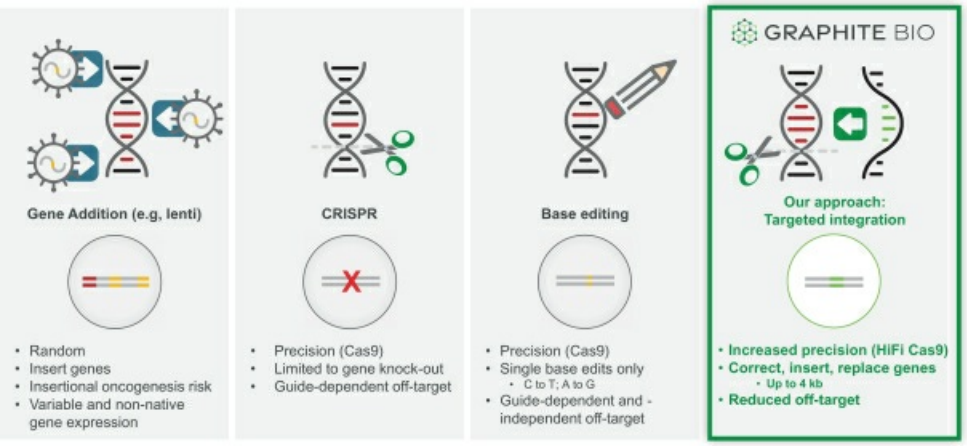


We believe our technology platform is revolutionary because it brings together proven individual technologies, new discoveries, and systematic process optimization to, for the first time, achieve HDR-mediated targeted gene integration at efficiencies of up to approximately 70% in human HSPCs. We have serially optimized our GMP process to retain high and potentially curative gene correction rates at clinical scale.

Our approach differs from first generation gene and base editing technologies:

- **Direct targeting and correction of genetic lesions:** We harness HDR to replace the disease-causing mutation or the entire disease-causing gene with the normal, wild-type genetic sequence. This is in contrast to first generation gene editing approaches that have focused on knocking-out or excising genes.
- **Efficiency of targeted gene integration:** In our GPH101 sickle cell gene correction program, we have demonstrated up to approximately 70% gene correction efficiency in HSPCs in *ex vivo* studies. In gene replacement and targeted gene insertion applications, we have consistently demonstrated efficiencies of approximately 30-50% in HSPCs across a range of gene targets and templates. We believe these efficiencies are above the curative threshold for a broad array of indications, including SCD. Prior to the development of our gene integration platform efficiencies using HDR in HSPCs were approximately 10%.
- **Breadth of applications:** We can replace genes of up to 4 kb allowing us to correct not only single point mutations but also multiple mutations within the same gene, and to address gene deletions. We can also precisely insert genes under control of a native promoter for naturally regulated expression, into a safe harbor location under the control of an exogenous promoter, or under the control of a lineage specific cellular promoter of choice.
- **Uniquely suited to expand the patient population eligible for potential one-time curative HSC therapies:** We believe that the high efficiency and precision of our targeted gene integration platform can reduce threshold bone marrow engraftment levels. This could potentially obviate the need for full

chemotherapeutic myeloablative bone marrow conditioning (the current standard for allo-HSCT and most gene editing and gene therapy approaches in development). In addition, our approach avoids the theoretical risk of insertional oncogenesis from integrating viral vectors and incorporates a high fidelity CRISPR-based nuclease, for potentially improved safety. Pairing these advantages with targeted and safer bone marrow conditioning could bring HSC-based curative therapies to much larger numbers of patients.



Key Differentiated Components of Our Technology Platform

Our platform combines two powerful, well characterized biologic approaches—CRISPR and HDR—with our HSC expertise and know-how to achieve high efficiency targeted gene integration.

Efficient cutting with a CRISPR-based nuclease is an important first step in our process. Our founders discovered that chemically modified guide RNAs can enhance Cas9 activity and subsequently showed that delivering Cas9 as a recombinant protein instead of as mRNA further increased cutting efficiency. These approaches are now widely used and widely considered to be state of the art for gene editing. We have continued to optimize the CRISPR component of our platform as described below together with additional differentiated and proprietary components our technology and process:

- **Use of HiFi Cas9 to reduce off-target DNA cleavage**. One of the concerns about CRISPR-based nuclease gene targeting systems is unintended cleavage at other sites that may closely match but are not identical to the sequence targeted by the guide RNA. As shown in the figure below, we observed in our preclinical studies that a Cas9 variant, known as HiFi Cas9, can reduce off-target DNA cleavage by as much as 20-fold on average and 30-fold on average for the SCD gene with no meaningful change in the rate of on-target cleavage. We believe that this increased precision is one of the factors that could increase the safety and overall benefit/risk profile of our targeted gene integration therapies, potentially expanding patient eligibility and potential indications for our product candidates.

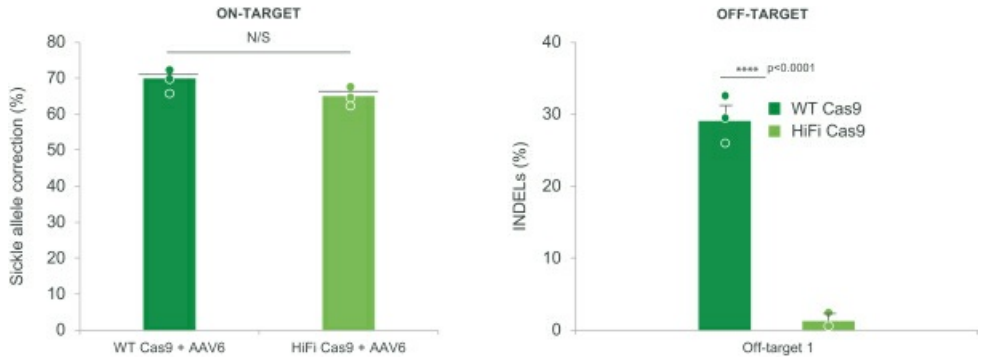


Figure: HiFi Cas9 had an approximately thirty-fold reduction inoff-target DNA cleavage compared to wild-type Cas9.

- **Use of AAV6 to deliver DNA template**. To harness HDR, we deliver a DNA template via a non-integrating AAV6 viral vector which is transduced into cells. Our founders evaluated various AAV serotypes before discovering that AAV6 achieved the most efficient transduction, or the transfer of genetic material into a cell.

To determine relative transduction efficiencies across AAV serotypes, human primary hematopoietic progenitors were infected with ten AAV serotypes each carrying the green fluorescence protein (GFP) reporter gene. The experiment was designed to determine relative transduction efficiency rather than to maximize transduction. As shown in the figure below, we observed that AAV6 was most efficient in comparison to nine other AAV serotypes. Our founders later discovered that additional optimization and ribonucleoprotein (RNP) electroporation prior to AAV6 transduction further enhanced AAV transduction efficiency.

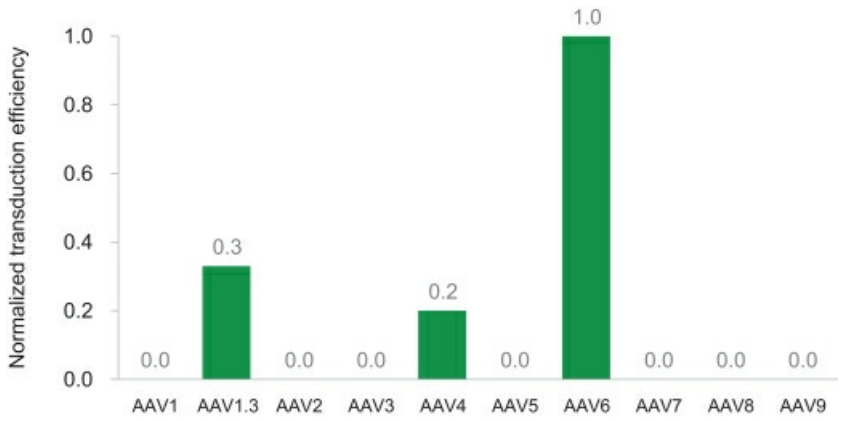


Figure: AAV transduction of human primary hematopoietic progenitor cells.

- **Ability to achieve high rates of gene integration in a wide range of therapeutic cell types, including HSCs** HDR is a cellular process that is primarily active during cell replication and, for this reason, slowly dividing cells like HSCs have been historically recalcitrant to HDR based gene editing. In preclinical studies, we have shown that stimulating cell replication with growth factors, reducing cell density and other factors can increase the proportion of cells that undergo HDR and site-specific gene integration. As shown in the figure below (left), we observed that HSCs which are pre-stimulated with cytokines and subsequently cycled four times achieve approximately twice the rate of gene integration. As shown in the figure below (right), HSCs plated at 10-fold less density achieved nearly twice the rate of gene integration. We believe that this optimization is crucial to inducing the conditions that significantly favor the repair of CRISPR-Cas9-driven DNA break by HDR.

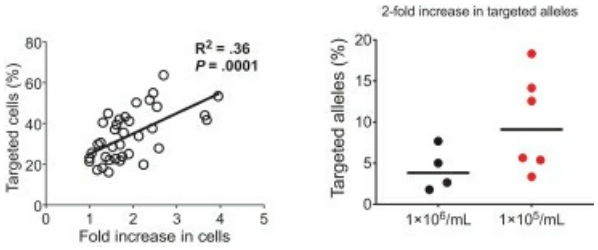


Figure: Optimization of HSC cell culture conditions led to an increase in the rate of homologous repair and gene insertion.

We have found that each of these optimization steps and our other know-how can contribute to the creation of a highly efficient targeted gene integration process. We have further optimized our process to maintain high levels of efficiency at clinical scale using HSPCs isolated from healthy donors.

Expanding Eligible Patients and Potential Indications: Combining Our High Efficiency Approach with Advances in Non-Genotoxic HSC Targeted Conditioning

The high precision and high efficiency with which we can consistently introduce genes by HDR has the potential to greatly expand the application to more patients and the types of diseases for which gene editing based therapies are feasible.

A limitation of therapies based on *ex vivo* genetic manipulation of HSCs is that the patient must be pre-conditioned with non-targeted, genotoxic conditioning agents, to both eliminate the dysfunctional endogenous HSCs and to create room for the modified cells to engraft and expand. This approach is standard for allogeneic bone marrow transplant (e.g., for SCD) and for approved HSC gene therapy products and has safety risks such as transient neutropenia, which necessitates prolonged hospitalization, potential fertility impairment, and the risk of secondary malignancies. These risks may reserve use of *ex vivo* HSC-based genetic and potentially curative therapies for diseases with limited treatment options, and for the most severely affected patients.

We believe that our ability to generate HSC-based product candidates that contain a high percentage of corrected cells may reduce the need for chemotherapy-based myeloablation by allowing use of non-genotoxic HSC targeted conditioning regimens. This potential advance, as well as harnessing precision gene insertion and using a higher fidelity CRISPR-based nuclease may further enhance safety and could ultimately expand the types of diseases and patients who could be treated safely and potentially cured with our product candidates.

For our XSCID program, we intend to incorporate non-genotoxic HSC targeted antibody conditioning. As we generate additional preclinical and clinical data, we anticipate using non-genotoxic HSC targeted conditioning regimens to expand the application of our product candidates to additional patients and indications. Because XSCID treatment is anticipated to require only 5% engraftment of corrected cells, it is the most likely of our programs to be able to be combined with a non-genotoxic HSC targeted antibody conditioning regimen. The figure below shows the fold difference for corrected engrafted cells over the curative threshold for our three development programs. Higher fold differences indicate that non-genotoxic HSC-targeted conditioning is more likely to be effective.

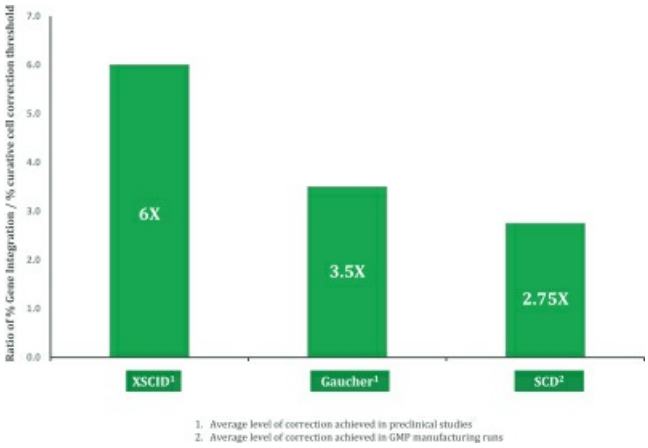
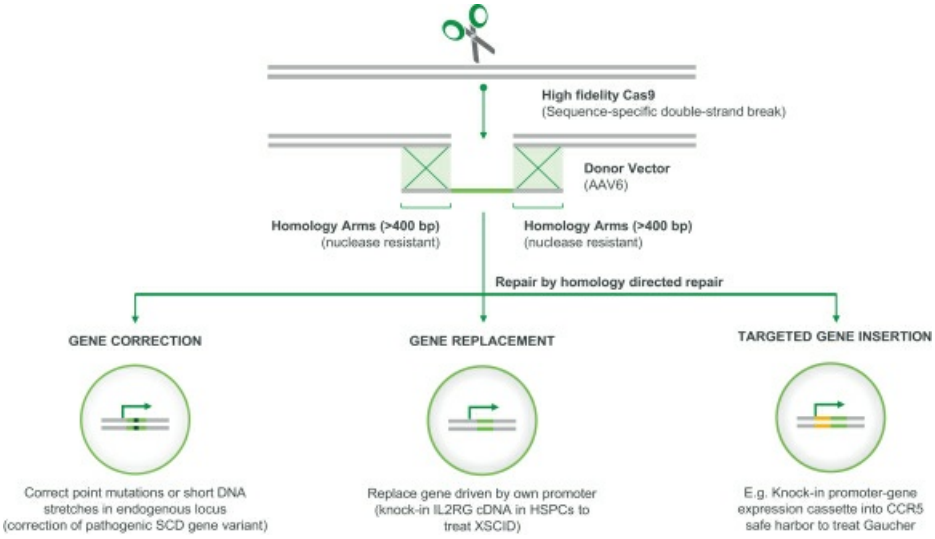


Figure: Multiple of gene correction achieved over curative engraftment threshold. Higher multiples may require lower potency conditioning

Applications Enabled by Our Technology

We are applying our next generation gene editing platform in three settings: gene correction, gene replacement and targeted gene insertion.

- **Gene Correction:** Fix an existing gene by directly correcting the specific mutation in a dysfunctional gene.
- **Gene Replacement:** Replace dysfunctional genes with a new normal copy of an entire gene at their location in the chromosome.
- **Targeted Gene Insertion:** Targeted insertion of entire gene cassettes into chosen chromosomal locations initially applied to drive permanent production of therapeutic proteins.



Our Product Candidates

Gene Correction: GPH101 for the Treatment of SCD

Overview of GPH101

Our lead product candidate, GPH101, is a next generation gene-edited autologous HSC product candidate that is designed to directly correct the mutation responsible for SCD. The mortality and morbidity associated with SCD, all caused by a single mutation, has made curing SCD by direct gene correction a dream of many clinicians. Indeed multiple genetic therapies are in development to address SCD, but due to technical limitations of other approaches, these therapies are primarily focused on expressing alternate hemoglobin genes such as fetal hemoglobin or a transgenic hemoglobin. Our approach is the first in industry to directly correct the SCD-causing mutation to restore normal adult hemoglobin expression. We have received clearance of our IND and intend to enroll the first patient in a Phase 1/2 trial of GPH101 in .

Overview of Sickle Cell Disease

SCD is caused by a single nucleotide substitution in the gene encoding the ß subunit of hemoglobin (Hb), resulting in the production of sickle hemoglobin (Hemoglobin S or HgbS). SCD is an autosomal recessive disease, meaning individuals with SCD have two copies of the mutated ß globin gene. HgbS polymerizes in red blood cells to form rigid rod-like structures, damaging cell membranes and causing red blood cells to take on a

characteristic sickle shape ultimately resulting in hemolytic anemia (destruction of red blood cells) and vaso-occlusion (blockages in blood vessels), the two major pathophysiologic features of SCD. The anemia and vaso-occlusion cause severe symptoms, serious morbidity including multiple organ damage, and shortened lifespan.

SCD is the most common monogenic disorder with an estimated global incidence of over 300,000 births annually. Population estimates suggest that there are approximately 100,000 persons living with SCD in the United States with an additional 67,000 people living with the disease in the European Union. The global prevalence of the disease is estimated to be about 20-25 million. Unaffected biological parents of individuals with SCD have sickle cell trait. Sickle cell trait is the benign carrier status (one copy of normal and one copy of mutated ß globin) of SCD present in over 100 million people worldwide.

SCD is a serious and life-threatening disease. Quality of life is often poor and life expectancy is reduced by20-30 years. Patients experience severe, often daily symptoms of pain and fatigue, suffer from acute painful episodes often requiring hospitalization, and are at risk for serious complications and organ damage including stroke, silent cerebral infarction, osteonecrosis, renal failure, pulmonary hypertension and cardiomyopathy.

Sickle Cell Disease—Available Treatments and Unmet Needs

There are four available therapies approved by the FDA SCD treatment: hydroxyurea, L-glutamine, and Adakveo™ (crizanlizumab) to reduce the frequency of vaso-occlusive crises (VOCs), and Oxbryta™ (voxelotor) to increase hemoglobin levels and reduce hemolysis. These therapies require lifelong usage and may in some cases reduce but do not eliminate SCD's serious symptoms or complications. None of these therapies has been shown to prevent pain or, organ damage, or to increase survival. Chronic blood transfusion therapy is another treatment option for some SCD patients. While transfusion therapy has a role in decreasing risk of stroke, a dreaded SCD complication, it has significant side effects including iron overload. Despite advancements in current care, progressive organ damage continues to cause early mortality and severe morbidity.

Allo-HSCT remains the only curative therapy for SCD and is considered the gold-standard for potentially curative therapies. The HSCT procedure ablates the patient's endogenous HSCs that produce sickle red blood cells and replaces them with normal HSCs, typically from a matched sibling donor with sickle trait. HSCT is considered curative because donor cells contain at least one corrected copy of the beta globin gene and produce normal adult HgbA yielding normal red blood cells thereby preventing disease complications. HSCT with donor sickle trait cells has been shown to be curative because every red blood cell contains approximately 60% HgbA protein and 40% HgbS protein and does not sickle. HSCT is the only therapy for SCD proven to prevent progression of organ damage and prolong survival. However, HSCT is rarely used due to the difficulty in finding a matched donor (as low as 16-19%), safety risks, including graft-versus-host-disease, and need for long-term immunosuppression.

Despite HSCT's limitations, over 150 are performed in the United States annually. We believe this indicates substantial underlying demand for curative options which is driven by SCD's severity and inadequacy of current treatment options.

Sickle Cell Disease—Emerging Curative Treatments and Potential Limitations

Gene therapy and gene editing approaches are attractive alternatives to HSCT because a patient's own cells (autologous cells) are genetically modified and therefore do not face the high risk of rejection or graft-versus-host disease associated with allo-HSCTs. However, it is unclear whether gene therapy (gene addition) and gene editing (hemoglobin F (HgbF) induction) approaches currently in the clinic can achieve long term benefits similar to allo-HSCT, which directly replaces stem cells with HbSS genotype with normal (HbAA) or sickle trait (HbAS) stem cells from a matched sibling donor.

Gene addition approaches coopt a LVV to semi-randomly integrate a modified gene for non-sickling beta (or gamma) hemoglobin into the genome, leaving the disease-causing sickle globin gene intact. Results from

these trials are promising and demonstrate that patients treated using this approach have reduced VOC incidence, significant hemoglobin increases and reduction in hemolysis. However, the random insertion of newly introduced genes raises safety concerns for a potential increased risk of tumorigenesis. Use of viruses such as LVV to insert genes also results in a high variability in the number of gene copies that are inserted into the genome. This leads to variable expression levels of transgenic hemoglobin such that a significant proportion of red blood cells may not be protected. Finally, LVVs have a biologic preference for integrating into the introns of actively expressed genes which might cause long-term perturbations of HSC function that might take years to manifest themselves.

A different, yet indirect, approach uses CRISPR-Cas9 gene editing to reduce or eliminate the suppression of fetal hemoglobin expression thereby increasing the fetal hemoglobin levels. As with LVV gene addition, this approach also leaves the disease-causing sickle mutation intact. The rationale for this approach is that rare patients with naturally occurring elevated fetal hemoglobin levels may have reduced or minimal SCD symptoms. Data available on three treated patients suggests that this fetal hemoglobin induction also reduces the rate of VOCs and results in significant hemoglobin increases and reduction in hemolysis. Fetal hemoglobin serves to transfer oxygen from the maternal blood stream to the fetus because it has a higher oxygen affinity compared to adult hemoglobin. Fetal hemoglobin is normally expressed only in the fetus and replaced by adult hemoglobin within one year of birth. Due to its abnormally elevated oxygen affinity for adults, prolonged elevated fetal hemoglobin expression may result in adverse physiological consequences.

Therefore, we believe that current gene editing and gene addition approaches, while promising, stop short of correcting the underlying disease-causing mutation, which remains the ultimate goal of an SCD curative therapy.

Our Solution: GPH101

GPH101 is the first targeted genetic therapy that is designed to efficiently and precisely correct the disease-causing gene, simultaneously eliminating sickle hemoglobin and restoring normal adult hemoglobin expression. At the DNA level, we believe this is the first approach in the industry that seeks to convert a SCD genotype (two genes with sickle mutations, HbSS) to a normal genotype (at least one normal ß globin gene). By correcting the SCD causing mutation, our next-generation gene editing approach overcomes a major limitation of current gene addition and gene editing approaches that take an indirect approach. Our goal with GPH101 is to replace a sufficient quantity of a patient's HSCs with gene corrected cells to definitively cure SCD.

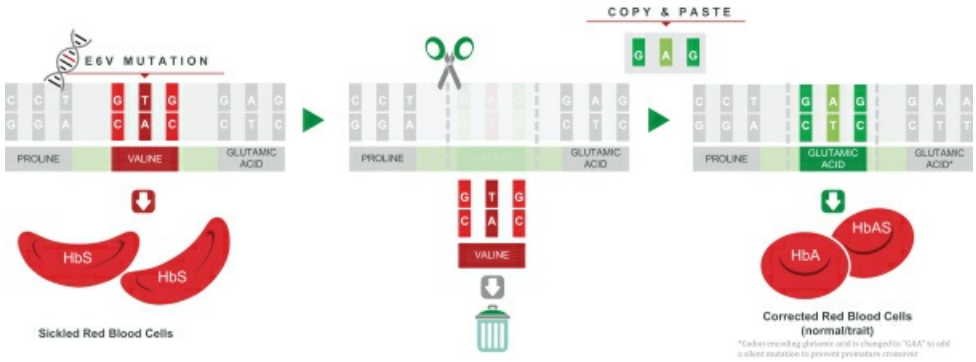


Figure: GPH101 removes the mutated region of HbS and replaces it with that of a normal hemoglobin gene.

In order for this approach to be curative in patients, it is not necessary to correct all sickle globin genes nor to correct all HSPCs. Because sickle cell trait individuals have benign SCD carrier status, correcting one out of the two sickle globin genes in a cell is sufficient to correct that cell. Furthermore, to cure the disease, it is not necessary to correct all SCD HSPCs. In patients who received allo-HSCT from a matched sibling donor with sickle trait—long-term, persistent mixed donor chimerism where only 20% of HSCs have normal hemoglobin resulted in cures, and clinical benefits were observed with as low as 5% corrected cells. Per the figure below, we have shown under IND-enabling GMP manufacturing conditions that we can achieve correction (meaning one or more corrected copies of the sickle globin gene) in over 55% of treated HSPCs, which we believe to be well above the predicted curative threshold.

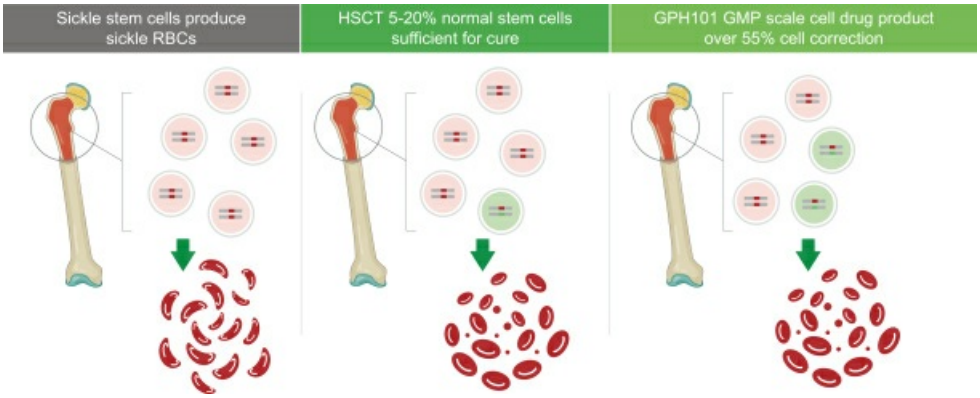


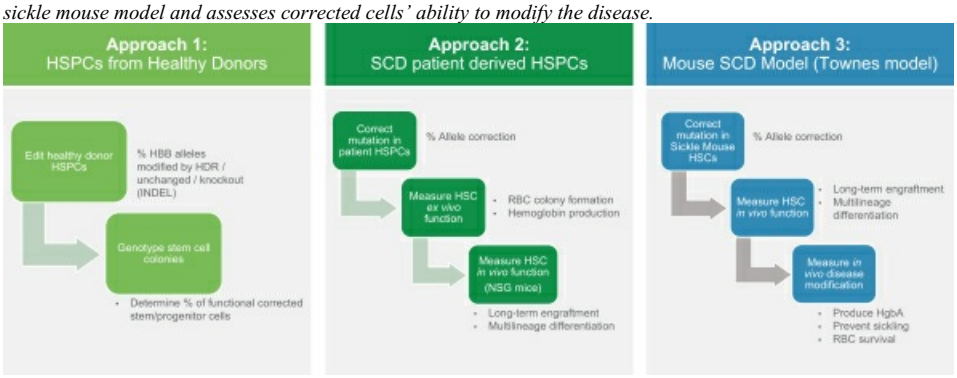
Figure: We have shown that under IND-enabling GMP manufacturing conditions, we can achieve HbS gene correction above the predicted threshold required for cure.

We believe that GPH101 has the potential to be the optimal curative approach, because it is designed to directly correct the mutation responsible for SCD and restore normal biology by eliminating sickle globin and restoring adult hemoglobin expression.

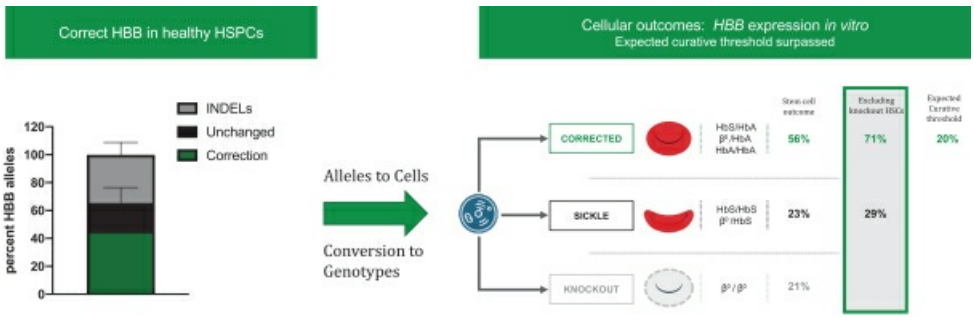
Preclinical Validation

We have used both healthy donor and sickle cell disease patient-derived hematopoietic stem cells in our preclinical studies. Although correction of the sickle mutation requires sickle hematopoietic stem cells, we can also perform the same process on cells from healthy donors because the DNA template introduces additional silent (no change to amino acid coding sequence) nucleotide changes by HDR. Overall, our data highlight that HBB (beta-globin) gene correction is equivalent in healthy donor as well as sickle cell disease patient-derived hematopoietic stem cells.

We have taken three experimental approaches to generate preclinical proof of concept data for GPH101. The first approach evaluates HDR efficiency in HSPCs from healthy donors subsequently measuring both the frequencies of HBB allele editing in the bulk population and edited cell HBB genotypes (e.g. the percentage of cells with at least one corrected allele). The second approach corrects the HbS gene in HSPCs isolated from patients, then measures the function of treated cells both *ex vivo and in a humanized mouse model. The third approach corrects the HbS mutation in HSCs from a sickle mouse model and assesses corrected cells' ability to modify the disease.*



In experimental approach 1, illustrated in the left panel of the figure below, HSPCs were isolated from healthy donors. We then used CRISPR to target HBB alleles and then introduced silent mutations by HDR from the AAV6-delivered donor DNA template, a process equivalent to the intended process for clinical samples. In these healthy donor cells, HDR modified HBB alleles are equivalent to corrected alleles, and unchanged alleles are equivalent to sickle alleles. Over 40% of HBB alleles were corrected, approximately 40% had INDELs, and approximately 20% of HBB alleles remained unchanged. We anticipate from this experiment that creating INDELs in the HbS gene may be beneficial to SCD patients because INDELs may prevent sickle hemoglobin expression through knockout of the HbS gene, and stem cells containing biallelic sickle globin INDELs will not be able to produce sickle RBCs. To understand the impact of corrected and INDEL alleles on stem and progenitor cell genotype, and on the probability of achieving the predicted curative threshold of 20% corrected cells, we next genotyped individual stem and progenitor cell colonies. Results are shown in the right panel of the figure below. We observed that 40% of corrected alleles translated into 56% of stem cells being the equivalent of corrected (monoallelic or biallelic HDR), 23% are equivalent of sickle (unchanged), and 21% are knockout (INDEL/INDEL). Because knockout stem cells do not make functional RBCs, the proportion of functional corrected stem cells is approximately 70% (56% corrected colonies divided by 79% colonies that can make normal adult hemoglobin), which is well above the expected curative threshold of 20%. Thus, our approach of both knocking out the disease-causing mutation with subsequent gene correction to restore the HbA gene has the potential to lead to higher than anticipated cell correction rates and increases our confidence in the ability to exceed the expected curative threshold.



SCD Patient Derived HSPCs

In experimental approach 2, HSPCs were isolated from SCD patients and edited utilizing a process similar to the intended process for clinical samples, as illustrated below in the left panel of figure below. Due to our optimized process, over 60% of HbS alleles were corrected, approximately 20% had INDELs and only approximately 10% of HbS alleles remained intact. We believe that the INDELs may be beneficial to SCD patients since INDELs prevent expression of sickle hemoglobin from the uncorrected intact HbS genes.

Next, these edited HSPCs were differentiated into red blood cells *ex vivo* and their hemoglobin expression was measured. As illustrated in the middle panel of the figure below, analysis of HgbA and HgbS expression (subtracting background HgbF levels) showed over 90% normal hemoglobin A and only approximately 10% sickle hemoglobin. We believe this result was better than expected for sickle trait, where red blood cells contain 60% HgbA protein and 40% HgbS protein, because INDEL formation in uncorrected sickle alleles eliminated most HbS expression. As illustrated in the right panel of the figure below, when transplanted into immunodepleted NSG mice, these cells engrafted in a long-term (16 weeks), stable fashion with approximately 30% of sickle alleles corrected. This translates into approximately 40% of the long-term HSCs being corrected by containing at least one corrected sickle allele, double the expected curative threshold in humans. We can measure corrected alleles more directly than corrected cells; the curative threshold based on corrected alleles is anticipated to be approximately 15% because the percent of cells that have at least one corrected allele is approximately 1.3 times higher than the percent of corrected alleles. Possible reasons for the approximately two-fold difference in gene correction between the infused HSPCs (approximately 70%) and the HSCs engrafted in the mice (approximately 35%) include that long term engrafting HSCs have lower efficiency HDR than progenitor cells that comprise the majority of HSPCs; that this is a feature specific to the mouse model; or that the gene correction process impairs functionality of some of the HSCs. Regardless of the explanation, the 30% gene correction seen *in vivo* in engrafting HSCs is predicted to be curative in humans.

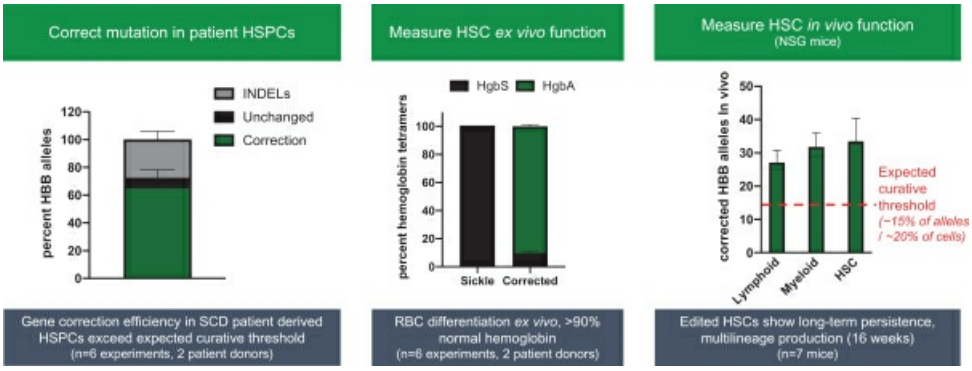


Figure: GPH101 created from SCD patients predominantly expressed normal hemoglobin and led to stable engraftment in immunodeficient mice

Mouse SCD Model (Townes Model)

The Townes model of SCD is a transgenic mouse model in which the mouse hemoglobin locus is replaced with human HbA and HbS genes. These mice express sickle cell hemoglobin and exhibit many of the symptoms of human SCD including red blood cell sickling and short red blood cell half-life. In this experimental approach HSCs were isolated from sickle mice and edited utilizing the same process as the process for human HSPCs. As illustrated in the left panel of the figure below, we observed that approximately 20% of sickle alleles were corrected in the mouse HSCs, likely because of processes that were optimized for human and not mouse HSCs. Given the estimated curative threshold in humans of 20% HSCs, we predicted that mice achieving 20% or greater correction of engrafted cells (15% of alleles) would show substantial benefit of disease features. As illustrated in the center panel of the figure below, all mice with greater than 15% allele correction showed a profile of hemoglobin expression consistent with a potential cure with over 60% HgbA protein (same HgbA level as sickle trait). Furthermore, red blood cells from gene-corrected mice had a half-life that was approximately ten-fold longer than SCD mice. As illustrated in the right panel of the figure below, we observed that these gene-corrected red blood cells were resistant to sickling.

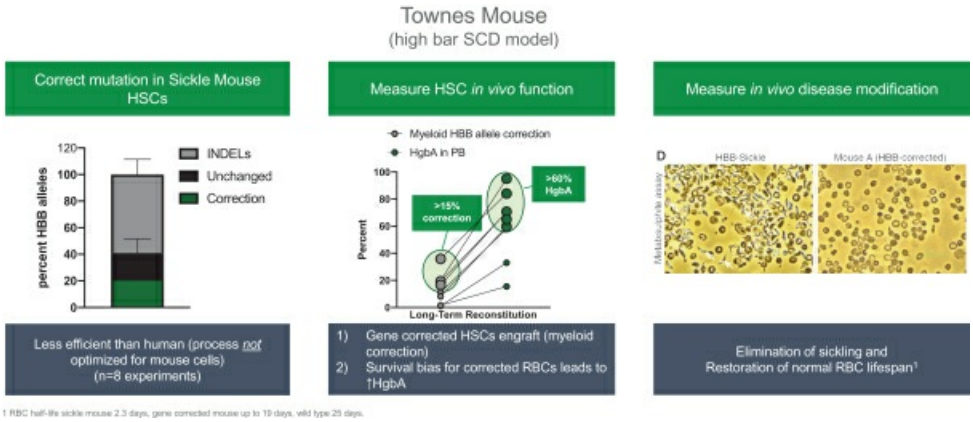


Figure: Gene correction in a humanized SCD mouse model resulted in over 70% normal hemoglobin expression leading to reduced red blood cell sickling.

GPH101 Phase 1/2 Clinical Trial Design

We received IND clearance for GPH101 and intend to initiate a Phase 1/2 open label clinical trial of GPH101 in approximately 15 patients with severe SCD in . The primary objective of this trial will be to assess safety. Secondary objectives of the trial will be to evaluate engraftment success, gene correction rates, total hemoglobin, hemoglobin A and S, and clinical and exploratory endpoints.

Gene Replacement: GPH201 for the Treatment of XSCID

Our GPH201 product candidate is a next generation gene-edited autologous HSC product candidate for the treatment of XSCID. XSCID is a rare, life-threatening disease where multiple mutations in a single gene prevent the formation of multiple interleukin receptors resulting in defects in immune cell formation. GPH201 replaces this gene with a normal copy, conferring a survival advantage to treated cells. We have an agreement with Jasper to investigate the potential use of JSP191, Jasper's clinical-stage non-genotoxic HSC targeted antibody-based bone-marrow conditioning (non-genotoxic HSC targeted conditioning) regimen, with GPH201. Under the agreement, we and Jasper will each retain commercial rights to our respective technologies.

XSCID Disease Overview and Unmet Need

XSCID is the most common type of a group of severe primary immunodeficiency disorders characterized by developmental and/or functional impairment of lymphocytes. XSCID accounts for about 40%-50% of all SCID cases in United States and with an estimated prevalence of 1 in 100,000 live births and almost exclusively affects males. The IL2RG gene encodes the interleukin 2 receptor gamma subunit, an essential component of a number of cytokine receptors required for normal lymphopoiesis. Because of multiple mutations in the IL2RG gene in XSCID patients, B-, T- and NK-cells either fail to develop and proliferate due to the inability to respond to mitogenic stimuli. T and NK-cells normally play a critical role in protection from infection with pathogens such as bacteria, viruses, and fungi. As a consequence, severe, persistent, or recurrent early-onset infections are the hallmark of XSCID. Without treatment, infants with XSCID usually do not live beyond one year of age.

Allogeneic HSCT that results in functional reconstitution of the immune system is the only curative treatment for XSCID. Allogeneic HSCT, performed in the first 3.5 months of life, using human leukocytes antigen (HLA)-matched sibling donors results in over 94% chance of long-term, disease-free survival. While the results of allogeneic HSCT can be excellent, the procedure has limitations including identification of an HLA matched sibling donor as well as potential complications of GvHD and subsequent poor immune reconstitution.

To date, almost 200 unique mutations in the IL2RG gene have been identified in more than 320 patients with X-SCID. This diversity of IL2RG mutations that can cause XSCID makes developing genetic therapies for XSCID challenging. An effective targeted genetic therapy would need to replace a large portion of the IL2RG gene in order to be effective across XSCID patients with different IL2RG mutations.

XSCID was among the first indications pursued for genetic medicine development. Although gene therapy has shown promising results, early clinical trials using gamma retroviral vectors to insert extra IL2RG gene copies led to insertional mutagenesis and leukemia in a significant proportion of patients. Subsequently, LVV for IL2RG gene addition have entered development. LVV has decreased insertional mutagenesis risk, but potential risk remains. Furthermore, LVV gene addition in XSCID may lead to suboptimal immune reconstitution due to constitutive unregulated transgene expression.

Our Solution: GPH201

GPH201 is an investigational therapy for XSCID in which the defective IL2RG gene is replaced in autologous HSCs at its natural locus in the genome with a normal IL2RG gene. The goal of GPH201 is to replace a sufficient quantity of a patient's HSCs with gene edited cells to eliminate the symptoms of, and potentially cure, XSCID.

Preclinical Data

To assess gene replacement efficiency, we modified HSCs from healthy males using our GPH201 process. As illustrated in the figures below, we observed an overall mean IL2RG gene replacement efficiency of approximately 45% in healthy donor-derived HSPCs. These HSCs were then engrafted in bone marrow of immunodeficient mice where approximately 30% gene replacement was observed, indicative of long-term curative potential. We believe this level of gene replacement is well in excess of the 1-5% curative threshold.

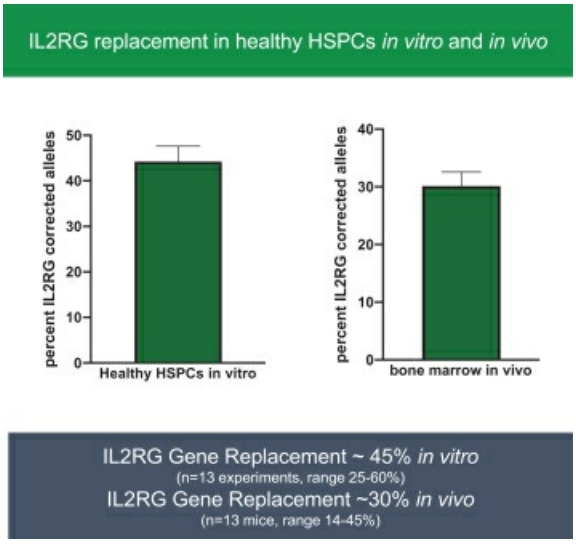


Figure: The IL2RG gene was replaced in approximately 45% of treated HSPCs from healthy donors

To assess the potential of our treatment to restore the ability of progenitor cells to differentiate into T cells and NK cells, we isolated HSPCs from an XSCID patient with subsequent replacement of the IL2RG gene, achieving approximately 40% gene replacement efficiency, as illustrated in the figure at left below. Upon differentiating these cells *in vitro,* as illustrated in the figure at right below, treated HSPCs from the XSCID patient had an approximately nine-fold increase in cells that formed T cells, B cells, and NK cells than untreated control cells.

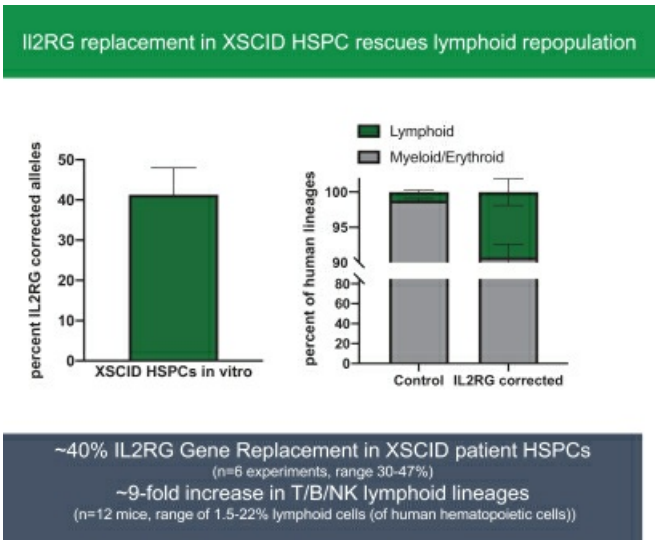


Figure: IL2RG gene replacement in XSCID patient HSPCs led to significant increase in T cell and NK cell formation

As a result of the selective advantage of progenitor and effector cells that express normal IL2RG, it is estimated that onlyl-5% of genetically corrected HSCs would be needed to reconstitute immunity in XSCID patients. This selective advantage is highlighted by reports that rare XSCID patients have had a somatic reversion in a single precursor cell that led to reconstitution of their immune system for years. Based on the editing efficiency we have demonstrated and the low number of genetically corrected HSCs needed to potentially cure the disease, we believe that GPH201 can be curative and could be combined with a novel, safer and targeted bone marrow conditioning approach.

We have partnered with Jasper Therapeutics to assess GPH201 combined with targeted conditioning using JSP191, an anti-CD117 monoclonal antibody and without the use of chemotherapeutic myeloablation. Clinical data has shown that JSP191 can lead to successful engraftment in allo-HSCT for XSCID.

GPH201 Development Plan

We are currently evaluating GPH201 in IND-enabling studies, which we expect to complete by . Subject to the successful completion of these studies and the submission and clearance of an IND, we intend to conduct a Phase 1/2, multicenter, open-label clinical trial to assess the safety and preliminary efficacy (including T cell and NK cell reconstitution) of GPH201 combined with a non-genotoxic HSC targeted conditioning regimen in patients with XSCID who have no matching sibling donor.

We believe that GPH201 will generate preliminary data on combining our autologous HSC therapies withnon-genotoxic HSC targeted conditioning, and that our clinical experience with this approach with GPH201 will accelerate our ability to use a potential non-genotoxic HSC targeted conditioning regimen with our other product candidates in our pipeline. We believe GPH201 will serve as proof of concept for our platform's ability to achieve native gene replacement, an approach that can potentially be applied to many other diseases such as B-thalassemia, other immunodeficiencies, and autoinflammatory syndromes.

Targeted Gene Insertion with Therapeutic Protein Production (CCR5 Safe Harbor Locus): GPH301 for the Treatment of Gaucher Disease

Our GPH301 product candidate is a next generation gene-edited autologous HSC product candidate from our CCR5 locus technology for the treatment of Gaucher disease. With GPH301, we are inserting a functional copy of the gene for glucocerebrosidase (GCase) into the chromosomal location of the CCR5 gene. This locus is known as a safe harbor both because of the lack of serious deleterious effects in humans with CCR5 mutations and because the expression of genes inserted there can be precisely controlled by regulatory elements inserted together with the gene of interest. We intend to develop GPH301 for the treatment of both Type 1 and Type 3 Gaucher disease. For the more serious Type 3 disease, we anticipate using standard chemotherapy-based conditioning; for Type 1 we will explore targeted conditioning regimens. This same approach can be used for production of therapeutic proteins for other diseases including other lysosomal storage diseases. We believe that proof of concept in Gaucher can accelerate development of a pipeline of CCR5 safe harbor protein production candidates.

Overview of Gaucher Disease

Gaucher disease is an autosomal recessive genetic disorder caused by mutations in the GBA gene which encodes GCase. GCase is an enzyme responsible for degrading glucocerebroside, a cell membrane building block, into glucose and lipids within lysosomes of cells. In patients with Gaucher disease, lack of GCase leads to accumulation of glucocerebroside in macrophages resulting in inflammation that impacts the liver, spleen and bone marrow.

Gaucher disease is classified into three types. Type 1 disease is associated with hematologic abnormalities, enlargement of the liver and spleen and skeletal defects. While patients with Type 1 disease typically have

normal lifespans, their quality of life is severely impacted. Patients with Type 2 disease develop life-threatening neurological dysfunction as infants and often die within the first few weeks of life. Type 2 disease is typically too rapidly progressive for HSCT treatment. Patients with Type 3 have severe neurological complications in addition to all the symptoms associated with Type 1 disease. Patients with Type 3 disease have a reduced lifespan, but can often survive into young adulthood.

Gaucher disease is the most common inherited lysosomal storage disease. There are approximately 6,000 patients with Gaucher disease in the United States. 90% of Gaucher patients in the United States and Europe are classified as Type 1. Type 3 disease may be the most common type worldwide.

Gaucher Disease—Standard of Care Treatments

Gaucher disease is currently treated by enzyme replacement therapy (ERT), which is recombinant GCase. All of the approved ERTs are administered as biweekly infusions. Long term ERT for Gaucher disease results in lower levels of anemia, reduced bone pain, and reductions in spleen and liver enlargement but are not curative. An unmet need exists for Type 1 patients despite ERT, with 60% of patients achieving suboptimal clinical outcomes after 4 or more years of treatment. A clinically significant percentage of patients continue to exhibit bone pain, organomegaly and cytopenia after 10 years of ERT.

Since ERTs cannot cross the blood brain barrier, they are ineffective in addressing the neuropathic manifestation of the disease in Type 2 and Type 3 patients. HSCT is the only treatment that can provide a definitive cure for Gaucher disease and is considered prior to the onset of neurologic symptoms.

An alternate method of treating Gaucher disease is to block the synthesis of glucocerebroside with inhibitors rather than to accelerate its breakdown with ERT. Approved products in this category include miglustat and eliglustat. These products are not generally as effective as ERT and have significant safety risks.

Our Solution: GPH301

GPH301 is targeted gene insertion therapy candidate for the treatment of Gaucher disease in which a functional copy of the GBA gene is inserted into the CCR5 gene locus of autologous HSCs. This locus is known as a safe harbor both because of the lack of deleterious effects associated with gene insertions that occur there and because the expression of genes inserted there can be precisely controlled by regulatory elements inserted together with the gene of interest. We include the CD68S promoter in the inserted gene cassette which we believe provides two advantages: 1) targeting GCase expression specifically to the disease-causing cell in Gaucher (and avoiding expression in HSCs which could affect stem cell function) and 2) macrophage expression takes advantage of the ability of gene corrected macrophages to cross the blood brain barrier and address the neuropathic manifestation of Type 3 Gaucher Disease. The goal of GPH301 is to replace a sufficient quantity of a patient's HSCs with gene edited cells to drive GCase expression in a patient's macrophages and reverse the accumulation of unprocessed glucocerebroside. Data from Gaucher patients with mixed donor chimerism and from mouse models support that less than 10% corrected HSCs could be curative.

Preclinical Data

To assess the efficiency of our targeted gene insertion process, we isolated HSCs from healthy donors using our GPH301 process. As illustrated in the left panel of the figure below, we were able to achieve efficient gene insertion as demonstrated by approximately 35% of the targeted CCR5 alleles containing a GCase insertion. As illustrated in the center panel of the figure below, the edited, engrafted cells contain more than 10% alleles with the insertion, which corresponds to more than 15% of the cells, which is above the predicted threshold (5%-10%) for patients to achieve a cure. As predicted, because of our use of the CD68S promoter, GCase expression was restricted to monocytes and macrophages. As illustrated in the right panel of the figure below, GCase expression was two-fold higher in edited versus unedited healthy donor cells in both*in vitro* cultures and in cells isolated

from a humanized mouse model after engraftment. We believe that this preclinical data strongly supports the curative potential of GPH301.

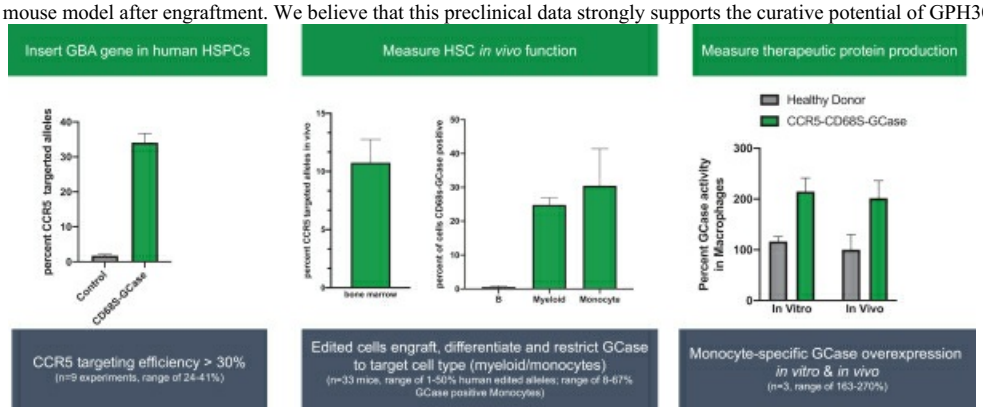


Figure: Insertion of the GBA gene in the CCR5 safe harbor led to the expression of GCase in monocytes.

GPH301 Development Plan

We are currently evaluating GPH301 in IND-enabling studies, which we expect to complete by . Subject to the successful completion of these studies and the submission and clearance of an IND, we intend to conduct a Phase 1/2, multicenter, open-label clinical trial to assess safety and preliminary efficacy (including glucocerebrosidase enzyme activity) of GPH301 initially using standard busulfan conditioning in Type 1 and Type 3 patients and then explore the use of non-genotoxic HSC targeted conditioning regimen in Type 1 Gaucher disease patients.

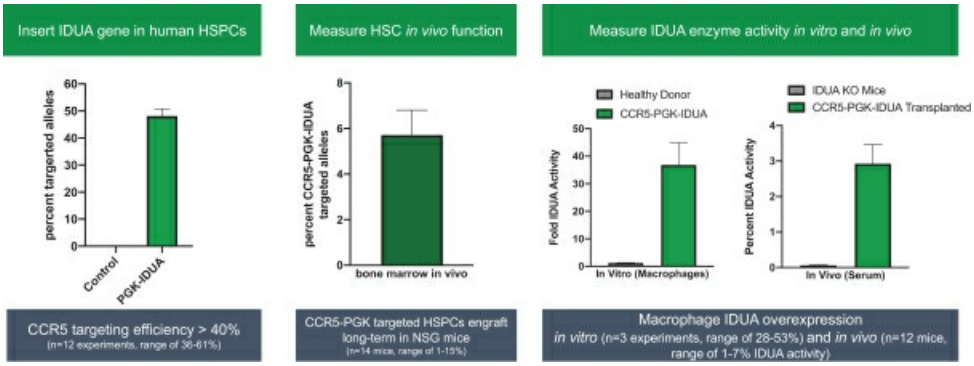
Future Targeted Gene Insertion with Therapeutic Protein Production (CCR5 Safe Harbor) Opportunities

We plan to pursue indications beyond Gaucher disease using our CCR5 locus technology for tissue-based protein expression, including for CNS protein delivery. Inserting different genes into this locus using the same sgRNA, integration site and homology arms enables us to rapidly expand into other diseases.

Our founders have published animal or *in vitro* data using the CCR5 safe harbor approach in several indications, including mucopolysaccharidosis type I (MPS I), a severe metabolic disease characterized by buildup of glycosaminoglycans (GAGs) due to a deficiency of alpha-L iduraonidase (IDUA), an enzyme responsible for degradation of GAGs in lysosomes. Without IDUA, GAGs accumulate in the body leading to developmental delays, enlarged organs, neurologic damage which may lead to cognitive decline, and early death. MPS I is treated primarily by chronically administered ERT, for which CNS efficacy is limited because ERT does not cross the blood-brain barrier. The only curative treatment for MPS I is allo-HSCT which is rarely used because of the lack of matched donors and immune complications.

To assess the efficiency of our targeted gene insertion process, we isolated HSPCs from healthy donors using a process similar to that of GPH301. As illustrated in the left panel of the figure below, we were able to achieve efficient gene insertion as demonstrated by approximately 45% of the targeted CCR5 alleles containing a phosphoglycerate kinase promoter (PGK)-IDUA insertion. While we have not optimized gene insertion for IDUA in engrafted cells, targeted cells successfully engraft in immunodepleted mice, and as illustrated in the center panel of the figure below, the edited, engrafted cells contain more than 5% alleles with the insertion, which corresponds to approximately 7% of cells. To study the IDUA enzyme activity contribution in cells containing the PGK-IDUA gene insertion, a pure population of targeted cells was measured *in vitro* in macrophages. Approximately 30-fold higher IDUA activity was observed versus healthy donors, as illustrated in

the right panel of the figure below. We then transplanted the PGK-IDUA human HSPCs into IDUA knockout mice (an MPS I animal model) to assess *in vivo* IDUA activity. The serum IDUA activity in the transplanted mice was an average of approximately 3% of normal activity versus 0.05% activity in IDUA knockout mice (0.8% activity or higher is expected for clinical benefit based on patients with mild disease). Overall, these data highlight that the CCR5 safe harbor locus is a modular therapeutic protein production platform that has broad applicability for treating genetic diseases, including other lysosomal storage disorders.



Future Opportunities in Targeted Gene Insertion with Therapeutic Protein Production: Alpha Globin Locus

For certain therapeutic applications, we believe there is an advantage to precisely inserting a gene into a location in the chromosome where we can utilize a native cell promoter that can lead to high level and lineage specific expression. One such locus is the alpha globin (HBA1) locus, in which the endogenous alpha-globin promoter can be used to express inserted genes in red blood cells or red blood cell precursors to drive therapeutic protein production. This is an attractive approach because the very high rate of red blood cell formation (200 billion produced each day), coupled with the strength of the alpha globin promoter (280 million hemoglobin molecules per red cell) could allow for production of normal levels of therapeutic protein with modest HSC engraftment targets (<10%) which may be achievable with non-genotoxic HSC targeted bone marrow conditioning regimens. We believe this could dramatically improve the benefit risk of product candidates as potential one-time HSC cures.

A number of blood diseases, including thalassemias, hemophilias and other diseases such as hereditary angioedema (HAE) and alpha-1 antitrypsin (AAT) deficiency could potentially be cured or treated by one-time infusion of HSPCs with targeted gene insertion into the alpha globin locus. In preclinical studies, we observed a targeted insertion of a full HBB gene (which encodes the beta-globin protein) into the HBA1 locus at an approximately 40% rate in human beta-thalassemia patient-derived HSPCs, as shown in the figure at left below. Following the insertion of the HBB gene into the HBA1 locus, transplantation of these patient-derived cells into an immunodeficient mouse model resulted in long-term engraftment, as shown in the center figure below.

Following differentiation of HSPCs into red blood cells, the beta globin to alpha globin expression ratio was approximately equivalent to the levels observed in patients with beta-thalassemia trait, as shown in the figure at right below.

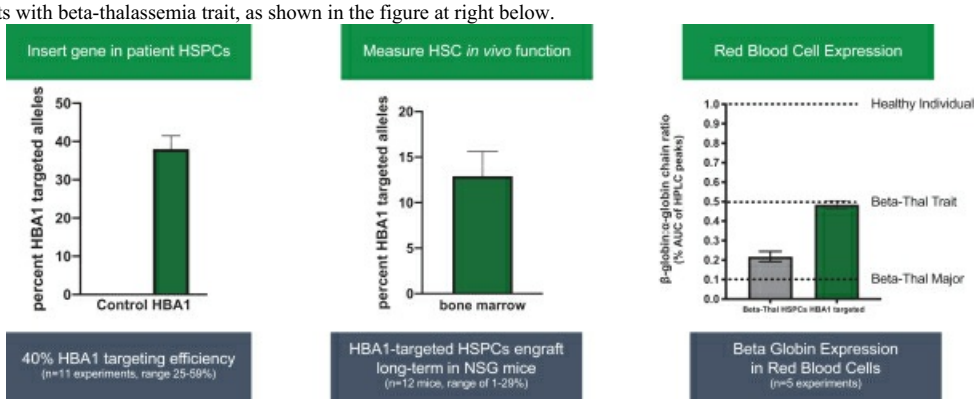
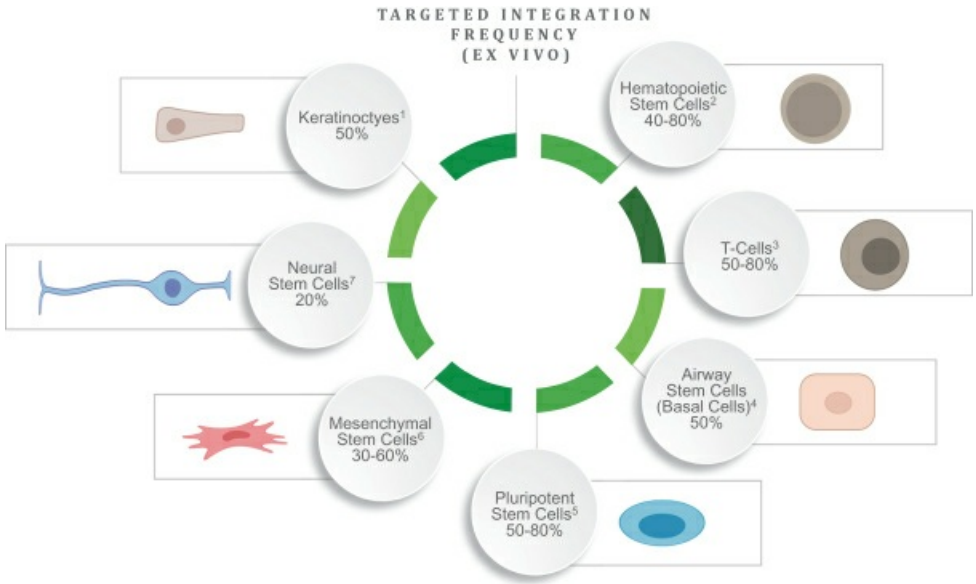


Figure: Targeted gene insertion of the HBA1 gene led to efficient gene insertion and expression in a mouse model

Given high rates of protein production from our gene-targeted cells, we believe that clinically relevant therapeutics can be developed with this approach that require only modest rates of engraftment. We believe that this has the potential to expand the applicability of our targeted gene insertion technology to indications for which risks of random gene integration and chemotherapeutic myeloablative conditioning would be unacceptable.

Other Future Opportunities for Targeted Gene Integration in Other Cell Types and Indications

We intend to pursue applications of our technology platform to develop potential therapies for a number of other genetic diseases including diseases involving the hematopoietic system and other lysosomal storage diseases. We believe that our targeted gene insertion technology, through its ability to lead to the controlled expression of any gene, also has potential to treat diseases outside of monogenic diseases such as the ability to integrate genes to produce next generation CAR effector therapies or myeloid cell therapies for autoimmune disease or oncology. Our high efficiency gene editing technology has been shown using human cells and/or animal models to be applicable to a broad range of HSC-based indications (e.g. MPS I, Krabbe, beta-thalassemia) as well as other tissues, such as airway stem cells (cystic fibrosis), neural stem cells, pluripotent stem cells and keratinocytes (wound healing). We intend to investigate the potential of developing therapies for other diseases based on these findings.



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Manufacturing

We currently have no commercial manufacturing capabilities. For our initial wave of clinical programs, we intend to use qualified third-party contract manufacturing organizations with relevant manufacturing experience in genetic medicines. We have established manufacturing processes for GPH101 and have established relationships with third-party manufacturers with capabilities to manufacture the necessary Drug Substance and Drug Product in accordance with current Good Manufacturing Practices (cGMP). We plan to continue to rely on qualified third-party organizations to produce or process bulk compounds, formulated compounds, viral vectors or engineered cells for IND-supporting activities and early-stage clinical trials. We expect that commercial quantities of any compound, vector, or engineered cells that we may seek to develop will be manufactured in facilities and by processes that comply with cGMP and relevant health authority regulations. At the appropriate time in the product development process, we will determine whether to establish manufacturing facilities or continue to rely on third parties to manufacture commercial quantities of any products that we may successfully develop. Outside of the United States and Europe, where appropriate, we may elect in the future to utilize strategic partners, distributors or contract sales forces to assist in the commercialization of our products. In certain instances, we may consider building our own commercial infrastructure.

As product candidates advance through our pipeline, our commercial plans may change. In particular, some of our research programs target potentially larger indications. Clinical outcomes, the size of the development programs, the size of the target market, and the availability of commercial manufacturing infrastructure will influence our manufacturing strategies in the United States, Europe and the rest of the world.

Competition

The gene therapy and gene editing fields are characterized by rapidly advancing technologies, intense competition, and a strong emphasis on intellectual property and proprietary products. While we believe that our technology, development experience, and scientific knowledge provide us with competitive advantages, we currently face, and will continue to face, competition from many different sources, including major pharmaceutical, specialty pharmaceutical and biotechnology companies, as well as academic institutions, government agencies and private and public research institutions. For any products that we may ultimately commercialize, not only will we compete with any existing therapies and those therapies currently in development, but we will also have to compete with new therapies that may become available in the future. Key competitive factors affecting the commercial success of our gene therapies are likely to be efficacy, safety and tolerability profile, reliability, convenience, price and reimbursement.

We compete in the segments of the pharmaceutical, biotechnology, and other related markets that utilize technologies encompassing genomic medicines to create therapies, including gene editing and gene therapy. There are several other companies advancing gene editing and gene therapy product candidates in preclinical or clinical development in sickle cell disease, including Beam Therapeutics Inc., bluebird bio, Inc., CRISPR Therapeutics AG, Editas Medicine, Inc., Intellia Therapeutics, Inc. and Sangamo Therapeutics, Inc. Companies advancing gene therapy programs in XSCID include Mustang Bio, Inc. Companies advancing gene therapy programs in Gaucher Disease include AVROBio, Inc and Freeline Therapeutics Holdings plc. Companies combining CRISPR with HDR include CRISPR Therapeutics AG, which, for oncology applications, inserts a chimeric antigen receptor (CAR) construct into the TCR alpha constant (TRAC) locus in T-cells using HDR. Additionally, an academic collaboration between the University of California, San Francisco and the University of California, Los Angeles is seeking to correct the sickle cell mutation using CRISPR followed by delivery of a single-stranded oligonucleotide DNA donor to potentially harness HDR. Because these competitors, as well as other companies and research institutions, hold numerous patents in this field, it is possible that these or other third parties could allege they have patent rights encompassing our product candidates, technologies or methods. For more information regarding competition and intellectual property, please see the section titled “Risk Factors—Risks Related to Our Intellectual Property.”

Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources being concentrated among a small number of our competitors. Accordingly, our competitors may be more successful than we may be in obtaining FDA approval for drugs and achieving widespread market acceptance. Our competitors’ products may be more effective, or more effectively marketed and sold, than any product we may commercialize and may render our gene therapies obsolete or non-competitive before we can recover the expenses of developing and commercializing any of our gene therapies. Our competitors may also obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for ours. We anticipate that we will face intense and increasing competition as new drugs enter the market and advanced technologies become available. Finally, the development of new treatment methods for the diseases we are targeting could render our gene therapies non-competitive or obsolete.

Intellectual Property

Our success depends in part on our ability to obtain and maintain proprietary protection for our platform technology, our programs, andknow-how related to our business, defend and enforce our intellectual property rights, in particular, our patent rights, preserve the confidentiality of our trade secrets, and operate without infringing, misappropriating or otherwise violating any valid and enforceable intellectual property rights of others. We seek to protect our proprietary position by, among other things, exclusively licensing and filing patent applications related to our platform technology, existing and planned programs, and improvements that are important to the development of our business, where patent protection is available. Notwithstanding these efforts, we cannot be sure that patents will be granted with respect to any patent applications we have licensed or filed or may license or file in the future, and we cannot be sure that any patents we have licensed or patents that may be

licensed or granted to us in the future will not be challenged, invalidated, or circumvented or that such patents will be commercially useful in protecting our technology. For more information regarding the risks related to our intellectual property, please see section titled "Risk Factors—Risks Related to Our Intellectual Property."

Our wholly owned and our in-licensed patent applications cover various aspects of our genome editing platform and our programs such as technology platforms directed to genome modification using chemically modified guide RNAs. We intend to continue to pursue, when possible, additional patent protection, including composition of matter, method of use, and process claims, directed to each component of our platform technology and the programs in our portfolio. We also have one option to license patent applications relating to stable genomic integration in primary cells with CRISPR-Cas and AAV, HSC insertion in alpha globin loci, and HDR correction of IL2RG for treatment of XSCID as well as a second option to license patent applications relating to gene integration in a safe harbor locus CCR5 to correct metabolic diseases, treatment and correction of immunodeficiency conditions, treatment of cystic fibrosis, and treatment of diseases relating via targeting and correcting the alpha globin locus. We also intend to expand and extend our genome editing platform by obtaining rights to additional components and technologies through one or more licenses from third parties.

As of April 12, 2021, we owned one provisional patent application relating to genome editing and gene replacement for the treatment of beta-thalassemia. This patent application relates to various aspects of treating beta-thalassemia, including specific gene cassettes and sequences for targeted insertion into particular locations in the HBB gene, gene editing components and compositions thereof for editing the HBB gene, and methods of using such compositions for modifying a patient's cells and other gene therapies. If issued as a U.S. patent, and if the appropriate maintenance fees are paid, the U.S. patent would be expected to expire in 2042, excluding any additional term for patent term adjustments or patent term extensions.

As of April 1, 2021, we in-licensed one U.S. patent application, and six patent applications in Australia, Canada, China, Europe, Japan and South Korea directed to methods of genome modification using chemically modified guide RNA in primary cells from Stanford. The in-licensed patent applications, which are jointly owned by Stanford and Agilent, also relate to methods of using such genome modifications for therapeutic indications such as SCD. Our current in-licensed patent applications from Stanford, if the appropriate maintenance fees are paid, are expected to expire 2036, excluding any additional term for patent term adjustments or patent term extensions. For more information regarding these licensed patent applications, please see the sections titled "Our Material Agreements" and "Risk Factors—Risks Related to Our Intellectual Property."

The term of individual patents depends upon the legal term for patents in the countries in which they are granted. In most countries, including the United States, the patent term is 20 years from the earliest claimed filing date of a non-provisional patent application in the applicable country. However, the actual protection afforded by a patent varies from country to country, and depends upon many factors, including the type of patent, the scope of its coverage, the availability of regulatory-related extensions, the availability of legal remedies in a particular country and the validity and enforceability of the patent. In the United States, a patent's term may, in certain cases, be lengthened by patent term adjustment (PTA) which compensates a patentee for administrative delays by the USPTO in examining and granting a patent, or may be shortened (e.g., if a patent is terminally disclaimed over a commonly owned patent having an earlier expiration date). In some instances, such a PTA may result in a U.S. patent term extending beyond 20 years from the earliest date of filing a non-provisional patent application related to the U.S. patent. Patent term extensions (PTE) under the Drug Price Competition and Patent Term Restoration Act of 1984, commonly known as the Hatch-Waxman Act, are also possible for patents that cover an FDA-approved drug as compensation for the patent term lost during the FDA regulatory review process. The Hatch-Waxman Act permits a PTE of up to five years beyond the expiration of the patent. The length of the PTE is related to the length of time the drug is under regulatory review. PTE cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval and only one patent applicable to an approved drug, a method for using it, or a method of manufacturing it, may be extended. Similar provisions are available in Europe and certain other jurisdictions to extend the term of a patent that covers an approved drug. In the future, if our products receive regulatory approval, we may be eligible to apply for PTEs on patents covering such products, however there is no guarantee that the applicable authorities, including the FDA in the

United States, will agree with our assessment of whether such PTE should be granted, and if granted, the length of such PTE. For more information regarding the risks related to our intellectual property, please see section titled "Risk Factors—Risks Related to Our Intellectual Property."

We also rely on trade secrets, know-how, continuing technological innovation, and confidential information to develop and maintain our proprietary position and protect aspects of our business that are not amenable to, or that we do not consider appropriate for, patent protection. We seek to protect our proprietary technology and processes, in part, by confidentiality agreements with our employees, consultants, scientific advisors, and contractors. We also seek to preserve the integrity and confidentiality of our data and trade secrets by maintaining physical security of our premises and physical and electronic security of our information technology systems. While we have implemented measures to protect and preserve our trade secrets, such measures can be breached, and we may not have adequate remedies for any such breach. In addition, our trade secrets may otherwise become known or be independently discovered by competitors. For more information regarding the risks related to our intellectual property, please see section titled "Risk Factors—Risks Related to Our Intellectual Property."

Our Material Agreements

Exclusive License Agreement with the Board of Trustees of the Leland Stanford Junior University

In December 2020, we entered into an exclusive license agreement (License Agreement) with The Board of Trustees of the Leland Stanford Junior University (Stanford) pursuant to which Stanford granted us a worldwide license to specified technology and patent rights to develop, manufacture and commercialize human prophylactic and therapeutic products. The patent rights include last-to-expire patent applications, if issued and the appropriate maintenance fees are paid, that are expected to expire in 2036. Other than with respect to specified, broadly applicable assays and procedures and subject to retained rights by Stanford, the license is exclusive with respect to human prophylactic and therapeutic products for the treatment of SCD, XSCID and beta thalassemia. The license is non-exclusive with respect to those broadly applicable assays and procedures and with respect to all human prophylactic and therapeutic products other than for the treatment of SCD, XSCID and beta thalassemia. Please see "Business—Intellectual Property" for additional information concerning the intellectual property related to the License Agreement.

To date, pursuant to the License Agreement, we have paid an upfront license fee to Stanford of $50,000 and issued to Stanford and its designees an aggregate of approximately 1.6 million shares of our common stock. We are obligated to pay Stanford an annual license maintenance fee on each anniversary of the effective date of the License Agreement. The annual license maintenance fee initially is $5,000 and will increase to $50,000 in three increments over the first seven anniversaries of the effective date of the License Agreement. After the first commercial sale of a product falling within the scope of the license (Licensed Product) the annual license maintenance fee is $200,000.

We are required to share with Stanford a portion of any non-royalty income we receive from sublicensing the licensed patent rights or technology, subject to specified exclusions. With respect to sublicenses granted to products for the treatment of SCD, XSCID and beta thalassemia, the portion of sublicense income we must share with Stanford varies by indication and declines from between a mid-teens to a second quartile double-digit percentage prior to the filing of an IND to between a high single-digit to very low double-digit percentage upon achievement of a specified clinical milestone. With respect to sublicenses granted under the licensed technology rights and not licensed patent rights, the portion of sublicense income shared with Stanford declines from between a mid single-digit and very low double-digit percentage prior to the filing of an IND to a low single-digit percentage after filing of an IND.

We are obligated to make payments to Stanford with respect to each Licensed Product of up to an aggregate of $12.8 million upon the achievement of certain development, regulatory and commercial milestones. Such amounts are payable only once upon the first occurrence of a particular milestone event with respect to each Licensed Product and only once with respect to each new indication covered by any of the Licensed Products.

We also are obligated to pay Stanford low single-digit royalties based on worldwide annual net sales of any Licensed Product, subject to specified reductions. We will be obligated to continue to pay royalties on a Licensed Product-by-Licensed Product and country-by-country basis, until the latest of (a) the expiration of the last valid claim under the licensed patents that covers the sale or manufacture of such Licensed Product in such country, (b) the expiration of any period of regulatory exclusivity with respect to such Licensed Product in such country or (c) the expiration of ten years after the first commercial sale of such Licensed Product in such country.

The term of the License Agreement expires on the later of (a) the expiration of the last patent or abandonment of the last patent application within the license patent rights or (b) the expiration of all royalty terms with respect to Licensed Products. The License Agreement may be terminated by us at will or by Stanford if we remain in breach of the License Agreement following a cure period to remedy the breach.

We are required to use diligent efforts to manufacture, market and sell Licensed Products for the treatment of each of SCD, XSCID and beta thalassemia. In addition, we are required to achieve specified milestones by specified dates with respect to Licensed Products for the treatment of each of SCD, XSCID and beta thalassemia. If we fail to satisfy our diligence obligations, Stanford may terminate the License Agreement for our breach.

Option Agreements with Stanford

First Option Agreement

In January 2021, we entered into an option agreement, or the First Option Agreement, with Stanford, pursuant to which Stanford granted us the right to obtain a license to specified patent rights relating to human prophylactic and therapeutic products. The option may be extended to specified technology at a later date and upon our agreement with Stanford. We may exercise the option in whole or in part to obtain a license under one or more of the optioned patent rights. Subject to retained rights by Stanford, the license is exclusive with respect to human prophylactic and therapeutic products for the treatment of SCD, XSCID and beta thalassemia and non-exclusive with respect to all other human prophylactic and therapeutic products.

Pursuant to the First Option Agreement, we agreed to grant Stanford 321,358 shares of our common stock if we exercise the option and execute and deliver an amendment to the License Agreement that incorporates the optioned patent rights and any optioned technology. Other than such shares of our common stock and a license execution fee of $10,000 if we exercise the option with respect to a particular optioned patent right, no additional payments have been or will be made by us to Stanford under the First Option Agreement or upon the execution of an amendment to the License Agreement that incorporates the optioned patent rights and any optioned technology. The terms of the License Agreement will apply to any Licensed Products falling within the patent rights and technology licensed by us upon exercise of the option.

The term of the First Option Agreement expires 18 months after its effective date, subject to our right to extend such expiration date by up to an additional one year upon notice to Stanford and by another additional one year upon the reasonable agreement of Stanford. The First Option Agreement will terminate if the License Agreement terminates. The First Option Agreement also may be terminated by us at will.

Second Option Agreement

In April 2021, we entered into another option agreement, or the Second Option Agreement, with Stanford, pursuant to which Stanford granted us the exclusive right to obtain a license to specified patent rights relating to human prophylactic and therapeutic products. The option may be extended to specified technology at a later date and upon our agreement with Stanford. We may exercise the option in whole or in part to obtain a license under one or more of the optioned patent rights, subject to a specified waiting period with respect to certain specified patent rights. Subject to retained rights by Stanford and in the case of specified patent rights, the Department of Veterans Affairs, the license will be exclusive with respect to human prophylactic and therapeutic products for

the treatment of Gaucher Disease, other diseases treated through insertion of a construct into the CCR5 locus, and diseases treated through insertion of a construct into the alpha globin locus. The license is non-exclusive with respect to all other human prophylactic and therapeutic products.

Pursuant to the Second Option Agreement, we agreed to pay Stanford option fees in an aggregate amount of $30,000 over the term of the option. If we exercise the option with respect to a particular optioned patent right, Stanford and we would negotiate in good faith the terms of a license agreement or an amendment to the License Agreement that incorporates the optioned patent rights and any optioned technology. The terms of the license agreement or amendment could include additional payments to Stanford in excess of those set forth in the License Agreement.

The term of the Second Option Agreement expires 12 months after its effective date, subject to our right to extend such expiration date by two additional one year periods upon notice to and the reasonable agreement of Stanford. The Second Option Agreement may be terminated by us at will or by Stanford if we remain in breach of the Second Option Agreement following a cure period to remedy the breach. The Second Option Agreement also will terminate automatically in the event of a filing of a bankruptcy petition by or against us.

We are required to use diligent efforts to conduct research on potential commercial applications of the optioned patents and any optioned technology. In addition, we are required to use reasonable efforts to achieve specified milestones during the term of the Second Option Agreement with respect to products incorporating two of therapeutic approaches covered by the optioned patent rights. Our diligence obligations are subject to good faith discussions regarding their modification upon any extension of the term of the Second Option Agreement by us. If we fail to satisfy our diligence obligations Stanford may terminate the Second Option Agreement for our breach.

Government Regulation

The FDA and other regulatory authorities at federal, state and local levels, as well as in foreign countries, extensively regulate, among other things, the research, development, testing, manufacture, quality control, import, export, safety, effectiveness, labeling, packaging, storage, distribution, record keeping, approval, advertising, promotion, marketing, post-approval monitoring and post-approval reporting of biologics such as those we are developing.

U.S. Biologics Regulation

In the United States, the FDA regulates biological products under the Federal Food, Drug, and Cosmetic Act (FDCA), and the Public Health Service Act (PHSA), and their implementing regulations. Biological products are also subject to other federal, state, local and foreign statutes and regulations. We, along with third-party contractors, will be required to navigate the various preclinical, clinical and commercial approval requirements of the governing regulatory agencies of the countries in which we wish to conduct studies or seek approval or licensure of our product candidates. Failure to comply with the applicable U.S. requirements at any time during the product development process, approval process or after approval, may result in delays to the conduct of a study, regulatory review and approval or subject an applicant to administrative or judicial sanctions. These sanctions could include, among other actions, the FDA's refusal to approve pending applications, withdrawal of an approval, license suspension or revocation, refusal to allow an applicant to proceed with clinical trials, imposition of a clinical hold, issuance of untitled or warning letters, product recalls or withdrawals from the market, product seizures, total or partial suspension of production or distribution, injunctions, fines, refusals of government contracts, restitution, disgorgement of profits, or civil or criminal investigations or penalties.

Our product candidates must be approved by the FDA through the Biologics License Application (BLA), process before they may be legally marketed in the United States. The process required by the FDA before biological product candidates may be marketed in the United States generally involves the following:

- completion of extensive preclinical laboratory tests and animal studies performed in accordance with applicable regulations, including the FDA's Good Laboratory Practices (GLPs), regulations and standards;
- submission to the FDA of an IND application, which must become effective before clinical trials may begin;
- approval by an independent institutional review board (IRB) or ethics committee representing each clinical site before the trial is commenced;
- performance of adequate and well-controlled human clinical trials in accordance with applicable IND regulations, Good Clinical Practices (GCPs), and other clinical trial-related regulations to establish the safety, purity and potency of the proposed biological product candidate for its intended purpose;
- preparation of and submission to the FDA of a BLA, which includes not only the results of the clinical trials, but also, detailed information on the chemistry, manufacture and quality controls for the product candidate and proposed labeling;
- a determination by the FDA within 60 days of its receipt of a BLA to file the application for review;
- satisfactory completion of an FDA pre-approval inspection of the manufacturing facility or facilities at which the proposed product is produced to assess compliance with current Good Manufacturing Practice requirements (cGMPs) and to assure that the facilities, methods and controls are adequate to preserve the biological product's identity, strength, quality and purity, and of selected clinical trial sites that generated the data in support of the BLA to assess compliance with the FDA's GCPs;
- satisfactory completion of an FDA Advisory Committee review, if applicable; and
- FDA review and approval, or licensure, of a BLA to permit commercial marketing of the product for particular indications for use in the United States.

Preclinical and Clinical Development

Prior to beginning the first clinical trial with a product candidate, a sponsor must submit an IND to the FDA. An IND is a request for authorization from the FDA to administer an investigational new drug product to humans. The central focus of an IND submission is on the general investigational plan and the protocol or protocols for preclinical studies and clinical trials. The IND also includes results of animal and *in vitro* studies assessing the toxicology, pharmacokinetics, pharmacology and pharmacodynamic characteristics of the product, chemistry, manufacturing and controls information, and any available human data or literature to support the use of the investigational product. An IND must become effective before human clinical trials may begin. The IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA, within the 30-day period, raises safety concerns or questions about the proposed clinical trial. In such a case, the IND may be placed on clinical hold and the IND sponsor and the FDA must resolve any outstanding concerns or questions before the clinical trial can begin. The FDA may also impose clinical holds on a product candidate at any time before or during clinical trials due to safety concerns, non-compliance, or other issues affecting the integrity of the trial. Submission of an IND therefore may or may not result in FDA authorization to begin a clinical trial and, once begun, issues may arise that could cause the trial to be suspended or terminated.

In addition to the submission of an IND to the FDA before initiation of a clinical trial in the United States, certain human clinical trials involving recombinant or synthetic nucleic acid molecules are subject to oversight at the local level as set forth in the National Institutes of Health (NIH), Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules (NIH Guidelines). Specifically, under the NIH Guidelines,

supervision of human gene transfer trials includes evaluation and assessment by an Institutional Biosafety Committee (IBC), a local institutional committee that reviews and oversees research utilizing recombinant or synthetic nucleic acid molecules at that institution. The IBC assesses the safety of the research and identifies any potential risk to public health or the environment, and such review may result in some delay before initiation of a clinical trial. While the NIH Guidelines are not mandatory unless the research in question is being conducted at or sponsored by institutions receiving NIH funding for recombinant or synthetic nucleic acid molecule research, many companies and other institutions not otherwise subject to the NIH Guidelines voluntarily follow them.

Clinical trials involve the administration of the investigational product to human subjects under the supervision of qualified investigators, generally physicians not employed by or under the trial sponsor's control, in accordance with GCPs, which include the requirement that all research subjects provide their informed consent for their participation in any clinical trial. Clinical trials are conducted under protocols detailing, among other things, the objectives of the study, dosing procedures, subject selection and exclusion criteria, and the parameters to be used in monitoring safety and the effectiveness criteria to be evaluated. A separate submission to the existing IND must be made for each successive clinical trial conducted during product development and for any subsequent protocol amendments. Furthermore, an independent IRB or ethics committing at or servicing each site at which the clinical trial will be conducted must review and approve the plan for any clinical trial before the clinical trial begins at that site, and must monitor the study until completed. An IRB is charged with protecting the welfare and rights of trial participants and considers such items as whether the risks to individuals participating in the clinical trials are minimized and are reasonable in relation to anticipated benefits. The IRB also approves the informed consent form that must be provided to each clinical trial subject or his or her legal representative. Regulatory authorities, the IRB or the sponsor may suspend a clinical trial at any time on various grounds, including a finding that the subjects are being exposed to an unacceptable health risk or that the trial is unlikely to meet its stated objectives. Some studies also include oversight by an independent group of qualified experts organized by the clinical study sponsor, known as a data safety monitoring board, which provides authorization for whether or not a study may move forward at designated check points based on access to certain data from the study and may halt the clinical trial if it determines that there is an unacceptable safety risk for subjects or other grounds, such as no demonstration of efficacy.

There are also requirements governing the reporting of ongoing preclinical studies and clinical trials and clinical study results to public registries. Sponsors of certain clinical trials of FDA-regulated products, including biologics, are required to register and disclose certain clinical trial information, which is publicly available at www.clinicaltrials.gov.

Clinical trials are typically conducted in three sequential phases that may overlap or be combined:

- *Phase 1*. The investigational product is typically administered to a small number of healthy volunteers. For gene therapies, the investigational product is typically initially introduced into patients with the target disease or condition. These trials are designed to test the safety, dosage tolerance, absorption, metabolism and distribution of the investigational product in humans, the side effects associated with the investigational product, and, if possible, to gain early evidence on effectiveness.
- *Phase 2*. The investigational product is typically administered to a limited patient population to evaluate the preliminary efficacy, optimal dosages and dosing schedule and to identify possible adverse side effects and safety risks.
- *Phase 3*. The investigational product is typically administered to an expanded patient population to further evaluate dosage, to provide substantial evidence of clinical efficacy and to further test for safety, generally at multiple geographically dispersed clinical trial sites. These clinical trials are intended to establish the overall risk/benefit ratio of the investigational product and to provide an adequate basis for physician labeling. Generally, two adequate and well-controlled Phase 3 clinical trials are required by the FDA for approval of a BLA.

When these phases overlap or are combined, the trials may be referred to as Phase 1/2 or Phase 2/3.

In some cases, the FDA may require, or companies may voluntarily pursue, additional clinical trials after a product is approved to gain more information about the product. These so-called Phase 4 studies may be made a condition to approval of the BLA. These trials are used to gain additional experience from the treatment of patients in the intended therapeutic indication and further document clinical benefit in the case of drugs approved under Accelerated Approval regulations. Failure to exhibit due diligence with regard to conducting Phase 4 clinical trials could result in withdrawal of approval for products.

Concurrent with clinical trials, companies may complete additional animal studies and develop additional information about the characteristics of the product candidate, and must finalize a process for manufacturing the product in commercial quantities in accordance with cGMP requirements. The manufacturing process must be capable of consistently producing quality batches of the product candidate and, among other things, must develop methods for testing the identity, strength, quality and purity of the final product, or for biologics, the safety, purity and potency. Additionally, appropriate packaging must be selected and tested and stability studies must be conducted to demonstrate that the product candidate does not undergo unacceptable deterioration over its shelf life.

During all phases of clinical development, regulatory agencies require extensive monitoring and auditing of all clinical activities, clinical data, and clinical study investigators. Progress reports detailing the results of the clinical trials, among other information, must be submitted at least annually to the FDA, and written IND safety reports must be submitted to the FDA and the investigators for serious and unexpected suspected adverse events, findings from other studies suggesting a significant risk to humans exposed to the biologic, findings from animal or *in vitro* testing that suggest a significant risk for human subjects, and any clinically important increase in the rate of a serious suspected adverse reaction over that listed in the protocol or investigator brochure.

The FDA, the sponsor or the IRB or may suspend a clinical study at any time on various grounds, including a finding that the research patients or patients are being exposed to an unacceptable health risk. Similarly, an IRB can suspend or terminate approval of a clinical study at its institution if the clinical study is not being conducted in accordance with the IRB's requirements or if the biological product candidate has been associated with unexpected serious harm to patients. Additionally, if the trial is being overseen by a data safety monitoring board or committee, this group may recommend halting the clinical trial if it determines that there is an unacceptable safety risk for subjects or on other grounds, such as interim data suggesting a lack of efficacy.

BLA Submission and Review

Assuming successful completion of all required testing in accordance with all applicable regulatory requirements, the results of product development, preclinical studies and clinical trials are submitted to the FDA as part of a BLA requesting approval to market the product candidate for one or more indications. The BLA must include all relevant data available from preclinical studies and clinical trials, including negative or ambiguous results as well as positive findings, together with detailed information relating to the product candidate's chemistry, manufacturing, controls, and proposed labeling, among other things. Under the Prescription Drug User Fee Act (PDUFA), as amended, each BLA must be accompanied by a significant application user fee to the FDA, unless a waiver or exemption applies, which is adjusted on an annual basis. The FDA has sixty days from the applicant's submission of a BLA to either issue a refusal to file letter or accept the BLA for filing, indicating that it is sufficiently complete to permit substantive review. The FDA has substantial discretion in the approval process and may refuse to accept any application or decide that the data is insufficient for approval, and may require additional preclinical, clinical or other studies before it accepts the filing.

Once a BLA has been accepted for filing, the FDA's goal is to review standard applications within ten months after it accepts the application for filing, or, if the application qualifies for priority review, six months after the FDA accepts the application for filing. In both standard and priority reviews, the review process may be significantly extended by FDA requests for additional information or clarification. The FDA reviews a BLA to determine, among other things, whether a product candidate is safe, pure and potent for its intended use, and

whether the facility in which it is manufactured, processed, packed or held meets standards designed to assure and preserve the product's identity, safety, strength, quality, and purity. The FDA may convene an advisory committee, typically a panel that includes clinicians and other experts, to provide clinical insight on applications which present difficult questions of safety or efficacy and to review, evaluation and a recommendation as to whether the application should be approved and under what conditions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions.

Before approving a BLA, the FDA will conduct a pre-approval inspection of the facility or facilities where the product is manufactured to determine whether the facilities comply with cGMPs. The FDA will not approve an application unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. Additionally, before approving a BLA, the FDA will typically audit data from clinical trials to ensure compliance with GCPs. If the FDA determines that the application, manufacturing process or manufacturing facilities are not acceptable, it will outline the deficiencies in the submission and often will request additional testing or information. Notwithstanding the submission of any requested additional information, the FDA ultimately may decide that the application does not satisfy the regulatory criteria for approval.

After the FDA evaluates a BLA and conducts inspections of manufacturing facilities where the investigational product and/or its drug substance will be manufactured, the FDA may issue an approval letter or a Complete Response letter. An approval letter authorizes commercial marketing of the product with specific prescribing information for specific indications. A Complete Response letter indicates that the review cycle of the application is complete and the application will not be approved in its present form. A Complete Response Letter usually describes all of the deficiencies that the FDA has identified in the BLA, except that where the FDA determines that the data supporting the application are inadequate to support approval, the FDA may issue the Complete Response letter without first conducting required inspections, testing submitted product lots and/or reviewing proposed labeling. In issuing the Complete Response letter, the FDA may recommend actions that the applicant might take to place the BLA in condition for approval, including requests for additional information or clarification, which may include the potential requirement for additional clinical studies and/or other significant and time-consuming requirements related to preclinical studies and manufacturing. If a Complete Response Letter is issued, the applicant may either resubmit the BLA, addressing all of the deficiencies identified in the letter, withdraw the application or request a hearing. Even if such data and information is submitted, the FDA may delay or refuse approval of a BLA if applicable regulatory criteria are not satisfied, require additional testing or information and/or require post-marketing testing and surveillance to monitor safety or efficacy of a product.

If regulatory approval of a product is granted, such approval will be granted for a particular indication(s) and may entail limitations on the indicated uses for which such product may be marketed. Further, the FDA may require that certain contraindications, warnings or precautions be included in the product labeling or may condition the approval of the BLA on other changes to the proposed labeling, development of adequate controls and specifications, or a commitment to conduct post-market testing or clinical trials and surveillance to monitor the effects of approved products. The FDA may also place other conditions on approvals including the requirement of a Risk Evaluation and Mitigation Strategy (REMS), to assure the benefits of the product outweigh its risks. A REMS is a safety strategy to manage a known or potential serious risk associated with a product and to enable patients to have continued access to such medicines by managing their safe use, and could include medication guides, physician communication plans, or elements to assure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. The FDA also may condition approval on, among other things, changes to proposed labeling or the development of adequate controls and specifications. Any of these limitations on approval or marketing could restrict the commercial promotion, distribution, prescription or dispensing of products. Once approved, the FDA may withdraw the product approval if compliance with pre- and post-marketing requirements is not maintained or if problems occur after the product reaches the marketplace. The FDA may require one or more Phase 4 post-market studies and surveillance to further assess and monitor the

product's safety and effectiveness after commercialization, and may limit further marketing of the product based on the results of these post-marketing studies.

Expedited Development and Review Programs

The FDA offers a number of expedited development and review programs for qualifying product candidates. The fast track program is intended to expedite or facilitate the process for reviewing new product candidates that meet certain criteria. Specifically, product candidates are eligible for fast track designation if they are intended to treat a serious or life-threatening disease or condition and nonclinical or clinical data demonstrate the potential to address unmet medical needs for the disease or condition. Fast track designation applies to the combination of the product and the specific indication for which it is being studied. A sponsor may request fast track designation of a product candidate concurrently with, or at any time after, submission of an IND, and the FDA must determine if the product candidate qualifies for such designation within 60 day of receipt of the sponsor's request. The sponsor of a fast track product has opportunities for frequent interactions with the FDA review team during product development and, once a BLA is submitted, the product may be eligible for priority review. A fast track product may also be eligible for rolling review, where the FDA may consider for review sections of the BLA on a rolling basis before the complete application is submitted, if the sponsor provides a schedule for the submission of the sections of the BLA, the FDA agrees to accept sections of the BLA and determines that the schedule is acceptable, and the sponsor pays any required user fees upon submission of the first section of the BLA.

A product candidate intended to treat a serious or life-threatening disease or condition may also be eligible for breakthrough therapy designation to expedite its development and review. A product candidate can receive breakthrough therapy designation if it is intended to treat a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the product, alone or in combination with one or more other drugs or biologics, may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. A sponsor may request that a product candidate be designated as a breakthrough therapy concurrently with, or at any time after, the submission of an IND, and the FDA must determine if the product candidate qualifies for breakthrough therapy designation within 60 days of receipt of the sponsor's request. The benefits of breakthrough therapy designation includes all of the fast track program features, as well as more intensive FDA interaction and guidance beginning as early as Phase 1 and an organizational commitment to expedite the development and review of the product, including involvement of senior managers and experienced review staff in a cross-disciplinary review.

As part of the 21st Century Cures Act, Congress amended the FDCA to create an accelerated approval program for RMATs, which include cell therapies, therapeutic tissue engineering products, human cell and tissue products, and combination products using any such therapies or products. Gene therapies, including genetically modified cells that lead to a sustained effect on cells or tissues may meet the definition of a RMAT. The RMAT program is intended to facilitate efficient development and expedite review of RMATs, which are intended to treat, modify, reverse, or cure a serious or life-threatening disease or condition. A sponsor may request that FDA designate a product candidate as a regenerative medicine advanced therapy concurrently with or at any time after submission of an IND. FDA has 60 calendar days to determine whether the drug meets the criteria, including whether there is preliminary clinical evidence indicating that the drug has the potential to address unmet medical needs for a serious or life-threatening disease or condition. A new drug application or a BLA for a RMAT may be eligible for priority review or accelerated approval through (1) surrogate or intermediate endpoints reasonably likely to predict long-term clinical benefit or (2) reliance upon data obtained from a meaningful number of sites. Benefits of such designation include early interactions with FDA to discuss any potential surrogate or intermediate endpoint to be used to support accelerated approval. A RMAT that is granted accelerated approval and is subject to post-approval requirements may fulfill such requirements through the submission of clinical evidence, clinical studies, patient registries, or other sources of real world evidence, such as electronic health records; the collection of larger confirmatory data sets; or post-approval monitoring of all patients treated with such therapy prior to its approval.

Any marketing application for a product candidate submitted to the FDA for approval, including a product candidate with a fast track designation and/or breakthrough therapy designation, may be eligible for other types of FDA programs intended to expedite the FDA review and approval process, such as priority review and accelerated approval. A product candidate is eligible for priority review if it has the potential to provide a significant improvement in the safety or effectiveness of the treatment, diagnosis or prevention of a serious disease or condition compared to available therapies. For original BLAs, priority review designation means the FDA's goal is to take action on the marketing application within six months of the 60-day filing date. The FDA will attempt to direct additional resources to the evaluation of an application for a new drug or biological product designated for priority review in an effort to facilitate the review.

Additionally, product candidates studied for their safety and effectiveness in treating serious or life-threatening diseases or conditions may receive accelerated approval upon a determination that the product candidate generally provides a meaningful advantage over available therapies and demonstrates an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit, or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity, or prevalence of the condition and the availability or lack of alternative treatments. As a condition of accelerated approval, the FDA will generally require the sponsor to perform adequate and well-controlled post-marketing clinical trials to verify and describe the anticipated effect on irreversible morbidity or mortality or other clinical benefit. In addition, the FDA will require post-marketing restrictions as it deems necessary to assure safe use of the product, such as restricting distribution to certain facilities or physicians with special training or experience or conditioning distribution on the performance of specified medical procedures. The limitations imposed would be commensurate with the specific safety concerns presented by the product. In addition, the FDA currently requires as a condition for accelerated approval pre-approval of promotional materials, which could adversely impact the timing of the commercial launch of the product.

Fast track designation, breakthrough therapy designation, RMAT designation, priority review and accelerated approval do not change the standards for approval but may expedite the development or approval process. Even if a product qualifies for one or more of these programs, the FDA may later decide that the product no longer meets the conditions for qualification or decide that the time period for FDA review or approval will not be shortened.

Orphan Drug Designation and Exclusivity

Under the Orphan Drug Act, the FDA may grant orphan designation to a biological product candidate intended to treat a rare disease or condition, which is a disease or condition that affects fewer than 200,000 individuals in the United States, or 200,000 or more than individuals in the United States for which there is no reasonable expectation that the cost of developing and making available in the United States a product for this type of disease or condition will be recovered from sales in the United States for that product. Orphan drug designation must be requested before submitting a BLA. After the FDA grants orphan drug designation, the generic identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA. Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review or approval process.

If a product candidate that has orphan drug designation subsequently receives the first FDA approval for the disease or condition for which it has such designation, the product is entitled to orphan exclusivity, which means that the FDA may not approve any other applications, including a full BLA, to market the same product for the same indication for seven years from the date of such approval, except in limited circumstances, such as a showing of clinical superiority to the product with orphan exclusivity or if the holder of the orphan exclusivity cannot assure the availability of sufficient quantities of the orphan drug to meet the needs of patients with the disease or condition for which the drug was designated. Orphan exclusivity does not prevent the FDA from approving a different product for the same disease or condition, or the same product for a different disease or

condition. Among the other benefits of orphan drug designation are tax credits for certain research and a waiver of the BLA application fee.

A designated orphan drug may not receive orphan exclusivity if it is approved for a use that is broader than the indication for which it received orphan designation. In addition, exclusive marketing rights in the United States may be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantities of the product to meet the needs of patients with the rare disease or condition.

Pediatric Trials and Exclusivity

Under the Pediatric Research Equity Act (PREA), a BLA or supplement to a BLA must contain data to assess the safety and efficacy of the product for the claimed indications in all relevant pediatric subpopulations and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective. The FDCA requires that a sponsor who is planning to submit a marketing application for a product that includes a new active ingredient, new indication, new dosage form, new dosing regimen or new route of administration submit an initial Pediatric Study Plan (PSP), within sixty days of an end-of-Phase 2 meeting or as may be agreed between the sponsor and FDA. The initial PSP must include an outline of the pediatric study or studies that the sponsor plans to conduct, including study objectives and design, age groups, relevant endpoints and statistical approach, or a justification for not including such detailed information, and any request for a deferral of pediatric assessments or a full or partial waiver of the requirement to provide data from pediatric studies along with supporting information. The FDA and the sponsor must reach agreement on the PSP. A sponsor can submit amendments to an agreed-upon initial PSP at any time if changes to the pediatric plan need to be considered based on data collected from nonclinical studies, early phase clinical trials, and/or other clinical development programs. The FDA may, on its own initiative or at the request of the applicant, grant deferrals for submission of data or full or partial waivers. Sponsors who conduct studies of their product candidate in children are eligible for pediatric exclusivity. Pediatric exclusivity, if granted, adds six months to existing exclusivity periods and patent terms. This six-month exclusivity, which attaches to the twelve-year exclusivity period for reference biologics, may be granted based on the voluntary completion of a pediatric trial in accordance with an FDA-issued "Written Request" for such a trial.

Rare Pediatric Disease Designation and Priority Review Vouchers

Under the FDCA, as amended, the FDA incentivizes the development of drugs and biologics that meet the definition of a "rare pediatric disease," defined to mean a serious or life-threatening disease in which the serious of life-threatening manifestations primarily affect individuals aged from birth to 18 years and the disease affects fewer than 200,000 individuals in the United States or affects 200,000 or more in the United States and for which there is no reasonable expectation that the cost of developing and making in the United States a drug for such disease or condition will be received from sales in the United States of such drug. The sponsor of a product candidate for a rare pediatric disease may be eligible for a voucher that can be used to obtain a priority review for a subsequent human drug or biologic application after the date of approval of the rare pediatric disease drug product, referred to as a priority review voucher (PRV). A sponsor may request rare pediatric disease designation from the FDA prior to the submission of its NDA or BLA. A rare pediatric disease designation does not guarantee that a sponsor will receive a PRV upon approval of its NDA or BLA. Moreover, a sponsor who chooses not to submit a rare pediatric disease designation request may nonetheless receive a PRV upon approval of their marketing application if they request such a voucher in their original marketing application and meet all of the eligibility criteria. If a PRV is received, it may be sold or transferred an unlimited number of times. Congress has extended the PRV program until September 30, 2024, with the potential for PRVs to be granted until September 30, 2026.

Post-Approval Requirements

Any products manufactured or distributed pursuant to FDA approvals are subject to pervasive and continuing regulation by the FDA, including, among other things, requirements relating to record-keeping,

reporting of adverse experiences, periodic reporting, product sampling and distribution, and advertising and promotion of the product. After approval, most changes to the approved product, such as adding new indications or other labeling claims or changes of the site of manufacture, are subject to prior FDA review and approval. There also are continuing user fee requirements, under which the FDA assesses an annual program fee for each product identified in an approved BLA.

The FDA regulations require that products be manufactured in specific approved facilities and in accordance with cGMPs. Biological product manufacturers and their subcontractors are required to register their establishments with the FDA and certain state agencies, and are subject to periodic unannounced inspections by the FDA and certain state agencies for compliance with cGMPs, which impose certain organizational, procedural and documentation requirements with respect to manufacturing and quality assurance activities. Changes to the manufacturing process are strictly regulated, and, depending on the significance of the change, may require prior FDA approval before being implemented. FDA regulations also require investigation and correction of any deviations from cGMPs and impose reporting requirements upon us and any third-party manufacturers that we may decide to use. BLA holders using contract manufacturers, laboratories or packagers are responsible for the selection and monitoring of qualified firms, and, in certain circumstances, qualified suppliers to these firms. These firms and, where applicable, their suppliers are subject to inspections by the FDA at any time, and the discovery of violative conditions, including failure to conform to cGMP, could result in enforcement actions that interrupt the operation of any such facilities or the ability to distribute products manufactured, processed or tested by them. Accordingly, manufacturers must continue to expend time, money and effort in the area of production and quality control to maintain compliance with cGMPs and other aspects of regulatory compliance.

The FDA may withdraw approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical studies to assess new safety risks; or imposition of distribution restrictions or other restrictions under a REMS program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of a product, complete withdrawal of the product from the market or product recalls;
- fines, warning or untitled letters or holds on post-approval clinical studies;
- refusal of the FDA to approve pending applications or supplements to approved applications, or suspension or revocation of existing product approvals;
- product seizure or detention, or refusal of the FDA to permit the import or export of products;
- consent decrees, corporate integrity agreements, debarment or exclusion from federal healthcare programs;
- mandated modification of promotional materials and labeling and the issuance of corrective information;
- the issuance of safety alerts, Dear Healthcare Provider letters, press releases and other communications containing warnings or other safety information about the product; or
- injunctions or the imposition of civil or criminal penalties.

The FDA closely regulates the marketing, labeling, advertising and promotion of biological products. A company can make only those claims relating to safety and efficacy, purity and potency that are approved by the FDA and in accordance with the provisions of the approved label. However, companies may share truthful and not misleading information that is otherwise consistent with a product's FDA approved labeling. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses. Failure to

comply with these requirements can result in, among other things, adverse publicity, warning letters, corrective advertising and potential civil and criminal penalties. Physicians may prescribe legally available products for uses that are not described in the product's labeling and that differ from those tested by us and approved by the FDA. Such off-label uses are common across medical specialties. Physicians may believethat such off-label uses are the best treatment for many patients in varied circumstances. The FDA does not regulate the behavior of physicians in their choice of treatments. The FDA does, however, restrict a manufacturer's communications on the subject of off-label use of their products.

U.S. Patent Term Restoration

Depending upon the timing, duration and specifics of the FDA approval of the use of our biological product candidates, some of our U.S. patents may be eligible for limited patent term extension under the Hatch-Waxman Amendments. The Hatch-Waxman Amendments permit a patent restoration term of up to five years as compensation for patent term lost during product development and the FDA regulatory review process. However, patent term restoration cannot extend the remaining term of a patent beyond a total of 14 years from the product's approval date. The patent term restoration period is generally one-half the time between the effective date of an IND and the submission date of a BLA plus the time between the submission date of a BLA and the approval of that application. Only one patent applicable to an approved biological product is eligible for the extension and the application for the extension must be submitted prior to the expiration of the patent. In addition, a patent can only be extended once and only for a single product. The U.S. Patent and Trademark Office, in consultation with the FDA, reviews and approves the application for any patent term extension or restoration. In the future, we may intend to apply for restoration of patent term for one of our patents, if and as applicable, to add patent life beyond its current expiration date, depending on the expected length of the clinical trials and other factors involved in the filing of the relevant BLA.

Biosimilars and Reference Product Exclusivity

The ACA, includes a subtitle called the Biologics Price Competition and Innovation Act (BPCIA), which created an abbreviated approval pathway for biological products that are biosimilar to or interchangeable with an FDA-approved reference biological product. This amendment to the PHSA attempts to minimize duplicative testing. Biosimilarity, which requires that there be no clinically meaningful differences between the biological product and the reference product in terms of safety, purity, and potency, can be shown through analytical studies, animal studies, and a clinical study or studies. Interchangeability requires that a product is biosimilar to the reference product and the product must demonstrate that it can be expected to produce the same clinical results as the reference product in any given patient and, for products that are administered multiple times to an individual, the biologic and the reference biologic may be alternated or switched after one has been previously administered without increasing safety risks or risks of diminished efficacy relative to exclusive use of the reference biologic. Complexities associated with the larger, and often more complex, structures of biological products, as well as the processes by which such products are manufactured, pose significant hurdles to implementation of the abbreviated approval pathway that are still being worked out by the FDA.

Under the BPCIA, an application for a biosimilar product may not be submitted to the FDA until four years following the date that the reference product was first licensed by the FDA. In addition, the approval of a biosimilar product may not be made effective by the FDA until 12 years from the date on which the reference product was first licensed. "First licensure" typically means the initial date the particular product at issue was licensed in the United States. This does not include a supplement for the biological product or a subsequent application by the same sponsor or manufacturer of the biological product (or licensor, predecessor in interest, or other related entity) for a change that results in a new indication, route of administration, dosing schedule, dosage form, delivery system, delivery device, or strength, unless that change is a modification to the structure of the biological product and such modification changes its safety, purity, or potency. During this 12-year period of exclusivity, another company may still market a competing version of the reference product if the FDA approves a full BLA for the competing product containing that applicant's own preclinical data and data from adequate and

well-controlled clinical trials to demonstrate the safety, purity and potency of its product. The BPCIA also created certain exclusivity periods for biosimilars approved as interchangeable products. At this juncture, it is unclear whether products deemed "interchangeable" by the FDA will, in fact, be readily substituted by pharmacies, which are governed by state pharmacy law.

Foreign Regulation

In order to market any product outside of the United States, we would need to comply with numerous and varying regulatory requirements of other countries and jurisdictions regarding quality, safety, and efficacy and governing, among other things, clinical trials, marketing authorization, commercial sales and distribution of our products. Whether or not we obtain FDA approval for a product, we would need to obtain the necessary approvals by the comparable foreign regulatory authorities before we can commence clinical trials or marketing of the product in foreign countries and jurisdictions. Although many of the issues discussed above with respect to the United States apply similarly in the context of the European Union, the approval process varies between countries and jurisdictions and can involve additional product testing and additional administrative review periods. The time required to obtain approval in other countries and jurisdictions might differ from and be longer than that required to obtain FDA approval. Regulatory approval in one country or jurisdiction does not ensure regulatory approval in another, but a failure or delay in obtaining regulatory approval in one country or jurisdiction may negatively impact the regulatory process in others.

Regulation and Procedures Governing Approval of Medicinal Products in Europe

Clinical Trial Approval

In the European Union, our future products also may be subject to extensive regulatory requirements. As in the United States, medicinal products can be marketed only if a marketing authorization from the competent regulatory agencies has been obtained.

Similar to the United States, the various phases of preclinical and clinical research in the European Union are subject to significant regulatory controls. Although the EU Clinical Trials Directive 2001/20/EC has sought to harmonize the EU clinical trials regulatory framework, setting out common rules for the control and authorization of clinical trials in the European Union, the EU Member States have transposed and applied the provisions of the Directive differently. This has led to significant variations in the Member State regimes. Under the current regime, before a clinical trial can be initiated it must be approved in each of the EU countries where the trial is to be conducted by two distinct bodies: the national competent authority (NCA), and one or more independent ethics committees (ECs). Under the current regime all suspected unexpected serious adverse reactions to the investigational drug that occur during the clinical trial have to be reported to the NCA and ECs of the Member State where they occurred.

The EU clinical trials legislation currently is undergoing a transition process mainly aimed at harmonizing and streamlining clinical-trial authorization, simplifying adverse-event reporting procedures, improving the supervision of clinical trials and increasing their transparency. In April 2014, the EU adopted a new Clinical Trials Regulation (EU) No 536/2014, which is set to replace the current Clinical Trials Directive. It is expected that the new Regulation will apply following confirmation of full functionality of the Clinical Trials Information System (CTIS), the centralized EU portal and database for clinical trials foreseen by the Regulation, through an independent audit, currently expected to occur in December 2021. The new Regulation will be directly applicable in all Member States (and so does not require national implementing legislation in each Member State), and aims at simplifying and streamlining the approval of clinical studies in the EU, for instance by providing for a streamlined application procedure via a single point and strictly defined deadlines for the assessment of clinical study applications.

Marketing Authorization

To obtain a marketing authorization for a product in the European Economic Area (EEA) (comprising the EU Member States plus Norway, Iceland and Liechtenstein), an applicant must submit a marketing authorization application, either under the centralized procedure administered by the EMA or one of the procedures administered by competent authorities in EEA Member States (decentralized procedure, national procedure, or mutual recognition procedure).

The centralized procedure provides for the grant of a single marketing authorization by the European Commission that is valid throughout the EEA. Pursuant to Regulation (EC) No. 726/2004, the centralized procedure is compulsory for specific products, including for medicines produced by certain biotechnological processes, products designated as orphan medicinal products, advanced therapy medicinal products (i.e. gene therapy, somatic-cell therapy and tissue-engineered products) and products with a new active substance indicated for the treatment of certain diseases, including products for the treatment of HIV, AIDS, cancer, neurodegenerative disorders, diabetes, auto-immune and other immune dysfunctions and viral diseases. The centralized procedure is optional for products containing a new active substance not yet authorized in the EEA, or for products that constitute a significant therapeutic, scientific or technical innovation or which are in the interests of public health.

Specifically, the grant of a marketing authorization in the EEA for products based on genes, tissues or cell, such as gene therapy or somatic-cell therapy medicinal products, is governed in part by Regulation (EC) No 1394/2007 on advanced therapy medicinal products (ATMPs). Regulation (EC) No 1394/2007 lays down specific rules concerning the authorization, supervision, and pharmacovigilance of ATMPs. Manufacturers of ATMPs must demonstrate the quality, safety, and efficacy of their products to the CAT, of the EMA, which provides an opinion on the quality, safety and efficacy of each ATMP subject to marketing authorization application which is sent for final approval to the CHMP, of the EMA. The CHMP recommendation is then sent to the European Commission, which adopts a decision on whether to grant a marketing authorization which is binding in all Member States. Under the centralized procedure, the maximum timeframe for the evaluation of a marketing authorization application is 210 days from receipt of a valid application, excluding clock stops when additional information or written or oral explanation is to be provided by the applicant in response to questions of the CHMP. Clock stops may extend the timeframe of evaluation of a marketing authorization application considerably beyond 210 days. Accelerated evaluation may be granted by the CHMP in exceptional cases, when a medicinal product is of major interest from the point of view of public health and, in particular, from the viewpoint of therapeutic innovation. If the CHMP accepts such a request, the timeframe of 210 days for assessment will be reduced to 150 days (excluding clock stops), but it is possible that the CHMP may revert to the standard time limit for the centralized procedure if it determines that the application is no longer appropriate to conduct an accelerated assessment.

Now that the UK (which comprises Great Britain and Northern Ireland) has left the EU, Great Britain will no longer be covered by centralized marketing authorizations (under the Northern Irish Protocol, centralized marketing authorizations will continue to be recognized in Northern Ireland). All medicinal products with a current centralized marketing authorization were automatically converted to Great Britain marketing authorizations on January 1, 2021. For a period of two years from January 1, 2021, the Medicines and Healthcare products Regulatory Agency (MHRA), the UK medicines regulator, may rely on a decision taken by the European Commission on the approval of a new marketing authorization in the centralized procedure, in order to more quickly grant a new Great Britain marketing authorization. A separate application will, however, still be required.

European Data and Marketing Exclusivity

In the EEA, innovative medicinal products (including both small molecules and biological medicinal products), qualify for eight years of data exclusivity upon marketing authorization and an additional two years of

market exclusivity. The data exclusivity, if granted, prevents generic or biosimilar applicants from referencing the innovator's pre-clinical and clinical trial data contained in the dossier of the reference product when applying for a generic or biosimilar marketing authorization, for a period of eight years from the date on which the reference product was first authorized in the EEA. During the additional two-year period of market exclusivity, a generic or biosimilar marketing authorization can be submitted, and the innovator's data may be referenced, but no generic or biosimilar product can be marketed until the expiration of the market exclusivity period. The overall ten-year period will be extended to a maximum of 11 years if, during the first eight years of those ten years, the marketing authorization holder obtains an authorization for one or more new therapeutic indications which, during the scientific evaluation prior to their authorization, are determined to bring a significant clinical benefit in comparison with currently approved therapies. Even if an innovative medicinal product gains the prescribed period of data exclusivity, another company may market another version of the product if such company obtained a marketing authorization based on an application with a complete and independent data package of pharmaceutical tests, preclinical tests and clinical trials.

European Orphan Designation and Exclusivity

In the EEA, the EMA's Committee for Orphan Medicinal Products grants orphan drug designation to promote the development of products that are intended for the diagnosis, prevention or treatment of life-threatening or chronically debilitating conditions which either affect no more than 5 in 10,000 persons in the EU, or where it is unlikely that the marketing of the medicine would generate sufficient return to justify the necessary investment in its development. In each case, no satisfactory method of diagnosis, prevention or treatment of the condition must have been authorized (or, if such a method exists, the product in question would be of significant benefit to those affected by the condition).

In the EEA, orphan drug designation entitles a party to financial incentives such as reduction of fees or fee waivers, and ten years of market exclusivity is granted following marketing approval for the orphan product. This period may be reduced to six years if, at the end of the fifth year, it is established that the orphan drug designation criteria are no longer met, including where it is shown that the product is sufficiently profitable not to justify maintenance of market exclusivity. During the period of market exclusivity, marketing authorization may only be granted to a "similar medicinal product" for the same therapeutic indication if: (i) a second applicant can establish that its product, although similar to the authorized product, is safer, more effective or otherwise clinically superior; (ii) the marketing authorization holder for the authorized product consents to a second orphan medicinal product application; or (iii) the marketing authorization holder for the authorized product cannot supply enough orphan medicinal product. A "similar medicinal product" is defined as a medicinal product containing a similar active substance or substances as contained in an authorized orphan medicinal product, and which is intended for the same therapeutic indication. Orphan drug designation must be requested before submitting an application for marketing authorization. Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process.

Brexit and the Regulatory Framework in the United Kingdom

In June 2016, the electorate in the UK voted in favor of leaving the EU (commonly referred to as "Brexit"). Thereafter, in March 2017, the country formally notified the EU of its intention to withdraw pursuant to Article 50 of the Lisbon Treaty and the UK formally left the EU on January 31, 2020. A transition period began on February 1, 2020, during which EU medicines legislation remained applicable to the UK, which ended on December 31, 2020. Since the regulatory framework in the UK covering the quality, safety and efficacy of medicinal products, clinical trials, marketing authorization, commercial sales and distribution of medicinal products is derived from EU Directives and Regulations, Brexit could materially impact the future regulatory regime which applies to products and the approval of product candidates in the UK, as UK legislation now has the potential to diverge from EU legislation. It remains to be seen how Brexit will impact regulatory requirements for product candidates and products in the UK in the long-term. The MHRA, the UK medicines and medical devices regulator, has published detailed guidance for industry and organizations to follow from

January 1, 2021 now the transition period is over, which will be updated as the UK's regulatory position on medicinal products evolves over time.

Pharmaceutical Coverage, Pricing and Reimbursement

Significant uncertainty exists as to the coverage and reimbursement status of any product candidates for which we or our collaborators obtain regulatory approval. In the United States and markets in other countries, sales of any products for which we or our collaborators receive regulatory approval for commercial sale will depend, in part, on the extent to which third-party payors provide coverage, and establish adequate reimbursement levels for such drug products. In the United States, third-party payors include federal and state healthcare programs, government authorities, private managed care providers, private health insurers and other organizations.

Third-party payors are increasingly challenging the price, examining the medical necessity and reviewing the cost-effectiveness of medical drug products and medical services, in addition to questioning their safety and efficacy. Such payors may limit coverage to specific drug products on an approved list, also known as a formulary, which might not include all of the FDA-approved drugs for a particular indication. We or our collaborators may need to conduct expensive pharmaco-economic studies in order to demonstrate the medical necessity and cost-effectiveness of our products, in addition to the costs required to obtain the FDA approvals. Nonetheless, our product candidates may not be considered medically necessary or cost-effective. Moreover, the process for determining whether a third-party payor will provide coverage for a drug product may be separate from the process for setting the price of a drug product or for establishing the reimbursement rate that such a payor will pay for the drug product. A payor's decision to provide coverage for a drug product does not imply that an adequate reimbursement rate will be approved. Further, one payor's determination to provide coverage for a drug product does not assure that other payors will also provide coverage for the drug product. Adequate third-party reimbursement may not be available to enable us to maintain price levels sufficient to realize an appropriate return on our investment in product development.

Different pricing and reimbursement schemes exist in other countries. In the European Union, governments influence the price of pharmaceutical products through their pricing and reimbursement rules and control of national health care systems that fund a large part of the cost of those products to consumers. Some jurisdictions operate positive and negative list systems under which products may only be marketed once a reimbursement price has been agreed. To obtain reimbursement or pricing approval, some of these countries may require the completion of clinical trials that compare the cost-effectiveness of a particular drug candidate to currently available therapies. Other member states allow companies to fix their own prices for medicines, but monitor and control company profits. The downward pressure on health care costs in general, particularly prescription drugs, has become very intense. As a result, increasingly high barriers are being erected to the entry of new products. In addition, in some countries, cross-border imports from low-priced markets exert a commercial pressure on pricing within a country.

The marketability of any product candidates for which we or our collaborators receive regulatory approval for commercial sale may suffer if the government and third-party payors fail to provide adequate coverage and reimbursement. In addition, emphasis on managed care in the United States has increased and we expect will continue to increase the pressure on pharmaceutical pricing. Coverage policies and third-party reimbursement rates may change at any time. Even if favorable coverage and reimbursement status is attained for one or more products for which we or our collaborators receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

Other U.S. Healthcare Laws and Compliance Requirements

Healthcare providers, including physicians, and third-party payors play a primary role in the recommendation and prescription of any product candidates that we may develop for which we obtain marketing

approval. Our current and future arrangements with third-party payors, healthcare providers and customers may implicate broadly applicable fraud and abuse and other healthcare laws and regulations. Restrictions under applicable federal and state healthcare laws and regulations, including certain laws and regulations applicable only if we have marketed products, include the following:

- the civil False Claims Act (FCA), prohibits knowingly presenting or causing the presentation of a false, fictitious or fraudulent claim for payment to the U.S. government. Actions under the False Claims Act may be brought by the Attorney General or as a qui tam action by a private individual in the name of the government. Violations of the False Claims Act can result in very significant monetary penalties, for each false claim and treble the amount of the government's damages. Manufacturers can be held liable under the False Claims Act even when they do not submit claims directly to government payors if they are deemed to "cause" the submission of false or fraudulent claims;
- the federal Anti-Kickback Statute prohibits, among other things, persons from soliciting, receiving or providing remuneration, directly or indirectly, to induce either the referral of an individual, for an item or service or the purchasing or ordering of a good or service, for which payment may be made under federal healthcare programs such as Medicare and Medicaid. The federal Anti-Kickback Statute has been interpreted to apply to arrangements between manufacturers on one hand and prescribers, purchasers, and formulary managers on the other. A person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation. A violation of the federal Anti-Kickback Statute can also form the basis for FCA liability;
- the federal Health Insurance Portability and Accountability Act of 1996 (HIPAA), which, in addition to privacy protections applicable to healthcare providers and other entities, prohibits executing a scheme to defraud any healthcare benefit program or making false statements relating to healthcare matters. Similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009 (HITECH), and its implementing regulations, including the final omnibus rule published on January 25, 2013, imposes, among other things, certain requirements relating to the privacy, security and transmission of individually identifiable health information. Among other things, HITECH makes HIPAA's privacy and security standards directly applicable to business associates, defined as independent contractors or agents of covered entities that create, receive, maintain, transmit, or obtain, protected health information in connection with providing a service for or on behalf of a covered entity, and their covered subcontractors. HITECH also increased the civil and criminal penalties that may be imposed against covered entities, business associates and possibly other persons, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce the federal HIPAA laws and seek attorney's fees and costs associated with pursuing federal civil actions;
- the FDCA, which among other things, strictly regulates drug marketing, prohibits manufacturers from marketing such products for off-label use and regulates the distribution of samples;
- federal laws that require pharmaceutical manufacturers to report certain calculated product prices to the government or provide certain discounts or rebates to government authorities or private entities, often as a condition of reimbursement under government healthcare programs;
- federal transparency laws, including the federal Physician Payment Sunshine Act created under the Patient Protection and Affordable Care Act as amended by the Health Care and Education Reconciliation Act of 2010 (collectively, the ACA), and its implementing regulations, which requires manufacturers of certain drugs, devices, medical supplies, and biologics, among others, to track and disclose payments under Medicare, Medicaid or the Children's Health Insurance Program (with certain exceptions) and other transfers of value they make to U.S. physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors) and teaching hospitals, as well as ownership and

investment interests held by physicians and their immediate family members. Effective January 1, 2022, these reporting obligations will extend to include transfers of value made to certain non-physician providers such as physician assistants and nurse practitioners. This information is subsequently made publicly available in a searchable format on a Centers for Medicare & Medicaid Services (CMS), website. Failure to disclose required information may result in civil monetary penalties for all payments, transfers of value or ownership or investment interests that are not timely, accurately and completely reported in an annual submission. Certain states also mandate implementation of compliance programs, impose restrictions on drug manufacturer marketing practices and/or require the tracking and reporting of gifts, compensation and other remuneration to physicians and/or other healthcare providers; and

- analogous state and foreign laws and regulations, such as state anti-kickback, anti-bribery and false claims laws, which may apply to healthcare items or services that are reimbursed by non-governmental third-party payors, including private insurers.

Some states also impose requirements on manufacturers and distributors to establish the pedigree of product in the chain of distribution, including some states that require manufacturers and others to adopt new technology capable of tracking and tracing product as it moves through the distribution chain. Several states have enacted legislation requiring pharmaceutical companies to establish marketing compliance programs, file periodic reports with the state, make periodic public disclosures on sales, marketing, pricing, track and report gifts, compensation and other remuneration made to physicians and other healthcare providers, clinical trials and other activities, and/or register their sales representatives, as well as to prohibit pharmacies and other healthcare entities from providing certain physician prescribing data to pharmaceutical companies for use in sales and marketing, and to prohibit certain other sales and marketing practices. All of our activities are potentially subject to federal and state consumer protection and unfair competition laws.

The provision of benefits or advantages to physicians to induce or encourage the prescription, recommendation, endorsement, purchase, supply, order, or use of medicinal products is prohibited in the European Union. The provision of benefits or advantages to also induce or reward improper performance generally is governed by the national anti-bribery laws of European Union Member States, and the Bribery Act 2010 in the United Kingdom. Infringement of these laws could result in substantial fines and imprisonment. EU Directive 2001/83/EC, which is the EU Directive governing medicinal products for human use, further provides that, where medicinal products are being promoted to persons qualified to prescribe or supply them, no gifts, pecuniary advantages or benefits in kind may be supplied, offered or promised to such persons unless they are inexpensive and relevant to the practice of medicine or pharmacy. This provision has been transposed into the Human Medicines Regulations 2012 and so remains applicable in the United Kingdom despite its departure from the EU.

Payments made to physicians in certain European Union Member States must be publicly disclosed. Moreover, agreements with physicians often must be the subject of prior notification and approval by the physician's employer, his or her competent professional organization, and/or the regulatory authorities of the individual European Union Member States. These requirements are provided in the national laws, industry codes, or professional codes of conduct applicable in the European Union Member States. Failure to comply with these requirements could result in reputational risk, public reprimands, administrative penalties, fines or imprisonment.

If our operations are found to be in violation of any of the federal and state healthcare laws described above or any other governmental regulations that apply to us, we may be subject to significant penalties, including without limitation, civil, criminal and/or administrative penalties, damages, fines, disgorgement, imprisonment, exclusion from participation in government programs, such as Medicare and Medicaid, injunctions, private "qui tam" actions brought by individual whistleblowers in the name of the government, or refusal to allow us to enter into government contracts, contractual damages, reputational harm, administrative burdens, diminished profits and future earnings, and the curtailment or restructuring of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

Healthcare Reform

In the United States and some foreign jurisdictions, there have been and continue to be ongoing efforts to implement legislative and regulatory changes regarding the healthcare system. A primary trend in the U.S. healthcare industry and elsewhere is cost containment. Government authorities and other third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medical products and services, implementing reductions in Medicare and other healthcare funding and applying new payment methodologies.

Within the United States, the federal government and individual states have aggressively pursued healthcare reform, as evidenced by the passing of the ACA and the ongoing efforts to modify or repeal that legislation. The ACA substantially changed the way healthcare is financed by both governmental and private insurers and contains a number of provisions that affect coverage and reimbursement of drug products and/or that could potentially reduce the demand for pharmaceutical products such as increasing drug rebates under state Medicaid programs for brand name prescription drugs and extending those rebates to Medicaid managed care and assessing a fee on manufacturers and importers of brand name prescription drugs reimbursed under certain government programs, including Medicare and Medicaid. Modifications have been implemented under the previous presidential administration and additional modifications or repeal may occur.

There have been executive, judicial and congressional challenges to certain aspects of the ACA. For example, the U.S. Supreme Court is currently reviewing the constitutionality of the ACA, but it is unknown when a decision will be reached On February 10, 2021, the Biden administration withdrew the federal government's support for overturning the ACA. Although the Supreme Court has not yet ruled on the constitutionality of the ACA, on January 28, 2021, President Biden issued an executive order that initiated a special enrollment period for purposes of obtaining health insurance coverage through the ACA marketplace, which began on February 15, 2021 and will remain open through August 15, 2021. The executive order also instructed certain governmental agencies to review and reconsider their existing policies and rules that limit access to healthcare, including among others, reexamining Medicaid demonstration projects and waiver programs that include work requirements, and policies that create unnecessary barriers to obtaining access to health insurance coverage through Medicaid or the ACA. It is unclear how the Supreme Court ruling, other such litigation, and the healthcare reform measures of the Biden administration will impact the ACA.

In addition, other legislative changes have been proposed and adopted in the United States since the ACA was enacted. For example, in August 2011, the Budget Control Act of 2011, among other things, created measures for spending reductions by Congress. Specifically, the Joint Select Committee on Deficit Reduction, asked with recommending a targeted deficit reduction of at least $1.2 trillion for the years 2013 through 2021, was unable to reach required goals, thereby triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions of Medicare payments to providers of up to 2% per fiscal year, which went into effect in April 2013, and, due to subsequent legislative amendments, will remain in effect through 2030 unless additional Congressional action is taken. However, COVID-19 relief legislation suspended the 2% Medicare sequester reductions from May 1, 2020 through December 31, 2021. On January 2, 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, further reduced Medicare payments to several providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. The Bipartisan Budget Act (BBA), also amended the ACA, effective January 1, 2019, by increasing the point-of-sale discount that is owed by pharmaceutical manufacturers who participate in Medicare Part D and closing the coverage gap in most Medicare drug plans, commonly referred to as the "donut hole."

Furthermore, there has been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products, which has resulted in several congressional inquiries and proposed legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient assistance programs and reform government program reimbursement

methodologies for drug products. At the federal level, the Trump administration used several means to propose or implement drug pricing reform, including through federal budget proposals, executive orders and policy initiatives. For example, on July 24, 2020 and September 13, 2020, the Trump administration announced several executive orders related to prescription drug pricing that seek to implement several of the administration's proposals. As a result, the FDA released a final rule on September 24, 2020, effective November 30, 2020, providing guidance for states to build and submit importation plans for drugs from Canada. Further, on November 20, 2020, HHS finalized a regulation removing safe harbor protection for price reductions from pharmaceutical manufacturers to plan sponsors under Medicare Part D, either directly or through pharmacy benefit managers, unless the price reduction is required by law. The implementation of the rule has been delayed by the Biden administration from January 1, 2022 to January 1, 2023 in response to ongoing litigation. The rule also creates a new safe harbor for price reductions reflected at the point-of-sale, as well as a new safe harbor for certain fixed fee arrangements between pharmacy benefit managers and manufacturers, the implementation of which have also been delayed until January 1, 2023. On November 20, 2020, CMS, issued an interim final rule implementing the Trump administration's Most Favored Nation executive order, which would tie Medicare Part B payments for certain physician-administered drugs to the lowest price paid in other economically advanced countries, effective January 1, 2021. On December 28, 2020, the U.S. District Court in Northern California issued a nationwide preliminary injunction against implementation of the interim final rule. It is unclear whether the Biden administration will work to reverse these measures or pursue similar policy initiatives. Individual states in the United States have also become increasingly active in passing legislation and implementing regulations designed to control pharmaceutical product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. In addition, regional healthcare authorities and individual hospitals are increasingly using bidding procedures to determine what pharmaceutical products and which suppliers will be included in their prescription drug and other healthcare programs. It is difficult to predict the future legislative landscape in healthcare and the effect on our business, results of operations, financial condition and prospects. However, we expect that additional state and federal healthcare reform measures will be adopted in the future, particularly in light of the new presidential administration. Further, it is possible that additional governmental action is taken in response to the COVID-19 pandemic. At the state level, legislatures have also been increasingly passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing.

Employees and Human Capital Resources

As of March 31, 2021, we had 27 full-time employees, including eight with Ph.D. or M.D. degrees. None of our employees are represented by labor unions or covered by collective bargaining agreements. We consider our relationship with our employees to be good.

Our human capital resources objectives include, as applicable, identifying, recruiting, retaining, incentivizing and integrating our existing and additional employees. The principal purposes of our equity incentive plans are to attract, retain and motivate selected employees, consultants and directors through the granting of stock-based compensation awards.

Facilities

We lease a 6,340 square foot office space, located at 279 East Grand Avenue, Suite 430, South San Francisco, CA 94080 and intend to move into a 19,195 square foot laboratory facility, located at 201 Haskins Way, South San Francisco, CA 94080 upon completion of certain modifications. The office lease expires upon delivery of the laboratory space and in no event sooner than September 2021. The laboratory facility lease expires 42 months from the date it is delivered to us. We believe that our current facilities are sufficient to meet

our current and near-term needs. We believe that suitable additional alternative spaces will be available in the future on commercially reasonable terms, if required.

Legal Proceedings

We are not currently a party to any material legal proceedings. From time to time, we may, however, in the ordinary course of business face various claims brought by third parties, and we may, from time to time, make claims or take legal actions to assert our rights, including intellectual property rights as well as claims relating to employment matters and the safety or efficacy of our products. Any of these claims could subject us to costly litigation, and, while we generally believe that we have adequate insurance to cover many different types of liabilities, our insurance carriers may deny coverage, may be inadequately capitalized to pay on valid claims, or our policy limits may be inadequate to fully satisfy any damage awards or settlements. If this were to happen, the payment of any such awards could have a material adverse effect on our operations, cash flows and financial position. Additionally, any such claims, whether or not successful, could damage our reputation and business.

As of the date of this prospectus, we were not party to any legal matters or claims. In the future, we may become party to legal matters and claims arising in the ordinary course of business, the resolution of which we do not anticipate would have a material adverse impact on our financial position, results of operations or cash flows.

MANAGEMENT

Executive Officers, Directors and Key Employees

The following table sets forth certain information about our executive officers, directors and key employees, including their ages, as of May 1, 2021.

Name	Age	Position(s)
Executive Officers and Employee Directors:		
Josh Lehrer, M.D.	47	Chief Executive Officer and Director
Katherine V. Stultz	48	Chief Operating Officer
Philip P. Gutry	47	Chief Business Officer, Head of Finance & Investor Relations
Non-Employee Directors:		
Perry Karsen(2)(3)	66	Director and Board Chair
Abraham Bassan(2)	36	Director
Jerel Davis, Ph.D.(1)(3)	44	Director
Kristen M. Hege, M.D.	57	Director
Joseph Jimenez(1)(3)	61	Director
Matthew Porteus, M.D., Ph.D.	56	Director
Carlo Rizzuto, Ph.D.(2)	50	Director
Smital Shah(1)	45	Director
Jo Viney, Ph.D.	55	Director
Key Employees:		
Jerry Cacia	54	Chief Technical Officer
Jane Grogan	54	Chief Scientific Officer

(1) Member of the Audit Committee.
(2) Member of the Compensation Committee.
(3) Member of the Nominating and Corporate Governance Committee.

Executive Officers and Employee Directors

Josh Lehrer, M.Phil., M.D., FACC has served as our chief executive officer and on our board of directors since April 2020. From October 2013 to April 2020, Dr. Lehrer held various leadership roles at Global Blood Therapeutics, Inc., including chief medical officer. From September 2009 to October 2013, Dr. Lehrer served in leadership roles at Genentech in clinical development and business development. Dr. Lehrer has also held attending physician roles at Stanford University Medical Center and the Palo Alto Veteran's Affairs Health System. He holds an A.B. in Biochemical Sciences from Harvard University and a Master of Philosophy in Biological Sciences from the University of Cambridge. Dr. Lehrer earned his Doctor of Medicine at the University of California, San Francisco (UCSF), School of Medicine and completed his residency at UCSF in internal medicine. Dr. Lehrer served as a clinical and postdoctoral fellow in cardiovascular medicine at Stanford University and attended the Institute for Entrepreneurship at the Stanford Graduate School of Business. We believe that Dr. Lehrer is qualified to serve on our board of directors based on his medical background, extensive experience in business and clinical development and knowledge of private and public development stage biotechnology companies.

Katherine Vega Stultz has served as our chief operating officer since August 2020. Prior to joining Graphite Bio, Ms. Stultz was employed at Celgene Corporation from August 2005 to January 2020. She served most recently as general manager in the Spain/Portugal market. Earlier at Celgene, Ms. Stultz served as corporate vice

president, global project leadership, hematology and oncology, directing the clinical project organization worldwide and overseeing over 30 mid/late stage clinical programs. Ms. Stultz began her career at Eli Lilly & Company from October 2000 to June 2005 and at ConvaTec, a Bristol-Myers Squibb company, from August 1995 to September 2000, where she progressed through a series of product development, project management, sales, and marketing positions. Ms. Stultz holds a B.S. in Mechanical Engineering (Biomedical Applications) from Cornell University.

Philip P. Gutry has served as our chief business officer, head of finance and investor relations since October 2020. Mr. Gutry brings to this role extensive business development, strategy, finance and investor relations experience with a successful track record of raising capital and establishing partnerships for biotech companies. Prior to joining us, Mr. Gutry worked at Kronos Bio, Inc., a clinical-stage oncology company focused on targeting dysregulated transcription, where he served as chief business officer from October 2018 to October 2020. Previously, Mr. Gutry served as the executive director of business development at Regeneron Pharmaceuticals, Inc. from June 2015 to October 2018, a principal at MPM Capital from June 2011 to June 2015 and the associate director of corporate development at Gilead Sciences, Inc. from August 2006 to May 2011. Mr. Gutry also serves on the board of directors at Cerecor Inc., a biopharmaceutical company focused on the development and commercialization of products in rare pediatric and orphan diseases. Mr. Gutry received his A.B. in Earth Sciences from Dartmouth College and his M.B.A. in Healthcare Management from The Wharton School of the University of Pennsylvania.

Non-Employee Directors

Perry Karsen has served as the chair of our board of directors since October 2020 and as a member of our board of directors since June 2020. Mr. Karsen is currently a venture partner at Samsara BioCapital, L.P. and the executive chair of Autobahn Labs, Inc. From May 2013 to December 2015, Mr. Karsen was the chief executive officer of Celgene Cellular Therapeutics, Inc., a division of Celgene Corporation. Mr. Karsen served as chief operations officer and executive vice president of Celgene from July 2010 to May 2013, and as senior vice president and head of worldwide business development of Celgene from 2004 to 2009. Between February 2009 and July 2010, Mr. Karsen was chief executive officer of Pearl Therapeutics Inc., subsequently acquired by AstraZeneca plc. Prior to his tenure with Celgene, Mr. Karsen held executive positions at Human Genome Sciences, Inc., a publicly traded biotechnology company, since acquired by GlaxoSmithKline plc; Bristol-Myers Squibb Co.; Genentech, Inc., since acquired by Hoffmann-La Roche AG (Roche); and Abbott Laboratories. In addition, Mr. Karsen served as a general partner at Pequot Ventures. He has been a member of the boards of directors of several publicly traded biotechnology companies, including Voyager Therapeutics, Inc. since July 2015, Intellia Therapeutics, Inc. since April 2016, Jounce Therapeutics, Inc. since January 2016, and OncoMed Pharmaceuticals, Inc. since January 2016. Mr. Karsen has served as chairman of the boards of directors of Intellia and Jounce since April 2016 and executive chairman of the board of OncoMed since 2018. Mr. Karsen was formerly a member of the boards of directors of the public biotechnology companies Alliqua Biomedical, Inc. from December 2013 to February 2016 and Agios Pharmaceuticals, Inc. from November 2011 to March 2016. Mr. Karsen was also formerly a member of the boards of directors of the Biotechnology Innovation Organization (BIO) and the Alliance for Regenerative Medicine. Mr. Karsen received his B.S. in Biological Sciences from the University of Illinois, Urbana-Champaign, a Masters of Management from Northwestern University's Kellogg Graduate School of Management and an M.A.T. of Biology from Duke University. We believe that Mr. Karsen's executive leadership experience, including his experience as an executive at large and successful multi-national pharmaceutical companies and membership on board of directors of various publicly traded biotechnology companies, qualifies him to serve as a member of the board of directors.

Abraham Bassan has served on our board of directors since June 2020. Since July 2017, Mr. Bassan has served as a vice president at Samsara BioCapital. Before joining Samsara BioCapital, Mr. Bassan was the director of program biology at Revolution Medicines, Inc. from October 2015 to July 2017 and its director of project management from December 2014 to September 2015. Mr. Bassan was the founder and chief executive officer of Aurora Medical, Inc. from September 2012 to September 2014. Mr. Bassan was also the associate director of program development at bluebird bio, Inc. from May 2010 to August 2012. Mr. Bassan received his

A.B. in Molecular Biology from Princeton University and a M.S. in Development Biology from Stanford University. We believe that Mr. Bassan is qualified to serve on our board of directors based on his significant knowledge of the life sciences industry and experience and expertise in evaluating and investing in life sciences companies.

Jerel Davis, Ph.D. has served on our board of directors since our inception in October 2019. Since June 2011, Dr. Davis has served at Versant Venture Management, LLC, a healthcare investment firm, where he has held the position of managing director since 2015. He has served as chairman of the board of directors of Repare Therapeutics, Inc. since September 2016 and has served on the boards of directors of many other public and private biotechnology companies, including BlueRock Therapeutics LP, Turnstone Biologics Inc., Chinook Therapeutics, Inc., Inception 5 Inc. and Northern Biologics Inc. Prior to joining Versant, Dr. Davis was an associate principal at McKinsey & Company in various healthcare markets including the United States, Canada, Europe and China. He received a B.S. in Mathematics and Biology from Pepperdine University and a Ph.D. in Population Genetics from Stanford University. We believe that Dr. Davis's broad and extensive experience in the life sciences industry as both an investor of and launching numerous life sciences companies qualifies him to serve on our board of directors.

Kristen M. Hege, M.D. has served on our board of directors since April 2021. Dr. Hege joined Celgene Corporation in September 2010 as vice president of translational development and is currently the senior vice president of early clinical development of hematology/oncology and cell therapy at Bristol Myers Squibb Company (following its acquisition of Celgene in November 2019). Dr. Hege has also held an active faculty position at the University of California, San Francisco Medical Center since July 1996, most recently as the clinical professor of medicine of hematology/oncology, serving in that role as a volunteer since July 2008. Prior to Celgene, Dr. Hege served as the chief medical officer at Cellerant Therapeutics from November 2009 to September 2010, the acting chief medical officer at Aragon Pharmaceuticals from January 2010 to September 2010 and the acting chief medical officer at Theraclone Sciences from March 2009 to September 2010. Dr. Hege was also the vice president of clinical research and development at Cell Genesys from July 1996 to October 2008. Dr. Hege previously served as a volunteer-at-large director for the Society for Immunotherapy of Cancer from January 2016 to January 2019 and the BayBio/California Life Sciences Association from January 2014 to January 2016. Dr. Hege has served on the board of directors of Mersana Therapeutics, Inc. since August 2016. She also previously served as a member of the board of directors at Arcus Biosciences from October 2018 to November 2019 and as a board observer for Flexus Biosciences from April 2014 to March 2015. Dr. Hege received a B.A. in Biochemistry from Dartmouth College summa cum laude, an M.D. from University of California, San Francisco and Board certification in hematology and medical oncology from the University of California, San Francisco. We believe that Dr. Hege's medical background and experience in the biotechnology industry qualify her to serve as a director.

Joseph Jimenez has served on our board of directors since June 2020. Mr. Jimenez is theco-founder and managing partner of Aditum Bio, a biotechnology venture fund, where he has served since August 2019. He is the former chief executive officer of Novartis AG, a position he held from February 2010 to January 2018. Prior to this role, Mr. Jimenez held several senior positions at Novartis from April 2007 to January 2010, including division head of Novartis Pharmaceuticals and leadership of the company's Consumer Health Division. Mr. Jimenez also held various leadership roles at H. J. Heinz Company in Europe and North America from 1999 to 2006 and at ConAgra Foods from 1993 to 1998 and was an advisor to the Blackstone Group L.P. from July 2006 to March 2007. Mr. Jimenez has been a member of the board of directors of General Motors since June 2015, Procter & Gamble since March 2018 and Century Therapeutics since August 2019. Mr. Jimenez received a B.A. in Economics from Stanford University and an M.B.A. from University of California, Berkeley's Haas School of Business. We believe that Mr. Jimenez is qualified to serve on our board of directors based on his extensive leadership experience and executive leadership at various technology companies.

Matthew Porteus, M.D., Ph.D. has served on our board of directors since March 2020. Dr. Porteus is an associate professor of pediatrics of the Department of Pediatrics, Divisions of Hematology/Oncology and Human
Gene Therapy, at Stanford School of Medicine, where he has served in various leadership roles since October

2010. Prior to joining Stanford, Dr. Porteus served as an assistant professor at the University of Texas Southwestern Medical Center from February 2003 to August 2010. His research focuses on developing homologous recombination-based therapies for genetic and other diseases. Dr. Porteus also maintains a clinical practice at the Lucille Packard Children's Hospital, where he is an attending physician for the Pediatric Bone Marrow Transplant Service. Dr. Porteus graduated Magna Cum Laude with an A.B. in History and Science from Harvard University and completed his M.D. and Ph.D. degrees at Stanford University. Dr. Porteus completed his residency training in pediatrics at Boston Children's Hospital, and fellowship training in Pediatric Hematology/Oncology at Boston Children's Hospital and the Dana Farber Cancer Institute. For his post-doctoral work, Dr. Porteus trained at the Massachusetts Institute of Technology and the California Institute of Technology. During this time, he began studying gene editing and was the first to show that engineered nucleases could be used to precisely modify human cells by homologous recombination. We believe that Dr. Porteus is qualified to serve on our board of directors based on his medical background and extensive knowledge surrounding genetic diseases, gene therapy and gene editing.

Carlo Rizzuto, Ph.D. has served on our board of directors since March 2020. Dr. Rizzuto joined Versant Ventures in November 2012 as an operating principal, became a venture partner in 2015 and a partner in 2017. He was previously employed at Novartis Pharmaceuticals, where he was the global program team director, from July 2010 to October 2012. Dr. Rizzuto has served on the board of directors of Pandion Therapeutics, Inc. since January 2018. Dr. Rizzuto received a B.A. in biology from the University of Virginia and a Ph.D. in virology from Harvard University. We believe that Dr. Rizzuto's experience as an investor in the life sciences industry qualifies him to serve on our board of directors.

Smital Shah, M.B.A. has served as a member of our board of directors since April 2021. Since October 2014, Ms. Shah has served in roles of increasing responsibility at ProQR Therapeutics NV, a rare disease company, including as chief financial officer from October 2014 to December 2018 and most recently as chief business and financial officer since December 2018. Previously, Ms. Shah served as a corporate treasurer at Gilead Sciences, Inc. from August 2012 to September 2014. Prior to Gilead, she was an investment banker at Leerink Partners and JP Morgan focused on capital raising and strategic transactions in the biotechnology space. Previously, Ms. Shah held various research and development roles at Johnson & Johnson Company. Since March 2019, Ms. Shah has served on the board of directors of Pliant Therapeutics, Inc. Ms. Shah holds a B.S. in Chemical Engineering from the University of Mumbai, a M.S. in Chemical Engineering from Virginia Tech and an M.B.A. from the University of California, Berkeley Haas School of Business. We believe that Ms. Shah is qualified to serve on our board of directors due to her extensive experience in the life sciences industry and her leadership experience as a senior financial executive.

Jo Viney, Ph.D. has served as a member of our board of directors since March 2021. Dr. Viney is a co-founder and has served as chief scientific officer of Pandion Therapeutics, Inc. since April 2017, and as its president since July 2019. Pandion Therapeutics was acquired by Merck & Co in April 2021. Jo continues to serve as president and chief scientific officer of Pandion Therapeutics, now as a wholly-owned subsidiary of Merck & Co (known as MSD outside Canada and the US). From November 2015 to November 2016, Dr. Viney served as senior vice president of drug discovery at Biogen Idec, Inc., after serving as vice president of immunology research from July 2011 to October 2015. From September 2003 to April 2011, Dr. Viney served as executive director of inflammation research at Amgen, Inc., after serving as director of inflammation research from July 2002 to August 2003. Dr. Viney has served on the board of directors of Harpoon Therapeutics, Inc. since July 2020 and on the board of directors of Finch Therapeutics Group, Inc. since August 2019, and has previously served and currently serves on the boards of directors of several private companies. Dr. Viney has a B.Sc. from the University of East London and a Ph.D. in immunology from the University of London, St. Bartholomew's Hospital Medical School. We believe that Dr. Viney's substantial leadership experience in the biotechnology industry qualifies her to serve on our board of directors.

Key Employees

Jerry Cacia has served as our chief technical officer since April 2021. From January 2016 to February 2021, Mr. Cacia was employed at F. Hoffmann-La Roche AG, where he first served as the head of biologics and drug

product manufacturing, and subsequently as the head of global technical development. Mr. Cacia began his career at Genentech in October 1988 and held various senior leadership roles until he left the company in January 2016, including head of global manufacturing science and technology and head of biologics process development. Mr. Cacia received his B.A. in Biological Sciences from the University of California, Santa Cruz.

Jane Grogan, Ph.D. has served as our chief scientific officer since April 2021. Prior to joining Graphite Bio, Dr. Grogan served as the chief scientific officer at ArsenalBio from October 2019 to March 2021. Dr. Grogan was previously employed at Genentech, where she served as the head of adaptive tumor immunity and the principal scientist of cancer immunology discovery research from January 2014 to September 2019 and as a senior scientist in immunology from February 2004 to January 2014. Dr. Grogan holds a B.Sc. with honors in biochemistry and pharmacology from the University of Melbourne and a Ph.D. in immunology from Leiden University.

Family Relationships

There are no family relationships among any of our executive officers or directors.

Composition of Our Board of Directors

Our board of directors consists of ten members, each of whom are members pursuant to the board composition provisions of our certificate of incorporation and agreements with our stockholders. These board composition provisions will terminate upon the completion of this offering. Upon the termination of these provisions, there will be no further contractual obligations regarding the election of our directors. Our nominating and corporate governance committee and our board of directors may consider a broad range of factors relating to the qualifications and background of nominees. Our nominating and corporate governance committee's and our board of directors' priority in selecting board members is to identify persons who will further the interests of our stockholders through his or her established record of professional accomplishments, the ability to contribute positively to the collaborative culture among board members, knowledge of our business, understanding of the competitive landscape, and professional and personal experiences and expertise relevant to our growth strategy. Our directors hold office until their successors have been elected and qualified or until the earlier of their resignation or removal. Our amended and restated certificate of incorporation and amended and restated by laws that will become effective immediately prior to the closing of this offering also provide that our directors may be removed only for cause by the affirmative vote of the holders of at least 75% of the votes that all our stockholders would be entitled to cast in an annual election of directors, and that any vacancy on our board of directors, including a vacancy resulting from an enlargement of our board of directors, may be filled only by vote of a majority of our directors then in office.

Director Independence

Upon the completion of this offering, we expect that our common stock will be listed on the Nasdaq Global Market. Applicable rules of Nasdaq require a majority of a listed company's board of directors to be comprised of independent directors within one year of listing. In addition, the Nasdaq rules require that, (1) on the date of the completion of the offering, at least one member of each of a listed company's audit, compensation and nominating and corporate governance committees be independent, (2) within 90 days of the date of the completion of the offering, a majority of the members of such committees be independent and (3) within one year of the date of the completion of the offering, all the members of such committees be independent. Audit committee members must also satisfy the independence criteria set forth in Rule 10A-3 under the Exchange Act. Under applicable Nasdaq rules, a director will only qualify as an "independent director" if, in the opinion of the listed company's board of directors, that person does not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director.

In order to be considered independent for purposes of Rule10A-3, a member of an audit committee of a listed company may not, other than in his or her capacity as a member of the audit committee, the board of

directors, or any other board committee, accept, directly or indirectly, any consulting, advisory, or other compensatory fee from the listed company or any of its subsidiaries or otherwise be an affiliated person of the listed company or any of its subsidiaries.

Our board of directors has determined that all members of the board of directors, except Drs. Lehrer and Porteus, are independent directors, including for purposes of the rules of Nasdaq and the SEC. In making such independence determination, our board of directors considered the relationships that each non-employee director has with us and all other facts and circumstances that our board of directors deemed relevant in determining their independence, including the beneficial ownership of our capital stock by each non-employee director. In considering the independence of the directors listed above, our board of directors considered the association of our directors with the holders of more than 5% of our common stock and with licensors and service providers of our Company. Upon the completion of this offering, we expect that the composition and functioning of our board of directors and each of our committees will comply with all applicable requirements of Nasdaq and the rules and regulations of the SEC, subject to the transition rules described above for newly listed companies. Dr. Lehrer is not an independent director under these rules because he is currently employed as the chief executive officer of our Company, and Dr. Porteus is not an independent director under these rules because he is currently providing services as a paid consultant of our Company and has an affiliation with a licensor and service provider of our Company.

Staggered Board

In accordance with the terms of our amended and restated certificate of incorporation that will become effective immediately prior to the closing of this offering and our amended and restated by-laws that will become effective on the date on which the registration statement of which this prospectus is part is declared effective by the SEC, our board of directors will be divided into three staggered classes of directors and each will be assigned to one of the three classes. At each annual meeting of the stockholders, a class of directors will be elected for a three-year term to succeed the directors of the same class whose terms are then expiring. The terms of the directors will expire upon the election and qualification of successor directors at the annual meeting of stockholders to be held during the years 2022 for Class I directors, 2023 for Class II directors and 2024 for Class III directors.

- Our Class I directors will be Jerel Davis, Ph.D., Perry Karsen and Joseph Jimenez.
- Our Class II directors will be Abraham Bassan, Matthew Porteus, M.D., Ph.D. and Jo Viney, Ph.D..
- Our Class III directors will be Kristen M. Hege, M.D., Josh Lehrer, M.D., Carlo Rizzuto, Ph.D. and Smital Shah.

Our amended and restated certificate of incorporation and amended and restated bylaws that will become effective immediately prior to the closing of this offering will provide that the number of directors shall be fixed from time to time by a resolution of the majority of our board of directors.

The division of our board of directors into three classes with staggered three-year terms may delay or prevent stockholder efforts to effect a change of our management or a change in control.

Board Leadership Structure and Board's Role in Risk Oversight

Perry Karsen is our current chair of the board and Josh Lehrer, M.D. is our current chief executive officer, hence the roles of chair and the chief executive officer and president are separated. We plan to keep these roles separated following the completion of this offering. We believe that separating these positions allows our president and chief executive officer to focus on setting the overall strategic direction of the company, expanding the organization to deliver on our strategy and overseeing our day-to-day business, while allowing the chair of the board to lead the board of directors in its fundamental role of providing strategic advice. Our board of

directors recognizes the time, effort and energy that the president and chief executive officer is required to devote to his position in the current business environment, as well as the commitment required to serve as our chair of the board, particularly as the board of directors' oversight responsibilities continue to grow. While our amended and restated bylaws and corporate governance guidelines do not require that our chair of the board and president positions be separate, our board of directors believes that having separate positions is the appropriate leadership structure for us at this time and demonstrates our commitment to good corporate governance.

Risk is inherent with every business, and how well a business manages risk can ultimately determine its success. We face a number of risks, including risks relating to our financial condition, development and commercialization activities, operations, strategic direction and intellectual property as more fully discussed in the section titled "Risk Factors" appearing elsewhere in this prospectus. Management is responsible for the day-to-day management of risks we face, while our board of directors, as a whole and through its committees, has responsibility for the oversight of risk management. In its risk oversight role, our board of directors has the responsibility to satisfy itself that the risk management processes designed and implemented by management are adequate and functioning as designed.

The role of the board of directors in overseeing the management of our risks is conducted primarily through committees of the board of directors, as disclosed in the descriptions of each of the committees below and in the charters of each of the committees. The full board of directors (or the appropriate board committee in the case of risks that are under the purview of a particular committee) discusses with management our major risk exposures, their potential impact on us, and the steps we take to manage them. When a board committee is responsible for evaluating and overseeing the management of a particular risk or risks, the chairperson of the relevant committee reports on the discussion to the full board of directors during the committee reports portion of the next board meeting. This enables the board of directors and its committees to coordinate the risk oversight role, particularly with respect to risk interrelationships.

Committees of Our Board of Directors

Our board of directors has established an audit committee, a compensation committee and a nominating and corporate governance committee, each of which will operate pursuant to a charter adopted by our board of directors and will be effective upon the effectiveness of the registration statement of which this prospectus is a part. Upon the effectiveness of the registration statement of which this prospectus is a part, the composition and functioning of all of our committees will comply with all applicable requirements of SOX, Nasdaq and SEC rules and regulations.

Audit Committee

Effective upon the effectiveness of the registration statement of which this prospectus is a part, Smital Shah, Jerel Davis, Ph.D. and Perry Karsen will serve on the audit committee, which will be chaired by Ms. Shah. Our board of directors has determined that are "independent" for audit committee purposes as that term is defined in the rules of the SEC and the applicable Nasdaq rules, and each has sufficient knowledge in financial and auditing matters to serve on the audit committee. Our board of directors has designated as an "audit committee financial expert," as defined under the applicable rules of the SEC. The audit committee's responsibilities include:

- appointing, approving the compensation of, and assessing the independence of our independentregistered public accounting firm;
- pre-approving auditing and permissible non-audit services, and the terms of such services, to be provided by our independent registered public accounting firm;
- reviewing the overall audit plan with our independent registered public accounting firm and members of management responsible for preparing our financial statements;

- reviewing and discussing with management and our independent registered public accounting firm our annual and quarterly financial statements and related disclosures as well as critical accounting policies and practices used by us;
- coordinating the oversight and reviewing the adequacy of our internal control over financial reporting;
- establishing policies and procedures for the receipt and retention of accounting-related complaints and concerns;
- recommending based upon the audit committee's review and discussions with management and our independent registered public accounting firm whether our audited financial statements shall be included in our Annual Report on Form 10-K;
- monitoring the integrity of our financial statements and our compliance with legal and regulatory requirements as they relate to our financial statements and accounting matters;
- preparing the audit committee report required by SEC rules to be included in our annual proxy statement;
- reviewing all related person transactions for potential conflict of interest situations and approving all such transactions; and
- reviewing quarterly earnings releases.

Compensation Committee

Effective upon the effectiveness of the registration statement of which this prospectus is a part, Abraham Bassan, Perry Karsen and Carlo Rizzuto, Ph.D. will serve on the compensation committee, which will be chaired by Mr. Bassan. Our board of directors has determined that each member of the compensation committee is "independent" as defined in the applicable Nasdaq rules. The compensation committee's responsibilities include:

- annually reviewing and recommending to the board of directors the corporate goals and objectives relevant to the compensation of our principal executive officer;
- evaluating the performance of our principal executive officer in light of such corporate goals and objectives and based on such evaluation: (i) determining cash compensation of our principal executive officer; and (ii) reviewing and approving grants and awards to our principal executive officer under equity-based plans;
- reviewing and approving or recommending to the board of directors the cash compensation of our other executive officers;
- reviewing and establishing our overall management compensation, philosophy and policy;
- overseeing and administering our compensation and similar plans;
- evaluating and assessing potential and current compensation advisors in accordance with the independence standards identified in the applicable Nasdaq rules;
- reviewing and approving our policies and procedures for the grant of equity-based awards;
- reviewing and recommending to the board of directors the compensation of our directors;
- preparing the compensation committee report required by SEC rules, if and when required, to be included in our annual proxy statement; and
- reviewing and approving the retention, termination or compensation of any consulting firm or outside advisor to assist in the evaluation of compensation matters.

Nominating and Corporate Governance Committee

Effective upon the effectiveness of the registration statement of which this prospectus is a part, Perry Karsen, Jerel Davis, Ph.D. and Joseph Jimenez will serve on the nominating and corporate governance

committee, which will be chaired by Mr. Karsen. Our board of directors has determined that each member of the nominating and corporate governance committee is "independent" as defined in the applicable Nasdaq rules. The nominating and corporate governance committee's responsibilities include:

- developing and recommending to the board of directors criteria for board and committee membership;
- establishing procedures for identifying and evaluating board of director candidates, including nominees recommended by stockholders;
- reviewing the composition of the board of directors to ensure that it is composed of members containing the appropriate skills and expertise to advise us;
- identifying individuals qualified to become members of the board of directors;
- recommending to the board of directors the persons to be nominated for election as directors and to each of the board's committees;
- developing and recommending to the board of directors a code of business conduct and ethics and a set of corporate governance guidelines; and
- overseeing the evaluation of our board of directors and management.

Our board of directors may from time to time establish other committees.

Compensation Committee Interlocks and Insider Participation

None of the members of our compensation committee has at any time during the prior three years been one of our officers or employees. None of our executive officers currently serves, or in the past fiscal year has served, as a member of the board of directors or compensation committee of any entity that has one or more executive officers serving on our board of directors or compensation committee.

Corporate Governance

We intend to adopt a written code of business conduct and ethics, effective upon the effectiveness of the registration statement of which this prospectus is a part, that applies to our directors, officers and employees, including our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions. Following the effectiveness of the registration statement of which this prospectus is a part, a current copy of the code will be posted on the investor relations section of our website, which is located at https://graphitebio.com/. The inclusion of our website address in this prospectus does not incorporate by reference the information on or accessible through our website into this prospectus. If we make any substantive amendments to, or grant any waivers from, the code of business conduct and ethics for any officer or director, we will disclose the nature of such amendment or waiver on our website or in a current report on Form 8-K.

Limitation on Liability and Indemnification Matters

Our amended and restated certificate of incorporation, which will become effective immediately prior to the completion of this offering, will contain provisions that limit the liability of our directors for monetary damages to the fullest extent permitted by Delaware law. Consequently, our directors will not be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duties as directors, except liability for:

- any breach of the director's duty of loyalty to us or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;

- unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the Delaware General Corporation Law; or
- any transaction from which the director derived an improper personal benefit.

Each of our amended and restated certificate of incorporation and amended and restated bylaws, which will become effective immediately prior to the completion of this offering, will provide that we are required to indemnify our directors and officers, in each case to the fullest extent permitted by Delaware law. Our amended and restated bylaws will also obligate us to advance expenses incurred by a director or officer in advance of the final disposition of any action or proceeding, and permit us to secure insurance on behalf of any officer, director, employee or other agent for any liability arising out of his or her actions in that capacity regardless of whether we would otherwise be permitted to indemnify him or her under Delaware law. We have entered and expect to continue to enter into agreements to indemnify our directors, executive officers and other employees as determined by our board of directors. With specified exceptions, these agreements provide for indemnification for related expenses including, among other things, attorneys' fees, judgments, fines and settlement amounts incurred by any of these individuals in any action or proceeding. We believe that these bylaw provisions and indemnification agreements are necessary to attract and retain qualified persons as directors and officers. We also maintain directors' and officers' liability insurance.

The limitation of liability and indemnification provisions in our amended and restated certificate of incorporation and amended and restated bylaws may discourage stockholders from bringing a lawsuit against our directors and officers for breach of their fiduciary duty. They may also reduce the likelihood of derivative litigation against our directors and officers, even though an action, if successful, might benefit us and our stockholders. Further, a stockholder's investment may be adversely affected to the extent that we pay the costs of settlement and damage.

EXECUTIVE COMPENSATION

Overview

The following discussion contains forward-looking statements that are based on our current plans and expectations regarding our future compensation programs. The actual amount and form of compensation that we pay and the compensation policies and practices that we adopt in the future may differ materially from the currently-planned programs that are summarized in this discussion

The compensation provided to our named executive officers for the fiscal year ended December 31, 2020 is detailed in the 2020 Summary Compensation Table and accompanying footnotes and narrative that follow. Our named executive officers for the fiscal year ended December 31, 2020, which consists of our Chief Executive Officer and our two most highly-compensated individuals (other than our Chief Executive Officer) who were serving as executive officers on December 31, 2020, are:

- Josh Lehrer, M.D., our Chief Executive Officer;
- Katherine V. Stultz, our Chief Operating Officer; and
- Philip P. Gutry, our Chief Business Officer, Head of Finance & Investor Relations.

2020 Summary Compensation Table

The following table provides information regarding the total compensation awarded to, earned by, and paid to our named executive officers for services rendered to us in all capacities for the fiscal year ended December 31, 2020.

Name and Principal Position	Year	Salary ($)	Bonus ($)(1)	Stock Awards ($)(2)	Option Awards ($)(3)	Non-equity Incentive Plan Compensation ($)	All Other Compensation ($)	Total ($)
Josh Lehrer, M.D., Chief Executive Officer(4)	2020	298,045	133,880	23,138	—	—	—	455,063
Katherine V. Stultz, Chief Operating Officer(5)	2020	133,333	202,500	—	414,814	—	—	750,647
Philip P. Gutry, Chief Business Officer, Head of Finance & Investor Relations(6)	2020	90,909	79,540	—	536,216	—	—	706,665

(1) Represents discretionary bonuses earned by our named executive officers, based on our achievement of certain corporate performance goals for 2020, as well as a $150,000 signing bonus for Ms. Stultz and a $50,000 signing bonus for Mr. Gutry, in each case received in connection with their commencement of employment with us in 2020.

(2) The amounts reported represent the aggregate grant date fair value of the restricted stock awards granted to our named executive officers during the 2020 fiscal year, calculated in accordance with Financial Accounting Standards Board (FASB), Accounting Standards Codification (ASC), Topic 718. Such grant date fair values do not take into account any estimated forfeitures. The assumptions used in calculating the grant date fair value of the restricted stock awards reported in this column are set forth in notes 2 and 11 of our financial statements included elsewhere in this prospectus. The amounts reported in this column reflect the accounting cost for these restricted stock awards and do not correspond to the actual economic value that may be received by our named executive officers upon the vesting of the restricted stock awards or any sale of the underlying shares of common stock.

(3) The amounts reported represent the aggregate grant date fair value of the stock options granted to our named executive officers during the 2020 fiscal year, calculated in accordance with FASB ASC Topic 718. Such grant date fair values do not take into account any estimated forfeitures. The assumptions used in calculating the grant date fair value of the stock options reported in this column are set forth in notes 2 and 11 of our financial statements included elsewhere in this prospectus. The amounts reported in this column reflect the accounting cost for these stock options and do not correspond to the actual economic value that may be received by our named executive officers upon the exercise of the stock options or any sale of the underlying shares of common stock.

(4) Dr. Lehrer commenced employment with us on April 20, 2020 and his 2020 base salary and 2020 bonus were pro-rated accordingly.

(5) Ms. Stultz commenced employment with us on August 31, 2020 and her 2020 base salary and 2020 bonus were pro-rated accordingly.

(6) Mr. Gutry commenced employment with us on October 5, 2020 and his 2020 base salary and 2020 bonus were pro-rated accordingly.

Narrative to Summary Compensation Table

Base Salaries

The annual base salaries for Dr. Lehrer, Ms. Stultz and Mr. Gutry for the year ended December 31, 2020 were $425,000, $400,000 and $375,000, respectively. Dr. Lehrer, Ms. Stultz and Mr. Gutry commenced employment with the Company on April 20, 2020, August 31, 2020 and October 5, 2020, respectively, and their annual base salaries were pro-rated accordingly for the 2020 fiscal year.

Bonuses

Annual Bonuses

During the fiscal year ended December 31, 2020, our named executive officers were eligible to earn a discretionary annual bonus based on the achievement of certain Company performance objectives. For the fiscal year ended December 31, 2020, the target annual bonuses for Dr. Lehrer, Ms. Stultz and Mr. Gutry were 40%, 30% and 30%, respectively, of the applicable named executive officer's annual base salary, prorated as applicable based on their commencement date. For the fiscal year ended December 31, 2020, the Company achieved 105% of its Company performance objectives.

Signing Bonuses

In connection with their commencement of employment with us, Ms. Stultz and Mr. Gutry received signing bonuses of $150,000 and $50,000, respectively.

Equity Compensation

During the fiscal year ended December 31, 2020, we granted restricted stock awards to our Chief Executive Officer and a stock option award to each of our other named executive officers, as described in more detail in the "Outstanding Equity Awards at Fiscal 2020 Year-End" table.

Perquisites or Personal Benefits

We do not provide significant perquisites or personal benefits to our employees with an aggregate equal to or greater than $10,000.

401(k) Plan

We maintain a tax-qualified retirement plan (the 401(k) Plan) that provides eligible U.S. employees with an opportunity to save for retirement on a tax-advantaged basis. Plan participants are able to defer eligible compensation subject to applicable annual Internal Revenue Code limits. We may provide matching contributions under the 401(k) Plan, but did not provide any such contributions during the 2020 fiscal year. The 401(k) Plan is intended to be qualified under Section 401(a) of the Internal Revenue Code with the 401(k) Plan's related trust intended to be tax exempt under Section 501(a) of the Internal Revenue Code. As a tax-qualified retirement plan, contributions to the 401(k) Plan and earnings on those contributions are not taxable to the employees until distributed from the 401(k) Plan.

Executive Employment Arrangements

We have entered into an offer letter with each of the named executive officers in connection with his or her employment with us, which set forth the terms and conditions of his or her employment. Each named executive officer has also entered into our standard proprietary information and inventions agreement.

Offer Letters in Place During the Fiscal Year Ended December 31, 2020 for Our Named Executive Officers

Josh Lehrer, M.D.

On February 28, 2020, we entered into an offer letter with Dr. Lehrer, (the Lehrer Letter) for the position of Chief Executive Officer. The Lehrer Letter provides for Dr. Lehrer's at-will employment. Mr. Lehrer's current annual base salary is $425,000, which is subject to periodic review and adjustment. Dr. Lehrer is eligible to earn an annual bonus with a target amount equal to 40% of his annual base salary and to participate in the employee benefit plans generally available to our employees. The Lehrer Letter also provides for Dr. Lehrer's initial grant of restricted stock, which vests 25% on the 12-month anniversary of his start date and in monthly installments thereafter for the next three years, subject to in case to Dr. Lehrer's continuous service with the Company through each applicable date.

Pursuant to the Lehrer Letter, in the event that Dr. Lehrer's employment is terminated by us without "cause" or Dr. Lehrer resigns for "good reason" (as each term is defined in the Lehrer Letter) (each, a Qualifying Event), subject to the execution and effectiveness of a general release of claims, he will be entitled to receive (i) if the Qualifying Event occurs prior to the first date on which we have sold preferred stock with aggregate gross proceeds of at least $20,000,000 cumulatively to such date (Second Tranche Closing), (A) then six months' base salary continuation and (B) subject to Dr. Lehrer's timely election to continue COBRA health coverage, six (6) months of the employer-paid portion of his COBRA premiums or (ii) if the Qualifying Event occurs after the Second Tranche Closing, (A) then twelve (12) months' base salary continuation and (B) subject to Dr. Lehrer's timely election to continue COBRA health coverage, twelve (12) months of the employer-paid portion of his COBRA premiums. Additionally, if a Qualifying Event other than death or disability occurs within three (3) months prior to and twelve (12) months after a "change in control" (as defined the Lehrer Letter), Dr. Lehrer will be entitled to 100% acceleration of vesting of his equity award grants.

The payments and benefits provided under the Lehrer Letter in connection with a change in control may not be eligible for a federal income tax deduction by us pursuant to Section 280G of the Internal Revenue Code. These payments and benefits may also subject Dr. Lehrer to an excise tax under Section 4999 of the Internal Revenue Code. If the payments or benefits payable to an eligible participant in connection with a change in control would be subject to the excise tax imposed under Section 4999 of the Internal Revenue Code, then those payments or benefits will be reduced if such reduction would result in a greater net after-tax benefit to Dr. Lehrer.

Katherine V. Stultz

On August 3, 2020, we entered into an offer letter with Ms. Stultz, (the Stultz Letter) for the position of Chief Operating Officer. The Stultz Letter provides for Ms. Stultz's at-will employment. Ms. Stultz's current annual base salary is $400,000, which is subject to periodic review and adjustment. Ms. Stultz is eligible to earn an annual bonus with a target amount equal to 30% of her annual base salary and to participate in the employee benefit plans generally available to our employees. In addition, the Stultz Letter provides for a one-time signing bonus equal to $150,000, subject to repayment if Ms. Stultz voluntarily terminates her employment (other than for "good reason," as defined in the Stultz Letter) prior to the twelve (12) month anniversary of her start date. The Stultz Letter also provides for Ms. Stultz's initial stock option grant, which vests 25% on the 12-month anniversary of her start date and in monthly installments thereafter for the next three years, subject to in case to Ms. Stultz's continuous service with the Company through each applicable date.

Pursuant to the Stultz Letter, in the event that Ms. Stultz's employment is terminated by us without "cause" or Ms. Stultz resigns for "good reason" (as each term is defined in the Stultz Letter) (each, a Qualifying Event), subject to the execution and effectiveness of a general release of claims, she will be entitled to receive, if the Qualifying Event occurs after the Second Tranche Closing, (i) three (3) months' base salary continuation and (ii) subject to the Ms. Stultz's timely election to continue COBRA health coverage, three (3) months of the

employer-paid portion of her COBRA premiums. Additionally, if a Qualifying Event other than death or disability occurs within three (3) months prior to and twelve (12) months after a "change in control" (as defined the Stultz Letter), Ms. Stultz will be entitled to 100% acceleration of vesting of all her equity award grants.

The payments and benefits provided under the Stultz Letter in connection with a change in control may not be eligible for a federal income tax deduction by us pursuant to Section 280G of the Internal Revenue Code. These payments and benefits may also subject Ms. Stultz to an excise tax under Section 4999 of the Internal Revenue Code. If the payments or benefits payable to an eligible participant in connection with a change in control would be subject to the excise tax imposed under Section 4999 of the Internal Revenue Code, then those payments or benefits will be reduced if such reduction would result in a greater net after-tax benefit to Ms. Stultz.

Philip P. Gutry

On September 14, 2020, we entered into an offer letter with Mr. Gutry, (the Gutry Letter) for the position of Chief Business Officer and Head of Finance and Investor Relations. The Gutry Letter provides for Mr. Gutry's at-will employment. Mr. Gutry's current annual base salary is $375,000, which is subject to periodic review and adjustment. Mr. Gutry is eligible to earn for an annual bonus with a target amount equal to 30% of his annual base salary and to participate in the employee benefit plans generally available to our employees. In addition, the Gutry Letter provides for a one-time signing bonus equal to $50,000, subject to repayment if Mr. Gutry voluntarily terminates his employment prior to the twelve (12) month anniversary of his start date. The Gutry Letter also provides for Mr. Gutry's initial stock option grant, which vests 25% on the 12-month anniversary of his start date and in monthly installments thereafter for the next three years, subject to in case to Mr. Gutry's continuous service with the Company through each applicable date.

Pursuant to the Gutry Letter, in the event that Mr. Gutry's employment is terminated by us without "cause" or Mr. Gutry resigns for "good reason" (as each term is defined in the Gutry Letter) (each, a Qualifying Event), subject to the execution and effectiveness of a general release of claims, he will be entitled to receive, if the Qualifying Event occurs after the Second Tranche Closing, (i) three (3) months' base salary continuation and (ii) subject to the Mr. Gutry's timely election to continue COBRA health coverage, three (3) months of the employer-paid portion of his COBRA premiums. Additionally, if a Qualifying Event other than death or disability occurs within three (3) months prior to and twelve (12) months after a "change in control" (as defined the Gutry Letter), Mr. Gutry will be entitled to 100% acceleration of vesting of all his equity award grants.

The payments and benefits provided under the Gutry Letter in connection with a change in control may not be eligible for a federal income tax deduction by us pursuant to Section 280G of the Internal Revenue Code. These payments and benefits may also subject Mr. Gutry to an excise tax under Section 4999 of the Internal Revenue Code. If the payments or benefits payable to an eligible participant in connection with a change in control would be subject to the excise tax imposed under Section 4999 of the Internal Revenue Code, then those payments or benefits will be reduced if such reduction would result in a greater net after-tax benefit to Mr. Gutry.

Outstanding Equity Awards at Fiscal 2020 Year-End

The following table sets forth information regarding outstanding equity awards held by our named executive officers as of December 31, 2020:

			Option Awards(1)				Stock Awards(1)	
Name	Grant Date	Vesting Commencement Date	Number of Securities Underlying Unexercised Options Exercisable (#)	Number of Securities Underlying Unexercised Options Unexercisable (#)	Option Exercise Price	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested ($)(2)
Josh Lehrer, M.D.	4/20/2020	4/20/2020	—	—	—	—	1,630,407(3)	3,179,294
	5/20/2020	4/20/2020	—	—	—	—	265,414(3)	517,557
Katherine V. Stultz	9/15/2020	8/31/2020	—	—	—	—	505,600(3)(4)	985,920
Philip P. Gutry	10/20/2020	10/5/2020	—	—	—	—	463,433(3)(4)	903,694

(1) Each equity award is subject to the terms of our 2020 Plan.
(2) Based on the fair market value of a share of our common stock on December 31, 2020, which was $1.95.
(3) The shares of restricted stock vest as follows: 25% of the shares on the first anniversary of the vesting commencement date and the remaining 75% in 36 equal monthly installments thereafter, subject to the named executive officer's continuous service relationship with the Company through each applicable vesting date. Notwithstanding the foregoing, if the Company is subject to a Sale Event (as defined in the named executive officer's offer letter) before the named executive officer's service relationship with the Company terminates and the named executive officer's service relationship with the Company is terminated without Cause or for Good Reason (as such terms are defined in the named executive officer's offer letter) within 3 months prior to or 12 months following such Sale Event, then all unvested shares shall immediately vest.
(4) The named executive officer received an early exercisable stock option award, which the named executive officer early exercised in its entirety.

Employee Benefits and Equity Compensation Plans

2020 Stock Option and Grant Plan

On March 24, 2020, our board of directors adopted our Graphite Bio's 2020 Stock Option and Grant Plan (2020 Plan). The 2020 Plan was amended most recently on March 10, 2021. As of December 31, 2020, we reserved an aggregate of 9,974,959 shares of our common stock for the issuance of options and other equity awards under the 2020 Plan. This number is subject to adjustment in the event of a stock split, stock dividend, or other change in our capitalization. As of December 31, 2020, options to purchase 746,000 shares of our common stock at a weighted average exercise price of $0.12 per share and 4,129,815 shares of restricted stock were outstanding under the 2020 Plan and 5,020,152 shares remained available for future issuance under the 2020 Plan. Following this offering, we will not grant any further awards under our 2020 Plan, but all outstanding awards under the 2020 Plan will continue to be governed by their existing terms.

The shares we have issued under the 2020 Plan have been authorized but unissued shares or shares we reacquired. The shares of common stock underlying any awards that are expired, canceled, reacquired by us prior to vesting are currently added back to the shares of common stock available for issuance under the 2020 Plan. Following this offering, such shares will be added to the shares of common stock available for issuance under the 2021 Plan.

The 2020 Plan allows for the grant of incentive stock options to our employees and any of our subsidiary corporations' employees, and for the grant of nonqualified stock options, restricted stock, unrestricted stock, and restricted stock units awards to employees, officers, directors and consultants of us and our subsidiary corporations.

The 2020 Plan is administered by the our board of directors or a committee appointed by it (the plan administrator). The plan administrator has full power to, among other things, select, from among the individuals

eligible for awards, the individuals to whom awards will be granted, to accelerate the time at which a stock award may be exercised or vest, to amend the 2020 Plan and to determine the specific terms and conditions of each award, subject to the provisions of the 2020 Plan.

The plan administrator may exercise its discretion to reduce the exercise price of outstanding stock options under the 2020 Plan or effect repricing through cancellation of such outstanding and by granting such holders new awards in replacement of the cancelled options in accordance with the terms of the 2020 Plan.

Stock options may be granted under our 2020 Plan. The exercise price per share of all stock options must equal at least 100% of the fair market value per share of our common stock on the date of grant. The term of a stock option may not exceed ten years. An incentive stock option granted to a participant who owns more than 10% of the total combined voting power of all classes of our stock on the date of grant, or any subsidiary corporations, may not have a term in excess of five years and must have an exercise price of at least 110% of the fair market value per share of our common stock on the date of grant. The plan administrator will determine the methods of payment of the exercise price of an option, which may include cash, shares or certain other property or other consideration acceptable to the plan administrator. After a participant's termination of service, the participant generally may exercise his or her stock options, to the extent vested as of such date of termination, during a period of three months after termination of service. If a termination of service is due to death or disability, the option generally will remain exercisable, to the extent vested as of such date of termination, until the one-year anniversary of such termination of service. However, in no event may an option be exercised later than the expiration of its term. If a termination of service is for cause (as defined in an applicable award agreement), the stock option automatically expires upon the date of the termination of service.

Restricted stock may be granted under our 2020 Plan. Restricted stock awards are grants of shares of our common stock that are subject to various restrictions, including restrictions on transferability and forfeitures provisions. Shares of restricted stock will vest, and the restrictions on such shares will lapse, in accordance with terms and conditions established by the plan administrator.

Unrestricted stock may be granted under our 2020 Plan. Unrestricted stock awards may be granted to participants in recognition of past services or for other valid consideration and may be issued in lieu of cash compensation due to such participant.

Restricted stock units may be granted under our 2020 Plan. A restricted stock unit is an award that covers a number of shares of our common stock that may be settled upon vesting in cash, by the issuance of the underlying shares or a combination of both. The plan administrator determines the terms and conditions of restricted stock units, including the number of units granted, the vesting criteria (which may include specified performance criteria and/or continued service to us) and the form and timing of payment.

The 2020 Plan generally does not allow for the transfer or assignment of awards, other than, at the discretion of the plan administrator, by gift to an immediate family member, to trusts for the benefit of family members, or to partnerships in which such family members are the only partners, and only the recipient of an award may exercise such an award during his or her lifetime.

In the event of certain changes in our capitalization, the exercise prices of and the number of shares subject to outstanding awards, and the purchase price of and the numbers of shares subject to outstanding awards will be proportionately adjusted, subject to any required action by our Board or stockholders.

The 2020 Plan provides that upon the effectiveness of a "sale event," as defined in the 2020 Plan, an acquirer or successor entity may assume, continue or substitute for the outstanding awards under the 2020 Plan. To the extent that awards granted under the 2020 Plan are not assumed or continued or substituted by acquirer or the successor entity, all stock options and all other awards granted under the 2020 Plan shall terminate. In the event of such termination, individuals holding stock options will be permitted to exercise such options (to the

extent exercisable) prior to the consummation of the sale event. In addition, in connection with the termination of the 2020 Plan upon a sale event, we may make or provide for a cash payment equal to (A) in the case of vested and exercisable options, the difference between (1) the per share cash consideration payable to stockholders (as determined by the plan administrator) in the sale event times the number of shares subject to the options being cancelled and (2) the aggregate exercise price of the options and (B) in the case of restricted stock and restricted stock unit awards, the per share cash consideration payable to stockholders in the sale event multiplied by the number of shares of stock subject to such stock awards (payable at the time of the sale event or upon the later vesting of the awards). In the event of the forfeiture of shares of restricted stock issued under the 2020 Plan, such shares of restricted stock shall be repurchased from the holder at a price per share equal to the lower of (i) the original per share purchase price paid by the recipient of such shares and (ii) the current fair market value of such shares determined immediately prior to the effective time of the sale event. Additionally, our board of directors may resolve, in its sole discretion, to subject any assumed options or payments in respect of options to any escrow, holdback, indemnification, earn-out or similar provisions in the transaction agreements as such provisions apply to holders of our common stock.

Our board of directors may amend, suspend, or terminate the 2020 Plan at any time and for any reason, provided that stockholder approval is obtained where such approval is required by applicable law. Our board of directors has determined not to make any further awards under the 2020 Plan following the completion of this offering.

DIRECTOR COMPENSATION

Compensation to Non-Employee Directors

During the 2020 fiscal year, we did not have a formal director compensation policy, but provided compensation to our independent directors, Messrs. Karsen and Jimenez, in the form of a $25,000 annual cash retainer, pro-rated for the calendar year 2020 based on their respective dates of appointment, payable in monthly installments, and an early exercisable stock option to purchase 252,781 shares of our common stock. The shares underlying the stock options vest in 48 equal monthly installments on the last day of each month over a period of four years beginning on the last day of the month that is the same month on which the director was appointed and are subject to acceleration in full upon a change of control of the Company so long as the individual continues to provide services to us as of such dates. In addition, Mr. Karsen received the following, in connection with his appointment as Chairman of the board of directors effective as of October 28, 2020: (i) a grant of an early exercisable stock option for 126,391 shares of common stock, with the shares underlying the stock option vesting in 48 equal monthly installments on the last day of each calendar month over a period of four years beginning on the last day of the month following the month on which Mr. Karsen was appointed as Chairman of the board of directors, subject to acceleration in full upon a change of control of the Company so long as Mr. Karsen continues to provide services to us as of such dates, and (ii) a $50,000 annual cash retainer, pro-rated for calendar year 2020 based on Mr. Karsen's commencement as Chairman of the board of directors.

We also reimbursed all reasonable out-of-pocket expenses incurred by our directors for their attendance at the meetings of our board of directors or any committee thereof.

Furthermore, in 2020, Dr. Porteus and Dr. Grazia Roncarolo, a former director who resigned from our board of directors in April 2021, received 9,290,000 and 3,000,000 shares of restricted common stock, respectively, as founders of the Company, but not for their services as members of our board of directors.

We intend to adopt a non-employee director compensation policy, pursuant to which our non-employee directors will be eligible to receive compensation for service on our board of directors and committees of our board of directors, to be effective following the completion of this offering.

The following table presents the total compensation for each of our non-employee directors who served as a member of our board of directors during the fiscal year ended December 31, 2020. Dr. Lehrer, who is our Chief Executive Officer, did not receive any additional compensation for his service as a director. The compensation received by Dr. Lehrer, as a named executive officer of the Company, is presented in "Executive Compensation-2020 Summary Compensation Table" above. Other than as set forth in the table and described more fully below, we did not pay any compensation, make any equity or non-equity awards to or reimburse any expenses of, any of our non-employee directors in 2020.

Name	Fees Earned or Paid in Cash ($)	Stock Awards ($)(1)	Option Awards ($)(2)	All Other Compensation ($)	Total ($)
Perry Karsen(3)	18,480	—	298,103	—	316,583
Abraham Bassan(4)	—	—	—	—	—
Jerel Davis, Ph.D.(5)	—	—	—	—	—
Joseph Jimenez(6)	14,483	—	142,187	—	156,670
Matthew Porteus, M.D., Ph.D.(7)	—	42(8)	—	53,846(9)	53,888
Carlo Rizzuto, Ph.D.(10)	—	—	—	—	—
Maria Grazia Roncarolo, M.D., Ph.D.(11)	—	13(12)	—	53,651(13)	53,664

(1) The amounts reported represent the aggregate grant date fair value of the restricted stock awards granted to our directors during the 2020 fiscal year, calculated in accordance with FASB ASC Topic 718. Such grant date fair values do not take into account any estimated forfeitures. The assumptions used in calculating the grant date fair value of the restricted stock awards reported in this column are set

forth in notes 2 and 11 of our financial statements included elsewhere in this prospectus. The amounts reported in this column reflect the accounting cost for these restricted stock awards and do not correspond to the actual economic value that may be received by our directors upon the vesting of the restricted stock awards or any sale of the underlying shares of common stock.

(2) The amounts reported represent the aggregate grant date fair value of the stock options granted to our directors during the 2020 fiscal year, calculated in accordance with FASB ASC Topic 718. Such grant date fair values do not take into account any estimated forfeitures. The assumptions used in calculating the grant date fair value of the stock options reported in this column are set forth in notes 2 and 11 of our financial statements included elsewhere in this prospectus. The amounts reported in this column reflect the accounting cost for these stock options and do not correspond to the actual economic value that may be received by our directors upon the exercise of the stock options or any sale of the underlying shares of common stock.

(3) As of December 31, 2020, Mr. Karsen held 337,043 shares of restricted stock acquired from the early exercise of his options.

(4) As of December 31, 2020, Mr. Bassan did not hold any outstanding equity awards.

(5) As of December 31, 2020, Dr. Davis did not hold any outstanding equity awards.

(6) As of December 31, 2020, Mr. Jimenez held 215,918 shares of restricted stock from the early exercise of his option.

(7) As of December 31, 2020, Dr. Porteus held 8,402,600 shares of founder restricted stock.

(8) Represents the aggregate grant date fair value, calculated in accordance with FASB ASC Topic 718, of Dr. Porteus' founder restricted stock granted on March 24, 2020, which was not granted for service as a member of our board of directors.

(9) Amount represents the advisor fees earned by Dr. Porteus during the fiscal year ended December 31, 2020.

(10) As of December 31, 2020, Mr. Rizzuto did not hold any outstanding equity awards.

(11) As of December 31, 2020, Dr. Grazia Roncarolo held 2,334,450 shares of founder restricted stock.

(12) Represents the aggregate grant date fair value, calculated in accordance with FASB ASC Topic 718, of Dr. Grazia Roncarolo's founder restricted stock granted on March 24, 2020, which was not granted for service as a member of our board of directors.

(13) Amount represents the advisor fees earned by Dr. Grazia Roncarolo during the fiscal year ended December 31, 2020.

Non-Employee Director Advisor Agreements

We have entered into an advisor agreement with each of Drs. Porteus and Grazia Roncarolo, our founders. The material terms of their advisor agreements are summarized below.

Matthew Porteus, M.D., Ph.D.

On March 24, 2020, we entered into an advisory agreement with Dr. Porteus (the Porteus Agreement), pursuant to which he serves on our Scientific & Clinical Advisory Board and among other things, provides consulting services to us involving the development of techniques and improvements in the field of CRISPR, cell and gene therapy and derivatives technologies for the prevention and treatment of human disease, assist us in reviewing goals and developing strategies for achieving such goals, advise on scientific research and support the recruitment of personnel in our research and product development activities. As consideration for such services, Dr. Porteus is entitled to receive an annual retainer of $70,000, subject to his performance of services for nine (9) days per quarter. Furthermore, Dr. Porteus received a restricted stock grant of up to 9,290,000 shares, subject to reduction based on our issuance of common stock to Stanford University, as set forth in the applicable restricted stock purchase agreement. The shares of restricted stock are subject to a four year vesting schedule (up to 25% of the total amount of shares granted (to the extent not previously vested) will vest on June 24, 2021, the first anniversary of the date on which we sold preferred stock with aggregate proceeds of at least $10 million and the remaining 75% vests in equal monthly installments thereafter, subject to continued service through each such date); provided, that 887,400 shares vested on June 10, 2020 upon our execution of a term sheet for a license with Stanford and 100% of the then-unvested shares will vest upon a "change in control" (as defined in the Porteus Agreement) subject to Dr. Porteus remaining in continued service through such date. The Porteus Agreement also provides for reimbursement of travel and out-of-pocket expenses incurred by Dr. Porteus in providing serves at our request, with any expense in excess of $500 per month requiring pre-approval by us. Pursuant to the Porteus Agreement, Dr. Porteus is subject to certain standard assignment of intellectual property and confidentiality covenants, as well as twenty-four (24) month post-termination non-solicitation of employees, consultants and customers restrictive covenants.

Maria Grazia Roncarolo, M.D., Ph.D.

On March 26, 2020, we entered into an advisory agreement with Dr. Grazia Roncarolo (the Grazia Roncarolo Agreement), pursuant to which she serves on our Scientific & Clinical Advisory Board and among

other things, provides consulting services to us involving the development of techniques and improvements in the field of CRISPR, cell and gene therapy and derivatives technologies for the prevention and treatment of human disease, assist us in reviewing goals and developing strategies for achieving such goals, advise on scientific research and support the recruitment of personnel in our research and product development activities. As consideration for such services, Dr. Grazia Roncarolo is entitled to receive an annual retainer of $70,000, subject to her performance of services for six (6) days per quarter. Furthermore, Dr. Grazia Roncarolo received a restricted stock grant of 3,000,000 shares, subject to reduction based on our issuance of common stock to Stanford University, as set forth in the applicable restricted stock purchase agreement. The shares of restricted stock are subject to a four year vesting schedule (up to 25% of the total amount of shares granted (to the extent not previously vested) will vest on June 24, 2021, the first anniversary of the date on which we sold preferred stock with aggregate proceeds of at least $10 million and the remaining 75% vests in equal monthly installments thereafter, subject to continued service through each such date); provided, that 665,550 shares vested on June 10, 2020 upon our execution of a term sheet for a license with Stanford and 100% of the then-unvested shares will vest upon a "change in control" (as defined in the Grazia Roncarolo Agreement) subject to Dr. Grazia Roncarolo remaining in continued service through such date. The Grazia Roncarolo Agreement also provides for reimbursement of travel and out-of-pocket expenses incurred by Dr. Grazia Roncarolo in providing serves at our request, with any expense in excess of $500 per month requiring pre-approval by us. Pursuant to the Grazia Roncarolo Agreement, Dr. Grazia Roncarolo is subject to certain standard assignment of intellectual property and confidentiality covenants, as well as twelve (12) month post-termination non-solicitation of employees, consultants and customers restrictive covenants.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

In addition to the compensation arrangements, including employment, termination of employment and change in control arrangements, with our directors and executive officers, including those discussed in the sections titled "Management" and "Executive and Director Compensation," and the registration rights described in the section titled "Description of Capital Stock—Registration Rights," the following is a description of each transaction to which we were or will be a party, since January 1, 2018:

- the amounts involved exceeded or will exceed $120,000 or one percent of the Company's total assets at year end for the last two completed fiscal years; and
- any of our directors, executive officers or holders of more than 5% of our capital stock, or any member of the immediate family of the foregoing persons, or any affiliated entities, had or will have a direct or indirect material interest.

Private Placements of Securities

Series A Redeemable Convertible Preferred Stock Financing

On June 24, 2020, we sold an aggregate of 15,019,945 shares of our Series A redeemable convertible preferred stock at a purchase price of $1.00 per share, for an aggregate purchase price of approximately $15.0 million.

On December 28, 2020, we sold an additional 15,000,000 shares of our Series A redeemable convertible preferred stock at a purchase price of $1.00 per share, for an aggregate purchase price of approximately $15.0 million.

On February 16, 2021, we sold an additional 15,000,000 shares of our Series A redeemable convertible preferred stock at a purchase price of $1.00 per share, for an aggregate purchase price of approximately $15.0 million.

All purchasers of our Series A redeemable convertible preferred stock are entitled to specified registration rights. See the section titled "Description of Capital Stock—Registration Rights" for more information regarding these registration rights.

The following table summarizes the Series A redeemable convertible preferred stock purchased by members of our board of directors or their affiliates and holders of more than 5% of our outstanding capital stock.

Name of Stockholder	Shares of Series A Redeemable Convertible Preferred Stock	Total Purchase Price
Versant Venture Capital VI, L.P.(1)	30,019,945	$ 30,019,945
Samsara BioCapital, L.P.(2)	15,000,000	15,000,000
Total	45,019,945	$ 45,019,945

(1) Versant Venture Capital VI, L.P. (together with its affiliates, Versant Ventures) is a holder of 5% or more of our total outstanding shares, on an as-converted to common stock basis. Jerel Davis, Ph.D. and Carlo Rizzuto, Ph.D., members of our board of directors, are partners at Versant Ventures.

(2) Samsara BioCapital, L.P., together with its affiliates (Samsara BioCapital), is a holder of 5% or more of our total outstanding shares, on an as-converted to common stock basis. Abraham Bassan, a member of our board of directors, is a Vice President at Samsara BioCapital.

Series B Redeemable Convertible Preferred Stock Financing

On March 11, 2021, we sold an aggregate of 29,792,487 shares of our Series B redeemable convertible preferred stock at a purchase price of $5.06 per share, for an aggregate purchase price of approximately $150.7 million.

All purchasers of our Series B redeemable convertible preferred stock are entitled to specified registration rights. See the section titled "Description of Capital Stock—Registration Rights" for more information regarding these registration rights.

The following table summarizes the Series B redeemable convertible preferred stock purchased by our executive officers, members of our board of directors or their affiliates and holders of more than 5% of our outstanding capital stock.

Name of Stockholder	Shares of Series B Redeemable Convertible Preferred Stock	Total Conversion Price
Versant Vantage II, L.P.(1)	3,715,415	$ 18,799,999.90
Entities affiliated with Samsara BioCapital(2)	1,857,708	9,400,002.48
Perry Karsen(3)	19,763	100,000.78
Joseph Jimenez(3)	19,763	100,000.78
Josh Lehrer, M.D.(3)	19,763	100,000.78
Katherine V. Stultz(4)	19,763	100,000.78
Philip P. Gutry(4)	19,763	100,000.78
Total	5,671,938	$ 28,700,006.28

(1) Versant Vantage II, L.P. is a holder of 5% or more of our Series B redeemable convertible preferred stock and a holder of 5% or more of our total outstanding shares, on an as-converted to common stock basis. Jerel Davis, Ph.D. and Carlo Rizzuto, Ph.D., members of our board of directors, are partners at Versant Ventures.

(2) Consists of (i) 1,802,372 shares of Series B redeemable convertible preferred stock held by Samsara BioCapital, L.P. and (ii) 55,336 shares of Series B redeemable convertible preferred stock held by 436, L.P. Samsara BioCapital is a holder of 5% or more of our Series B redeemable convertible preferred stock and a holder of 5% or more of our total outstanding shares, on an as-converted to common stock basis. Abraham Bassan, a member of our board of directors, is a Vice President at Samsara Capital.

(3) Each of Perry Karsen, Joseph Jimenez and Josh Lehrer, M.D. are members of our board of directors.

(4) Each of Josh Lehrer, M.D., Katherine V. Stultz and Philip P. Gutry are our executive officers.

Agreements with Stockholders

Investors' Rights Agreement

On March 11, 2021, we entered into an Amended and Restated Investors' Rights Agreement, as amended to date, which we refer to as our investors' rights agreement, with certain holders of our outstanding redeemable convertible preferred stock, including entities with which certain of our directors are affiliated. After the completion of this offering, the holders of shares of our common stock issuable in connection with the automatic conversion of all outstanding shares of our redeemable convertible preferred stock into common stock, are entitled to rights with respect to the registration of their shares following this offering under the Securities Act. See the section titled "Description of Capital Stock—Registration Rights" for more information regarding these registration rights.

Right of First Refusal and Co-Sale Agreement

On March 11, 2021, we entered into an Amended and Restated Right of First Refusal and Co-Sale Agreement, as amended to date, which we refer to as our right of first refusal and co-sale agreement, which

imposes restrictions on the transfer of our capital stock. Upon the completion of this offering, the right of first refusal and co-sale agreement will terminate and the restrictions on the transfer of our capital stock set forth in this agreement will no longer apply.

Voting Agreement

On March 11, 2021, we entered into an Amended and Restated Voting Agreement, as amended to date, which we refer to as our voting agreement, under which certain holders of our capital stock, including persons who hold more than 5% of our outstanding capital stock and entities with which certain of our directors are affiliated, have agreed to vote their shares on certain matters, including with respect to the election of directors. Upon the completion of this offering, the voting agreement will terminate and none of our stockholders will have any special rights regarding the election or designation of members of our board of directors or the voting of our capital stock of the company.

Executive Officer and Director Compensation

See the sections titled "Executive Compensation" and "Director Compensation" for information regarding compensation of our executive officers and directors.

Indemnification Agreements

In connection with this offering, we intend to enter into new agreements to indemnify our directors and executive officers. These agreements and our amended and restated certificate of incorporation and amended and restated bylaws will, among other things, require us to indemnify these individuals for certain expenses (including attorneys' fees), judgments, fines and settlement amounts reasonably incurred by such person in any action or proceeding, including any action by or in our right, on account of any services undertaken by such person on behalf of our Company or that person's status as a member of our board of directors to the maximum extent allowed under Delaware law.

Policies for Approval of Related Party Transactions

Prior to this offering, we have not had a formal policy regarding approval of transactions with related parties. Prior to the completion of this offering, we expect to adopt a written related person transaction policy that sets forth our procedures for the identification, review, consideration and approval or ratification of related person transactions. The policy will become effective immediately upon the execution of the underwriting agreement for this offering. For purposes of our policy only, a related person transaction is a transaction, arrangement or relationship, or any series of similar transactions, arrangements or relationships, in which we and any related person are, were, or will be participants and in which the amount involved exceeds $120,000 or one percent of the Company's total assets at year end for the last two completed fiscal years. Transactions involving compensation for services provided to us as an employee or director are not covered by this policy. A related person is any executive officer, director, or beneficial owner of more than 5% of any class of our voting securities, including any of their immediate family members and any entity owned or controlled by such persons.

Under the policy, if a transaction has been identified as a related person transaction, including any transaction that was not a related person transaction when originally consummated or any transaction that was not initially identified as a related person transaction prior to consummation, our management must present information regarding the related person transaction to our audit committee, or, if audit committee approval would be inappropriate, to another independent body of our board of directors, for review, consideration, and approval or ratification. The presentation must include a description of, among other things, the material facts, the interests, direct and indirect, of the related persons, the benefits to us of the transaction, and whether the transaction is on terms that are comparable to the terms available to or from, as the case may be, an unrelated third party or to or from employees generally. Under the policy, we will collect information that we deem reasonably necessary from each director, executive officer, and, to the extent feasible, significant stockholder to enable us to identify any existing or potential related person transactions and to effectuate the terms of the policy.

In addition, under our Code of Business Conduct and Ethics, which we intend to adopt in connection with this offering, our employees and directors have an affirmative responsibility to disclose any transaction or relationship that reasonably could be expected to give rise to a conflict of interest.

In considering related person transactions, our audit committee, or other independent body of our board of directors, will take into account the relevant available facts and circumstances including, but not limited to:

- the risks, costs, and benefits to us;
- the impact on a director's independence in the event that the related person is a director, immediate family member of a director, or an entity with which a director is affiliated;
- the availability of other sources for comparable services or products; and
- the terms available to or from, as the case may be, unrelated third parties or to or from employees generally.

The policy requires that, in determining whether to approve, ratify, or reject a related person transaction, our audit committee, or other independent body of our board of directors, must consider, in light of known circumstances, whether the transaction is in, or is not inconsistent with, our best interests and those of our stockholders, as our audit committee, or other independent body of our board of directors, determines in the good faith exercise of its discretion. All of the transactions described above were entered into prior to the adoption of the written policy, but all were approved by our board of directors considering similar factors to those described above.

PRINCIPAL STOCKHOLDERS

The following table presents information concerning the beneficial ownership of the shares of our common stock as of , 2021 by:

- each person we know to be the beneficial owner of 5% or more of our outstanding shares of our capital stock;
- each of our directors;
- each of our named executive officers; and
- all of our current executive officers and directors as a group.

We have determined beneficial ownership in accordance with SEC rules. The information does not necessarily indicate beneficial ownership for any other purpose. Under these rules, a person is deemed to be a beneficial owner of our common stock if that person has a right to acquire ownership within 60 days by the exercise of options or the conversion of our redeemable convertible preferred stock. A person is also deemed to be a beneficial owner of our common stock if that person has or shares voting power, which includes the power to vote or direct the voting of our common stock, or investment power, which includes the power to dispose of or to direct the disposition of such capital stock. Except in cases where community property laws apply or as indicated in the footnotes to this table, we believe that each stockholder identified in the table possesses sole voting and investment power over all shares of common stock shown as beneficially owned by the stockholder.

Percentage of beneficial ownership in the table below is based on shares of common stock deemed to be outstanding as of , 2021, assuming the automatic conversion of all outstanding shares of our redeemable convertible preferred stock into common stock, immediately prior to the completion of this offering. The table below assumes that the underwriters do not exercise their over-allotment option. Shares of common stock subject to options that are currently exercisable or exercisable within 60 days of , 2021 are considered outstanding and beneficially owned by the person holding the options for the purpose of computing the percentage ownership of that person but are not treated as outstanding for the purpose of computing the percentage ownership of any other person. Unless otherwise indicated below, the address of each individual listed below is c/o Graphite Bio, Inc., 279 East Grand Avenue, Suite 430, South San Francisco, CA 94080.

Name and Address of Beneficial Owner	Number of Shares Beneficially Owned	Percentage of Shares Beneficially Owned Before Offering	Percentage of Shares Beneficially Owned After Offering
5% or Greater Stockholders:			
Entities Affiliated with Versant Ventures[1]		%	%
Entities Affiliated with Samsara BioCapital[2]		%	%
Matthew Porteus, M.D., Ph.D.[3]		%	%
Named Executive Officers and Directors:			
Josh Lehrer, M.D.		%	%
Katherine V. Stultz		%	%
Philip P. Gutry		%	%
Perry Karsen		%	%
Abraham Bassan		%	%
Jerel Davis, Ph.D.		%	%
Kristen M. Hege, M.D.		%	%
Joseph Jimenez		%	%
Matthew Porteus, M.D., Ph.D.		%	%
Carlo Rizzuto, Ph.D.		%	%
Smital Shah		%	%
Jo Viney, Ph.D.		%	%
All executive officers and directors as a group (12 persons)		%	%

* Represents beneficial ownership of less than one percent.

(1) Consists of (i) shares of common stock held by Versant Venture Capital VI, L.P., or Versant VI, (ii) shares of common stock issuable upon conversion of redeemable convertible preferred stock directly held by Versant VI, and (iii) shares of common stock issuable upon conversion of redeemable convertible preferred stock directly held by Versant Vantage II, L.P. or Versant Vantage II, and together with Versant VI, the Versant Funds. Versant Ventures VI GP, L.P. is the sole general partner of Versant VI, and Versant Ventures VI GP-GP, LLC is the sole general partner of Versant Ventures VI GP, L.P. and has voting and dispositive control over the shares held by Versant VI. Each of Bradley J. Bolzon, Jerel C. Davis, Ph.D., Kirk G. Nielsen, Clare Ozawa, Robin L. Praeger, and Thomas Woiwode Ph.D., are the managing directors of Versant Ventures VI GP-GP, LLC, may be deemed to possess voting and dispositive control over the shares held by Versant VI and may be deemed to have indirect beneficial ownership of the shares held by Versant VI but disclaims beneficial ownership of such securities, except to the extent of their respective pecuniary interest therein, if any. Versant Vantage II GP, L.P. is the sole general partner of Versant Vantage II and Versant Vantage II GP-GP, LLC is the sole general partner of Versant Vantage II GP, L.P. and has voting and dispositive control over the shares held by Versant Vantage II. Each of Bradley J. Bolzon, Jerel C. Davis, Ph.D., Alexander Mayweg, Clare Ozawa, Robin L. Praeger, and Thomas Woiwode Ph.D., are the managing directors of Versant Vantage II GP-GP, LLC, may be deemed to possess voting and dispositive control over the shares held by Versant Vantage II and may be deemed to have indirect beneficial ownership of the shares held by Versant Vantage II but disclaims beneficial ownership of such securities, except to the extent of their respective pecuniary interest therein, if any. Dr. Davis is a member of our board of directors. The address for the Versant Funds is One Sansome Street, Suite 3630, San Francisco, CA 94104.

(2) Consists of (i) shares common stock issuable upon conversion of redeemable convertible preferred stock held by Samsara BioCapital, L.P., or Samsara LP and (ii) shares common stock issuable upon conversion of redeemable convertible preferred stock held by 436, L.P. The general partner of Samsara LP is Samsara BioCapital GP, LLC, or Samsara LLC. The general partner of 436, L.P. is 436, LLC. Voting and dispositive decisions with respect to the shares held by Samsara LP and 436, L.P. are made by Dr. Srinivas Akkaraju, MD, Ph.D., a manager of Samsara GP LLC and 436, LLC, and, accordingly, Dr. Akkaraju may be deemed to beneficially own the shares held by Samsara LP. And 436, L.P. The address of the principal business and office of Samsara LP and 436, L.P. is 628 Middlefield Road, Palo Alto, CA 94301.

(3) Consists of shares of common stock held by Dr. Porteus.

DESCRIPTION OF CAPITAL STOCK

Upon the completion of this offering, our authorized capital stock will consist of shares of common stock, par value $0.00001 per share, and shares of preferred stock, par value $0.00001 per share, all of which will be undesignated, and there will be shares of common stock outstanding and no shares of preferred stock outstanding. As of March 31, 2021, we had approximately 52 record holders of our capital stock. All of our outstanding shares of redeemable convertible preferred stock will convert into shares of our common stock immediately prior to the completion of this offering. In addition, upon the completion of this offering, options to purchase shares of our common stock will be outstanding and shares of our common stock will be reserved for future grants under our equity incentive plans.

The following description of our capital stock and provisions of our amended and restated certificate of incorporation and bylaws are summaries of material terms and provisions and are qualified by reference to our amended and restated certificate of incorporation and bylaws, copies of which have been filed with the SEC as exhibits to the registration statement of which this prospectus is a part. The descriptions of our common stock and preferred stock reflect amendments to our amended and restated certificate of incorporation and bylaws that will become effective immediately prior to the completion of this offering.

Common Stock

Upon the completion of this offering, we will be authorized to issue one class of common stock. Holders of our common stock are entitled to one vote for each share of common stock held of record for the election of directors and on all matters submitted to a vote of stockholders. Except as described under "Anti-Takeover Effects of Delaware Law and Provisions of Our Amended and Restated Certificate of Incorporation and Bylaws" below, a majority vote of the holders of common stock is generally required to take action under our amended and restated certificate of incorporation and bylaws. Holders of our common stock are entitled to receive dividends ratably, if any, as may be declared by our board of directors out of legally available funds, subject to any preferential dividend rights of any preferred stock then outstanding. Upon our dissolution, liquidation or winding up, holders of our common stock are entitled to share ratably in our net assets legally available after the payment of all our debts and other liabilities, subject to the preferential rights of any preferred stock then outstanding. Holders of our common stock have no preemptive, subscription, redemption or conversion rights and no sinking fund provisions are applicable to our common stock. The rights, preferences and privileges of holders of common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock that we may designate and issue in the future.

Convertible Preferred Stock

Immediately prior to completion of this offering, all outstanding shares of our redeemable convertible preferred stock will be converted into shares of our common stock. Upon the completion of this offering, our board of directors will be authorized, without action by the stockholders, to designate and issue up to an aggregate of shares of preferred stock in one or more series. Our board of directors can designate the rights, preferences and privileges of the shares of each series and any of its qualifications, limitations or restrictions. Our board of directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of common stock. The issuance of preferred stock, while providing flexibility in connection with possible future financings and acquisitions and other corporate purposes could, under certain circumstances, have the effect of restricting dividends on our common stock, diluting the voting power of our common stock, impairing the liquidation rights of our common stock, or delaying, deferring or preventing a change in control of our Company, which might harm the market price of our common stock. See also "—Anti-Takeover Effects of Delaware Law and Provisions of Our Amended and Restated Certificate of Incorporation and Bylaws—Provisions of Our Amended and Restated Certificate of Incorporation and Bylaws—Undesignated Preferred Stock" below.

Our board of directors will make any determination to issue such shares based on its judgment as to our Company's best interests and the best interests of our stockholders. Upon the completion of this offering, we will have no shares of preferred stock outstanding and we have no current plans to issue any shares of preferred stock following completion of this offering.

Options

As of March 31, 2021, we had outstanding options to purchase 5,538,444 shares of our common stock, with a per share weighted-average exercise price of $2.06 per share under our 2020 Plan.

Registration Rights

Upon the completion of this offering, the holders of shares of our common stock, including shares issuable upon the automatic conversion of our redeemable convertible preferred stock, or their permitted transferees, which we refer to as our registrable securities, are entitled to rights with respect to the registration of these securities under the Securities Act. These rights are provided under the terms of the investor rights agreement. The investor rights agreement includes demand registration rights, short-form registration rights and piggyback registration rights. All fees, costs and expenses incurred in connection with registrations under the investor rights agreement will be borne by us, and all selling expenses, including estimated underwriting discounts and selling commissions, will be borne by the holders of the shares being registered.

Demand Registration Rights

Beginning 180 days after the effective date of this registration statement, the holders of our registrable securities are entitled to demand registration rights. Under the terms of our investor rights agreement, we will be required, upon the request of holders of at least a majority of our outstanding registrable securities, to file a registration statement and use commercially reasonable efforts to effect the registration of these shares for public resale. We are required to effect up to two registrations pursuant to this provision of the investor rights agreement.

Short-Form Registration Rights

Upon the completion of this offering, the holders of our registrable securities are also entitled to short form registration rights. Pursuant to our investor rights agreement, if we are eligible to file a registration statement on Form S-3, upon the request of holders of at least 20% of our outstanding registrable securities to sell registrable securities with an anticipated aggregate offering amount of at least $5.0 million net of certain expenses related to the offering, we will be required to use our commercially reasonable efforts to effect a registration of such shares. We are required to effect up to two registrations in any twelve month period pursuant to this provision of the investor rights agreement.

Piggyback Registration Rights

The holders of our registrable securities are entitled to piggyback registration rights. If we register any of our securities either for our own account or for the account of other security holders, the holders of our outstanding registrable securities are entitled to include their shares in the registration. Subject to certain exceptions contained in the investor rights agreement, we and the underwriters may limit the number of shares included in the underwritten offering if the underwriters determine that marketing factors require a limitation of the number of shares to be underwritten.

Indemnification

Our investor rights agreement contains customary cross-indemnification provisions, under which we are obligated to indemnify holders of registrable securities in the event of material misstatements or omissions in the registration statement attributable to us, and they are obligated to indemnify us for material misstatements or omissions attributable to them.

Expenses of Registration

We will pay the registration expenses, subject to certain limited exceptions contained in the investor rights agreement, of the holders of the shares registered pursuant to the demand, short form and piggyback registration rights described above, including the expenses of one counsel for the selling holders.

Expiration of Registration Rights

The registration rights granted under the investor rights agreement will terminate upon the earlier of (i) a deemed liquidation event, as defined in our amended and restated certificate of incorporation (as in effect prior to the completion of this offering) or certain other events constituting a sale of the company, (ii) at such time after our initial public offering when all registrable securities could be sold under Rule 144 of the Securities Act or a similar exemption without limitation during a three-month period without registration or (iii) the fifth anniversary of our initial public offering.

Anti-Takeover Effects of Delaware Law and Provisions of Our Amended and Restated Certificate of Incorporation and Bylaws

Certain provisions of the Delaware General Corporation Law and of our amended and restated certificate of incorporation and bylaws that will become effective immediately prior to the completion of this offering could have the effect of delaying, deferring or discouraging another party from acquiring control of us. These provisions, which are summarized below, are expected to discourage certain types of coercive takeover practices and inadequate takeover bids and, as a consequence, they might also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. These provisions are also designed in part to encourage anyone seeking to acquire control of us to first negotiate with our board of directors. These provisions might also have the effect of preventing changes in our management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders might otherwise deem to be in their best interests. However, we believe that the advantages gained by protecting our ability to negotiate with any unsolicited and potentially unfriendly acquirer outweigh the disadvantages of discouraging such proposals, including those priced above the then-current market value of our common stock, because, among other reasons, the negotiation of such proposals could improve their terms.

Delaware Takeover Statute

Upon completion of this offering, we will be subject to the provisions of Section 203 of the Delaware General Corporation Law. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a three-year period following the time that this stockholder becomes an interested stockholder, unless the business combination is approved in a prescribed manner. Under Section 203, a business combination between a corporation and an interested stockholder is prohibited unless it satisfies one of the following conditions:

- before the stockholder became interested, our board of directors approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding, shares owned by persons who are directors and also officers, and employee stock plans, in some instances, but not the outstanding voting stock owned by the interested stockholder; or
- at or after the time the stockholder became interested, the business combination was approved by our board of directors and authorized at an annual or special meeting of the stockholders by the affirmative vote of at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

Section 203 defines a business combination to include:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, lease, pledge, exchange, mortgage or other disposition involving the interested stockholder of 10% or more of the assets of the corporation;
- subject to exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;
- subject to exceptions, any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder; or
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 defines an interested stockholder as any entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by the entity or person.

Provisions of Our Amended and Restated Certificate of Incorporation and Bylaws

Our amended and restated certificate of incorporation and bylaws to be in effect immediately prior to completion of this offering will include a number of provisions that may have the effect of delaying, deferring or discouraging another party from acquiring control of us and encouraging persons considering unsolicited tender offers or other unilateral takeover proposals to negotiate with our board of directors rather than pursue non-negotiated takeover attempts. These provisions include the items described below.

Board composition and filling vacancies. In accordance with our amended and restated certificate of incorporation, our board is divided into three classes serving staggered three-year terms, with one class being elected each year. Our amended and restated certificate of incorporation also provides that directors may be removed only for cause and then only by the affirmative vote of the holders of 75% or more of the shares then entitled to vote at an election of directors. Furthermore, any vacancy on our board of directors, however occurring, including a vacancy resulting from an increase in the size of our board, may only be filled by the affirmative vote of a majority of our directors then in office even if less than a quorum.

No written consent of stockholders. Our amended and restated certificate of incorporation provides that all stockholder actions are required to be taken by a vote of the stockholders at an annual or special meeting, and that stockholders may not take any action by written consent in lieu of a meeting. This limit may lengthen the amount of time required to take stockholder actions and would prevent the amendment of our bylaws or removal of directors by our stockholder without holding a meeting of stockholders.

Meetings of stockholders. Our bylaws provide that only a majority of the members of our board of directors then in office may call special meetings of stockholders and only those matters set forth in the notice of the special meeting may be considered or acted upon at a special meeting of stockholders. Our bylaws limit the business that may be conducted at an annual meeting of stockholders to those matters properly brought before the meeting.

Advance notice requirements. Our bylaws establish advance notice procedures with regard to stockholder proposals relating to the nomination of candidates for election as directors or new business to be brought before meetings of our stockholders. These procedures provide that notice of stockholder proposals must be timely given in writing to our corporate secretary prior to the meeting at which the action is to be taken. Generally, to be timely, notice must be received at our principal executive offices not less than 90 days or more than 120 days prior to the first anniversary date of the annual meeting for the preceding year. The notice must contain certain information specified in our bylaws.

Amendment to certificate of incorporation and bylaws. As required by the Delaware General Corporation Law, any amendment of our amended and restated certificate of incorporation must first be approved by a majority of our board of directors, and if required by law or our amended and restated certificate of incorporation, must thereafter be approved by a majority of the outstanding shares entitled to vote on the amendment, and a majority of the outstanding shares of each class entitled to vote thereon as a class, except that the amendment of the provisions relating to stockholder action, directors, limitation of liability and the amendment of our amended and restated certificate of incorporation must be approved by not less than two-thirds of the outstanding shares entitled to vote on the amendment, and not less than 75% of the outstanding shares of each class entitled to vote thereon as a class. Our bylaws may be amended by the affirmative vote of a majority vote of the directors then in office, subject to any limitations set forth in the bylaws; and may also be amended by the affirmative vote of at least 75% of the outstanding shares entitled to vote on the amendment, or, if the board of directors recommends that the stockholders approve the amendment, by the affirmative vote of the majority of the outstanding shares entitled to vote on the amendment, in each case voting together as a single class.

Undesignated preferred stock. Our amended and restated certificate of incorporation provides for authorized shares of preferred stock. The existence of authorized but unissued shares of preferred stock may enable our board of directors to render more difficult or to discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise. For example, if in the due exercise of its fiduciary obligations, our board of directors were to determine that a takeover proposal is not in the best interests of us or our stockholders, our board of directors could cause shares of preferred stock to be issued without stockholder approval in one or more private offerings or other transactions that might dilute the voting or other rights of the proposed acquirer or insurgent stockholder or stockholder group. In this regard, our amended and restated certificate of incorporation grants our board of directors' broad power to establish the rights and preferences of authorized and unissued shares of preferred stock. The issuance of shares of preferred stock could decrease the amount of earnings and assets available for distribution to holders of shares of common stock. The issuance may also adversely affect the rights and powers, including voting rights, of these holders and may have the effect of delaying, deterring or preventing a change in control of us.

Exclusive forum. Our amended and restated bylaws provide that the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for any state law claims for: (i) any derivative action or proceeding brought on behalf of our Company, (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our current or former directors, officers or employees to our Company or our stockholders, (iii) any action asserting a claim against arising pursuant to any provision of the Delaware General Corporation Law or our certificate of incorporation or bylaws (including their interpretation, validity or enforceability), or (iv) any action asserting a claim against our Company governed by the internal affairs doctrine. This exclusive forum provision will not apply to any causes of action arising under the Securities Act or the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction. In addition, unless we consent in writing to the selection of an alternate forum, the United States District Courts shall be the sole and exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act. In addition, our amended and restated bylaws provide that any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock is deemed to have notice of and consented to these exclusive forum provisions. The forum selection provisions in our amended and restated bylaws may limit our stockholders' ability to litigate disputes with us in a judicial forum that they find favorable for disputes with us or our directors, officers or employees, which may discourage the filing of lawsuits against us and our directors, officers and employees, even though an action, if successful, might benefit our stockholders. In addition, these forum selection provisions may impose additional litigation costs for stockholders who determine to pursue any such lawsuits against us. Although our amended and restated bylaws contain the choice of forum provisions described above, it is possible that a court could rule that such provisions are inapplicable for a particular claim or action or that such provisions are unenforceable.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer & Trust Company, LLC. The transfer agent and registrar's address is 6201 15th Avenue, Brooklyn, New York 11219.

Listing

We have applied to list our common stock on the Nasdaq Global Market under the symbol "GRPH."

Limitations of Liability and Indemnification Matters

For a discussion of liability and indemnification, see the section titled "Management—Limitation on Liability and Indemnification Matters."

SHARES ELIGIBLE FOR FUTURE SALE

Prior to this offering, there has been no public market for our common stock. Future sales of our common stock in the public market, or the availability of such shares for sale in the public market, could adversely affect market prices prevailing from time to time. As described below, only a limited number of shares will be available for sale shortly after this offering due to contractual and legal restrictions on resale. Nevertheless, sales of our common stock in the public market after such restrictions lapse, or the perception that those sales may occur, could adversely affect the prevailing market price at such time and our ability to raise equity capital in the future.

Sale of Restricted Shares

Based on the number of shares of common stock outstanding as of March 31, 2021, upon completion of this offering, shares of common stock will be outstanding, assuming no exercise by the underwriters of their over-allotment option and no exercise of options. All of the shares sold in this offering will be freely tradable. The remaining shares of common stock outstanding after this offering will be restricted as a result of securities laws or lock-up agreements as described below. Following the expiration of the lock-up period, all shares will be eligible for resale in compliance with Rule 144 or Rule 701 under the Securities Act. "Restricted securities" as defined under Rule 144 of the Securities Act were issued and sold by us in reliance on exemptions from the registration requirements of the Securities Act. These shares may be sold in the public market only if registered or qualified for an exemption from registration, such as under Rule 144 or Rule 701 under the Securities Act.

Rule 144

In general, a person who has beneficially owned restricted stock for at least six months would be entitled to sell their securities provided that (i) such person is not deemed to have been one of our affiliates at the time of, or at any time during the 90 days preceding, a sale and (ii) we are subject to the Exchange Act periodic reporting requirements for at least 90 days before the sale. Persons who have beneficially owned restricted shares for at least six months but who are our affiliates at the time of, or any time during the 90 days preceding, a sale, would be subject to additional restrictions, by which such person would be entitled to sell within any three-month period only a number of securities that does not exceed the greater of either of the following:

- 1% of the number of shares then outstanding, which will equal approximately shares immediately after this offering assuming no exercise of the underwriters' over-allotment option, based on the number of shares outstanding as of March 31, 2021; or
- the average weekly trading volume of our common stock on the Nasdaq Global Market during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale;

provided, in each case, that we have been subject to the Exchange Act periodic reporting requirements for at least 90 days before the sale. Such sales both by affiliates and by non-affiliates must also comply with the manner of sale, current public information and notice provisions of Rule 144.

Rule 701

Rule 701 under the Securities Act (Rule 701), as in effect on the date of this prospectus, permits resales of shares in reliance upon Rule 144 but without compliance with certain restrictions of Rule 144, including the holding period requirement. Most of our employees, executive officers or directors who purchased shares under a written compensatory plan or contract may be entitled to rely on the resale provisions of Rule 701, but all holders of Rule 701 shares are required to wait until 90 days after the date of this prospectus before selling their shares. However, substantially all Rule 701 shares are subject to lock-up agreements as described below and under the section titled "Underwriting" included elsewhere in this prospectus and will become eligible for sale upon the expiration of the restrictions set forth in those agreements.

Lock-up Agreements

In connection with this offering, we, each of our directors and executive officers, and holders of substantially all of our securities have agreed with the underwriters that for a period of 180 days following the date of this prospectus, among other things and subject to certain exceptions, we and they will not offer, sell, assign, transfer, pledge, contract to sell or otherwise dispose of or hedge any shares of our common stock or any securities convertible into or exchangeable for shares of our common stock. The representatives of the underwriters may, in their sole discretion, at any time, release all or any portion of the shares from the restrictions in that agreement.

Rule 10b5-1 Trading Plans

Following the completion of this offering, certain of our officers, directors and significant stockholders may adopt written plans, known as Rule 10b5-1 trading plans, in which they will contract with a broker to buy or sell shares of our common stock on a periodic basis to diversify their assets and investments. Under these 10b5-1 trading plans, a broker may execute trades pursuant to parameters established by the officer, director or stockholder when entering into the plan, without further direction from such officer, director or stockholder. Such sales would not commence until the expiration of the applicable lock-up agreements entered into by such officer, director or stockholder in connection with this offering.

Registration Rights

We are party to an investor rights agreement which provides that holders holding shares of our common stock, including shares issuable upon the automatic conversion of our redeemable convertible preferred stock, have the right to demand that we file a registration statement or request that their shares of our common stock be covered by a registration statement that we are otherwise filing. See the section titled "Description of Capital Stock—Registration Rights" in this prospectus. Except for shares purchased by affiliates, registration of their shares under the Securities Act would result in these shares becoming freely tradable without restriction under the Securities Act immediately upon effectiveness of the registration, subject to the expiration of the lock-up period described above and under the section titled "Underwriting" in this prospectus, and to the extent such shares have been released from any repurchase option that we may hold.

Equity Incentive Plans

As soon as practicable after the completion of this offering, we intend to file a Form S-8 registration statement under the Securities Act to register shares of our common stock subject to options and other equity awards outstanding or reserved for issuance under our equity incentive plans. This registration statement will become effective immediately upon filing, and shares covered by this registration statement will thereupon be eligible for sale in the public markets, subject to Rule 144 limitations applicable to affiliates and any lock-up agreements. For a more complete discussion of our equity incentive plans, see the section titled "Executive and Director Compensation—Employee Benefits and Stock Plans."

MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS TONON-U.S. HOLDERS

The following discussion is a summary of the material U.S. federal income tax considerations applicable tonon-U.S. holders (as defined below) with respect to their ownership and disposition of shares of our common stock issued pursuant to this offering. For purposes of this discussion, a non-U.S. holder means a beneficial owner of our common stock that is for U.S. federal income tax purposes:

- a non-resident alien individual;
- a foreign corporation or any other foreign organization taxable as a corporation for U.S. federal income tax purposes; or
- a foreign estate or trust, the income of which is not subject to U.S. federal income tax on a net income basis.

This discussion does not address the tax treatment of partnerships or other entities that arepass-through entities for U.S. federal income tax purposes or persons that hold their common stock through partnerships or other pass-through entities. A partner in a partnership or an investor in any other pass-through entity that will hold our common stock should consult his, her or its tax advisor regarding the tax consequences of acquiring, holding and disposing of our common stock through a partnership or other pass-through entity, as applicable.

This discussion is based on current provisions of the Internal Revenue Code of 1986 as amended (the Code), existing and proposed U.S. Treasury Regulations promulgated thereunder, current administrative rulings and judicial decisions, all as in effect as of the date of this prospectus and, all of which are subject to change or to differing interpretation, possibly with retroactive effect. Any such change or differing interpretation could alter the tax consequences to non-U.S. holders described in this prospectus. There can be no assurance that the Internal Revenue Service, which we refer to as the IRS, will not challenge one or more of the tax consequences described herein. We assume in this discussion that a non-U.S. holder holds shares of our common stock as a capital asset within the meaning of Section 1221 of the Code, generally property held for investment.

This discussion does not address all aspects of U.S. federal income taxation that may be relevant to a particulamon-U.S. holder in light of that non-U.S. holder's individual circumstances including the alternative minimum tax, or the Medicare tax on net investment income, the rules regarding qualified small business stock within the meaning of Section 1202 of the Code and any election to apply Section 1400Z-2 of the Code to gains recognized with respect to shares of our common stock. This discussion also does not address any U.S. state, local or non-U.S. taxes or any other aspect of any U.S. federal tax other than the income tax. This discussion also does not consider any specific facts or circumstances that may apply to a non-U.S. holder and does not address the special tax rules applicable to particular non-U.S. holders, such as:

- insurance companies;
- tax-exempt or governmental organizations;
- financial institutions;
- brokers or dealers in securities;
- regulated investment companies;
- pension plans;
- "controlled foreign corporations," "passive foreign investment companies," and corporations that accumulate earnings to avoid U.S. federal income tax;
- "qualified foreign pension funds," or entities wholly owned by a "qualified foreign pension fund";
- partnerships or other entities or arrangements treated as partnerships for U.S. federal income tax purposes (and partners and investors therein);

- persons deemed to sell our common stock under the constructive sale provisions of the Code;
- persons that hold our common stock as part of a straddle, hedge, conversion transaction, synthetic security or other integrated investment;
- persons who have elected to mark securities to market;
- persons who hold or receive our common stock pursuant to the exercise of any employee stock option or otherwise as compensation;
- certain U.S. expatriates; and
- persons subject to special tax accounting rules as a result of any item of gross income with respect to the common stock being taken into account in an applicable financial statement under Section 451(b) of the Code.

This discussion is for general information only and is not tax advice. Accordingly, all prospective non-U.S. holders of our common stock should consult their tax advisors with respect to the U.S. federal, state, local and non-U.S. tax consequences of the purchase, ownership and disposition of our common stock.

Distributions on Our Common Stock

Distributions, if any, on our common stock will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. If a distribution exceeds our current and accumulated earnings and profits, the excess will be treated as a tax-free return of the non-U.S. holder's investment, up to such holder's tax basis in the common stock. Any remaining excess will be treated as capital gain, subject to the tax treatment described below in "Gain on Sale of Other Taxable Disposition of our Common Stock." Any such distributions will also be subject to the discussions below under the sections titled "Backup Withholding and Information Reporting" and "Withholding and Information Reporting Requirements—FATCA."

Subject to the discussion in the following two paragraphs in this section, dividends paid to a non-U.S. holder generally will be subject to withholding of U.S. federal income tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence. If we or another withholding agent apply over-withholding or if a non-U.S. holder does not timely provide us with the required certification, the non-U.S. holder may be entitled to a refund or credit of any excess tax withheld by timely filing an appropriate claim with the IRS.

Dividends that are treated as effectively connected with a trade or business conducted by a non-U.S. holder within the United States and, if an applicable income tax treaty so provides, that are attributable to a permanent establishment or a fixed base maintained by the non-U.S. holder within the United States, are generally exempt from the 30% withholding tax if the non-U.S. holder satisfies applicable certification and disclosure requirements. However, such U.S. effectively connected income, net of specified deductions and credits, is taxed at the same graduated U.S. federal income tax rates applicable to U.S. persons (as defined in the Code). Any U.S. effectively connected income received by a non-U.S. holder that is a corporation may also, under certain circumstances, be subject to an additional "branch profits tax" at a 30% rate or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence.

A non-U.S. holder of our common stock who claims the benefit of an applicable income tax treaty between the United States and such holder's country of residence generally will be required to provide a properly executed IRS Form W-8BEN or W-8BEN-E (or successor form) to the applicable withholding agent and satisfy applicable certification and other requirements. Non-U.S. holders are urged to consult their tax advisors regarding their entitlement to benefits under a relevant income tax treaty. A non-U.S. holder that is eligible for a reduced rate of U.S. withholding tax under an income tax treaty may obtain a refund or credit of any excess amounts withheld by timely filing a U.S. tax return with the IRS.

Gain on Sale or Other Taxable Disposition of Our Common Stock

Subject to the discussions below under sections titled "Backup Withholding and Information Reporting" and "Withholding and Information Reporting Requirements—FATCA," a non-U.S. holder generally will not be subject to any U.S. federal income tax on any gain realized upon such holder's sale or other taxable disposition of shares of our common stock unless:

- the gain is effectively connected with the non-U.S. holder's conduct of a U.S. trade or business and, if an applicable income tax treaty so provides, is attributable to a permanent establishment or a fixed-base maintained by such non-U.S. holder in the United States, in which case the non-U.S. holder generally will be taxed on a net income basis at the graduated U.S. federal income tax rates applicable to United States persons (as defined in the Code) and, if the non-U.S. holder is a foreign corporation, the branch profits tax described above in "Distributions on Our Common Stock" also may apply;
- the non-U.S. holder is a nonresident alien individual who is present in the United States for 183 days or more in the taxable year of the disposition and certain other conditions are met, in which case the non-U.S. holder will be subject to a 30% tax (or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence) on the net gain derived from the disposition, which may be offset by certain U.S. source capital losses of the non-U.S. holder, if any (even though the individual is not considered a resident of the United States), provided that the non-U.S. holder has timely filed U.S. federal income tax returns with respect to such losses; or
- we are, or have been, at any time during the five-year period preceding such sale of other taxable disposition (or the non-U.S. holder's holding period, if shorter) a "U.S. real property holding corporation," unless our common stock is regularly traded on an established securities market, within the meaning of the relevant provisions of the Code, and the non-U.S. holder holds no more than 5% of our outstanding common stock, directly or indirectly, actually or constructively, during the shorter of the 5-year period ending on the date of the disposition or the period that the non-U.S. holder held our common stock. Generally, a corporation is a U.S. real property holding corporation only if the fair market value of its U.S. real property interests equals or exceeds 50% of the sum of the fair market value of its worldwide real property interests plus its other assets used or held for use in a trade or business. Although there can be no assurance, we do not believe that we are, or have been, a U.S. real property holding corporation, or that we are likely to become one in the future. No assurance can be provided that our common stock will be regularly traded on an established securities market for purposes of the rules described above.

Backup Withholding and Information Reporting

We must report annually to the IRS and to each non-U.S. holder the gross amount of the distributions on our common stock paid to such holder and the tax withheld, if any, with respect to such distributions. Non-U.S. holders may have to comply with specific certification procedures to establish that the holder is not a U.S. person (as defined in the Code) in order to avoid backup withholding at the applicable rate with respect to dividends on our common stock. Dividends paid to non-U.S. holders subject to withholding of U.S. federal income tax, as described above in "Distributions on Our Common Stock," generally will be exempt from U.S. backup withholding.

Information reporting and backup withholding will generally apply to the proceeds of a disposition of our common stock by a non-U.S. holder effected by or through the U.S. office of any broker, U.S. or foreign, unless the holder certifies its status as a non-U.S. holder and satisfies certain other requirements, or otherwise establishes an exemption. Generally, information reporting and backup withholding will not apply to a payment of disposition proceeds to a non-U.S. holder where the transaction is effected outside the United States through a non-U.S. office of a broker. However, for information reporting purposes, dispositions effected through a non-U.S. office of a broker with substantial U.S. ownership or operations generally will be treated in a manner similar to dispositions effected through a U.S. office of a broker. Non-U.S. holders should consult their tax advisors regarding the application of the information reporting and backup withholding rules to them. Copies of

information returns may be made available to the tax authorities of the country in which the non-U.S. holder resides or is incorporated under the provisions of a specific treaty or agreement. Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules from a payment to a non-U.S. holder can be refunded or credited against the non-U.S. holder's U.S. federal income tax liability, if any, provided that an appropriate claim is filed with the IRS in a timely manner.

Withholding and Information Reporting Requirements—FATCA

Provisions of the Code commonly referred to as the Foreign Account Tax Compliance Act (FATCA), generally imposes a U.S. federal withholding tax at a rate of 30% on certain types of payments made to a foreign entity unless (i) if the foreign entity is a "foreign financial institution," such foreign entity undertakes certain due diligence, reporting, withholding, and certification obligations, (ii) if the foreign entity is not a "foreign financial institution," such foreign entity identifies certain of its U.S. investors, if any, or (iii) the foreign entity is otherwise exempt under FATCA. Under applicable U.S. Treasury regulations, withholding under FATCA currently applies to payments of dividends on our common stock. Currently proposed U.S. Treasury Regulations provide that FATCA withholding does not apply to gross proceeds from the disposition of property of a type that can produce U.S. source dividends or interest; however, prior versions of the rules would have made such gross proceeds subject to FATCA withholding. Taxpayers (including withholding agents) can currently rely on the proposed Treasury Regulations. Under certain circumstances, a non-U.S. holder may be eligible for refunds or credits of this withholding tax. An intergovernmental agreement between the United States and an applicable foreign country may modify the requirements described in this paragraph. Non-U.S. holders should consult their tax advisors regarding the possible implications of this legislation on their investment in our common stock and the entities through which they hold our common stock, including, without limitation, the process and deadlines for meeting the applicable requirements to prevent the imposition of the 30% withholding tax under FATCA.

The preceding discussion of U.S. federal income tax considerations is for general information only. It is not tax advice. Each prospective investor should consult its tax advisor regarding the particular U.S. federal, state and local and non-U.S. tax consequences of purchasing, holding and disposing of our common stock, including the consequences of any proposed change in applicable laws.

UNDERWRITING

Under the terms and subject to the conditions in an underwriting agreement dated the date of this prospectus, the underwriters named below, for whom Morgan Stanley & Co. LLC, BofA Securities, Inc., Cowen and Company, LLC and SVB Leerink LLC are acting as representatives, have severally agreed to purchase, and we have agreed to sell to them, severally, the number of shares indicated below:

Name	Number of Shares
Morgan Stanley & Co. LLC	
BofA Securities, Inc.	
Cowen and Company, LLC	
SVB Leerink LLC	
Total	

The underwriters and the representatives are collectively referred to as the "underwriters" and the "representatives," respectively. The underwriters are offering the shares of common stock subject to their acceptance of the shares from us and subject to prior sale. The underwriting agreement provides that the obligations of the several underwriters to pay for and accept delivery of the shares of common stock offered by this prospectus are subject to the approval of certain legal matters by their counsel and to certain other conditions. The underwriters are obligated to take and pay for all of the shares of common stock offered by this prospectus if any such shares are taken. However, the underwriters are not required to take or pay for the shares covered by the underwriters' over-allotment option described below. The offering of the shares of common stock by the underwriters is subject to receipt and acceptance and subject to the underwriters' right to reject any order in whole or in part.

The underwriters initially propose to offer part of the shares of common stock directly to the public at the offering price listed on the cover page of this prospectus and part to certain dealers at a price that represents a concession not in excess of $ per share under the public offering price. After the initial offering of the shares of common stock, the offering price and other selling terms may from time to time be varied by the representatives.

We have granted to the underwriters an over-allotment option, exercisable for 30 days from the date of this prospectus, to purchase up to additional shares of common stock at the public offering price listed on the cover page of this prospectus, less estimated underwriting discounts and commissions. The underwriters may exercise this option solely for the purpose of covering over-allotments, if any, made in connection with the offering of the shares of common stock offered by this prospectus. To the extent the over-allotment option is exercised, each underwriter will become obligated, subject to certain conditions, to purchase about the same percentage of the additional shares of common stock as the number listed next to the underwriter's name in the preceding table bears to the total number of shares of common stock listed next to the names of all underwriters in the preceding table.

The following table shows the per share and total public offering price, underwriting discounts and commissions, and proceeds before expenses to us. These amounts are shown assuming both no exercise and full exercise of the underwriters' over-allotment option to purchase up to an additional shares of our common stock.

		Total	
	Per Share	No Exercise	Full Exercise
Public offering price	$	$	$
Underwriting discounts and commissions to be paid by us	$	$	$
Proceeds, before expenses, to us	$	$	$

The estimated offering expenses payable by us, exclusive of the estimated underwriting discounts and commissions, are approximately $. We have also agreed to reimburse the underwriters for expenses relating to clearance of this offering with the Financial Industry Regulatory Authority up to $.

The underwriters have informed us that they do not intend sales to discretionary accounts to exceed 5% of the total number of shares of common stock offered by them.

We have applied to list our common stock on the Nasdaq Global Market under the trading symbol "GRPH."

We and all of our directors and officers and the holders of substantially all of our outstanding securities have agreed that, without the prior written consent of Morgan Stanley & Co. LLC, BofA Securities, Inc., Cowen and Company, LLC and SVB Leerink LLC on behalf of the underwriters, we and they will not, and will not publicly disclose an intention to, during the period ending 180 days after the date of this prospectus (the restricted period):

- offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend or otherwise transfer or dispose of, directly or indirectly, any shares of common stock or any securities convertible into or exercisable or exchangeable for shares of common stock; or
- enter into any hedging, swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of the common stock;

whether any such transaction described above is to be settled by delivery of common stock or such other securities, in cash or otherwise. In addition, we and each such person have agreed that, without the prior written consent of Morgan Stanley & Co. LLC, BofA Securities, Inc., Cowen and Company, LLC and SVB Leerink LLC on behalf of the underwriters, we or such other person will not, during the restricted period, make any demand for, or exercise any right with respect to, the registration of any shares of common stock or any security convertible into or exercisable or exchangeable for common stock.

The restrictions described in the immediately preceding paragraph do not apply, among other things and subject to certain exceptions, to:

- transactions relating to shares of our common stock or other securities acquired in this offering and in open market transactions after the completion of this offering, provided that no filing under Section 16(a) of the Exchange Act is required or voluntarily made in connection with subsequent sales of the common stock or other securities acquired in such open market transactions;
- transfers of our securities as a bona fide gift or gifts;
- transfers of our securities to an immediate family member or trust for the direct or indirect benefit of the securityholder or an immediate family member;
- distributions of our securities to any general or limited partners, members, beneficiaries or other equity holders of the securityholder or to any investment fund or other entity that controls, manages, is controlled by, or is under common control with the securityholder;
- transfers of our securities by will, other testamentary document or intestate succession to the legal representative, heir, beneficiary or a member of the immediate family of the securityholder or by operation of law pursuant to order of a court in connection with a divorce settlement or a domestic relations order, provided that each transferee, donee or distributee signs a lock-up agreement and no filing under Section 16(a) of the Exchange Act is required or voluntarily made in connection with subsequent sales of the common stock or other securities acquired in such transfer;
- transfers or dispositions of our securities pursuant to any contractual arrangement in effect on the date of this prospectus and disclosed in this prospectus that provides for the repurchase of shares of

common stock in connection with the termination of the securityholder's employment with or service to us, provided, that no public filing, report or announcement reporting a reduction in beneficial ownership of shares of common stock shall be required or shall be voluntarily made during the restricted period within 75 days after the date the securityholder ceases to provide services to us, and after such 75th day, if the securityholder is required to file a report reporting a reduction in beneficial ownership of shares of common stock during the restricted period, such report or filing shall clearly indicate in the footnotes thereto that the filing relates to the circumstances described in this clause and no public filing, report or announcement shall be voluntarily made;

- conversion of any outstanding shares of preferred stock or other securities described in this prospectus and outstanding as of the date of this prospectus into shares of common stock, provided that any such securities received upon such conversion shall be subject to the terms of the lock-up agreement and that no filing under Section 16(a) of the Exchange Act or other public filing, report or announcement shall be voluntarily made and, if any filing under Section 16(a) of the Exchange Act, or other public filing, report or announcement reporting a reduction in beneficial ownership of shares of common stock in connection with such transfer or distribution shall be legally required during the restricted period, the securityholder shall clearly indicate in the footnotes thereto the nature and conditions of such transfer;

- transfers to us in connection with the "net" or "cashless" exercise or settlement solely to cover withholding tax obligations in connection with the exercise or settlement of such warrants or stock options, restricted stock units or other equity awards expiring during the restricted period, in each case pursuant to a stock incentive plan, other equity award plan or warrant described in this prospectus, provided no public filing, report or announcement reporting a reduction in beneficial ownership of shares of common stock shall be required or shall be voluntarily made during the restricted period within 60 days after the date of this prospectus, and after such 60th day, if the securityholder is required to file a report reporting a reduction in beneficial ownership of shares of common stock during the restricted period, such report or filing shall clearly indicate in the footnotes thereto that the filing relates to the circumstances described in this clause and that the shares of common stock received upon exercise of the stock option or warrant or vesting event are subject to the lock-up agreement, and no public filing, report or announcement shall be voluntarily made;

- the establishment of a trading plan on behalf of a securityholder, officer, or director of our Company pursuant to Rule 10b5-1 under the Exchange Act for the transfer of shares of common stock, provided that such plan does not provide for the transfer of common stock during the restricted period and if any public announcement or filing under the Exchange Act is required of or voluntarily made by or on behalf of the securityholder or us regarding the establishment of such plan, such announcement or filing shall include a statement to the effect that no transfer of common stock may be made under such plan during the restricted period;

- transfers of our securities pursuant to a bona fide third-party tender offer, merger, consolidation, business combination, stock purchase or other similar transaction or series of related transactions approved by our board of directors and made to all holders of our common stock involving a change in control, provided that in the event that such transaction or series of related transactions is not completed, the securityholder shall remain subject to the restrictions set forth in the lock-up agreement with respect to the securityholder's shares of common stock and any security convertible into or exercisable or exchangeable for common stock;

- transfers by our founders to us in connection with the repurchase by us of common stock pursuant to the Stanford Adjustment Repurchase Right and a stock purchase agreement, provided it shall be a condition to such transfer that no filing under Section 16(a) of the Exchange Act or other public filing, report or announcement shall be voluntarily made and, if any filing, report or announcement shall be required, such filing, report or announcement shall clearly indicate in the footnotes thereto the nature and conditions of such transfer; or

- transfers of our securities to the underwriters or otherwise with the consent of Morgan Stanley & Co. LLC, BofA Securities, Inc., Cowen and Company, LLC and SVB Leerink LLC.

Morgan Stanley & Co. LLC, BofA Securities, Inc., Cowen and Company, LLC and SVB Leerink LLC, in their sole discretion, may release the common stock and other securities subject to the lock-up agreements described above in whole or in part at any time.

In order to facilitate the offering of the common stock, the underwriters may engage in transactions that stabilize, maintain or otherwise affect the price of the common stock. Specifically, the underwriters may sell more shares than they are obligated to purchase under the underwriting agreement, creating a short position. A short sale is covered if the short position is no greater than the number of shares available for purchase by the underwriters under the over-allotment option. The underwriters can close out a covered short sale by exercising the over-allotment option or purchasing shares in the open market. In determining the source of shares to close out a covered short sale, the underwriters will consider, among other things, the open market price of shares compared to the price available under the over-allotment option. The underwriters may also sell shares in excess of the over-allotment option, creating a naked short position. The underwriters must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the common stock in the open market after pricing that could adversely affect investors who purchase in this offering. As an additional means of facilitating this offering, the underwriters may bid for, and purchase, shares of common stock in the open market to stabilize the price of the common stock. These activities may raise or maintain the market price of the common stock above independent market levels or prevent or retard a decline in the market price of the common stock. The underwriters are not required to engage in these activities and may end any of these activities at any time.

We and the underwriters have agreed to indemnify each other against certain liabilities, including liabilities under the Securities Act.

A prospectus in electronic format may be made available on websites maintained by one or more underwriters, or selling group members, if any, participating in this offering. The representatives may agree to allocate a number of shares of common stock to underwriters for sale to their online brokerage account holders. Internet distributions will be allocated by the representatives to underwriters that may make Internet distributions on the same basis as other allocations.

Other Relationships

The underwriters and their respective affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, investment research, principal investment, hedging, financing and brokerage activities. Certain of the underwriters and their respective affiliates have, from time to time, performed, and may in the future perform, various financial advisory and investment banking services for us, for which they received or will receive customary fees and expenses.

In addition, in the ordinary course of their various business activities, the underwriters and their respective affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers and may at any time hold long and short positions in such securities and instruments. Such investment and securities activities may involve our securities and instruments. The underwriters and their respective affiliates may also make investment recommendations or publish or express independent research views in respect of such securities or instruments and may at any time hold, or recommend to clients that they acquire, long or short positions in such securities and instruments.

Pricing of the Offering

Prior to this offering, there has been no public market for our common stock. The initial public offering price was determined by negotiations between us and the representatives. Among the factors considered in

determining the initial public offering price were our future prospects and those of our industry in general, our sales, earnings and certain other financial and operating information in recent periods, and the price-earnings ratios, price-sales ratios, market prices of securities, and certain financial and operating information of companies engaged in activities similar to ours.

Selling Restrictions

Canada

The shares may be sold only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 *Prospectus Exemptions* or subsection 73.3(1) of the *Securities Act* (Ontario), and are permitted clients, as defined in National Instrument 31-103 *Registration Requirements, Exemptions and Ongoing Registrant Obligations*. Any resale of the shares must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 (or, in the case of securities issued or guaranteed by the government of anon-Canadian jurisdiction, section 3A.4) of National Instrument 33-105 *Underwriting Conflicts* (NI 33-105), the underwriters are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

European Economic Area

In relation to each Member State of the European Economic Area (each a Relevant State), no shares have been offered or will be offered pursuant to the offering to the public in that Relevant State prior to the publication of a prospectus in relation to the shares which has been approved by the competent authority in that Relevant State or, where appropriate, approved in another Relevant State and notified to the competent authority in that Relevant State, all in accordance with the Prospectus Regulation, except that the shares may be offered to the public in that Relevant State at any time:

(i) to any legal entity which is a qualified investor as defined under Article 2 of the Prospectus Regulation;

(ii) to fewer than 150 natural or legal persons (other than qualified investors as defined under Article 2 of the Prospectus Regulation), subject to obtaining the prior consent of representatives for any such offer; or

(iii) in any other circumstances falling within Article 1(4) of the Prospectus Regulation,

provided that no such offer of the shares shall require us or any of the representatives to publish a prospectus pursuant to Article 3 of the Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the Prospectus Regulation.

For the purposes of this provision, the expression an "offer to the public" in relation to the shares in any Relevant State means the communication in any form and by any means of sufficient information on the terms of the offer and any shares to be offered so as to enable an investor to decide to purchase or subscribe for any shares, and the expression "Prospectus Regulation" means Regulation (EU) 2017/1129.

United Kingdom

No shares have been offered or will be offered pursuant to the offering to the public in the United Kingdom prior to the publication of a prospectus in relation to the Shares which has been approved by the Financial Conduct Authority, except that the shares may be offered to the public in the United Kingdom at any time:

(i) to any legal entity which is a qualified investor as defined under Article 2 of the UK Prospectus Regulation;

(ii) to fewer than 150 natural or legal persons (other than qualified investors as defined under Article 2 of the UK Prospectus Regulation), subject to obtaining the prior consent of the representatives for any such offer; or

(iii) in any other circumstances falling within Section 86 of the FSMA,

provided that no such offer of the shares shall require the Issuer or any Manager to publish a prospectus pursuant to Section 85 of the FSMA or supplement a prospectus pursuant to Article 23 of the UK Prospectus Regulation. For the purposes of this provision, the expression an "offer to the public" in relation to the shares in the United Kingdom means the communication in any form and by any means of sufficient information on the terms of the offer and any shares to be offered so as to enable an investor to decide to purchase or subscribe for any shares and the expression "UK Prospectus Regulation" means Regulation (EU) 2017/1129 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018.

Hong Kong

Shares of our common stock may not be offered or sold by means of any document other than (i) in circumstances which do not constitute an offer to the public within the meaning of the Companies Ordinance (Cap.32, Laws of Hong Kong); (ii) to "professional investors" within the meaning of the Securities and Futures Ordinance (Cap.571, Laws of Hong Kong) and any rules made thereunder; or (iii) in other circumstances which do not result in the document being a "prospectus" within the meaning of the Companies Ordinance (Cap.32, Laws of Hong Kong), and no advertisement, invitation or document relating to shares of our common stock may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the laws of Hong Kong) other than with respect to shares of our common stock which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" within the meaning of the Securities and Futures Ordinance (Cap.571, Laws of Hong Kong) and any rules made thereunder.

Japan

No registration pursuant to Article 4, paragraph 1 of the Financial Instruments and Exchange Law of Japan (Law No. 25 of 1948, as amended) (the FIEL) has been made or will be made with respect to the solicitation of the application for the acquisition of the shares of common stock.

Accordingly, the shares of common stock have not been, directly or indirectly, offered or sold and will not be, directly or indirectly, offered or sold in Japan or to, or for the benefit of, any resident of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan) or to others for re-offering or re-sale, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan except pursuant to an exemption from the registration requirements, and otherwise in compliance with, the FIEL and the other applicable laws and regulations of Japan.

For Qualified Institutional Investors (QII)

Please note that the solicitation for newly-issued or secondary securities (each as described in Paragraph 2, Article 4 of the FIEL) in relation to the shares of common stock constitutes either a "QII only private placement" or a "QII only secondary distribution" (each as described in Paragraph 1, Article 23-13 of the FIEL). Disclosure regarding any such solicitation, as is otherwise prescribed in Paragraph 1, Article 4 of the FIEL, has not been made in relation to the shares of common stock. The shares of common stock may only be transferred to QIIs.

For Non-QII Investors

Please note that the solicitation for newly-issued or secondary securities (each as described in Paragraph 2, Article 4 of the FIEL) in relation to the shares of common stock constitutes either a "small number private placement" or a "small number private secondary distribution" (each as is described in Paragraph 4, Article 23-13 of the FIEL). Disclosure regarding any such solicitation, as is otherwise prescribed in Paragraph 1, Article 4 of the FIEL, has not been made in relation to the shares of common stock. The shares of common stock may only be transferred en bloc without subdivision to a single investor.

Singapore

This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of shares of our common stock may not be circulated or distributed, nor may the shares of our common stock be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore (the SFA); (ii) to a relevant person, or any person pursuant to Section 275(1A), and in accordance with the conditions, specified in Section 275 of the SFA; or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where shares of our common stock are subscribed or purchased under Section 275 by a relevant person which is: (i) a corporation (which is not an accredited investor) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or (ii) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary is an accredited investor, shares, debentures and units of shares and debentures of that corporation or the beneficiaries' rights and interest in that trust shall not be transferable for 6 months after that corporation or that trust has acquired shares of our common stock under Section 275 except: (a) to an institutional investor under Section 274 of the SFA or to a relevant person, or any person pursuant to Section 275(1A), and in accordance with the conditions, specified in Section 275 of the SFA; (b) where no consideration is given for the transfer; or (c) by operation of law.

Switzerland

The shares may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange (SIX), or on any other stock exchange or regulated trading facility in Switzerland. This document has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this document nor any other offering or marketing material relating to the shares or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this document nor any other offering or marketing material relating to the offering, the Company or the shares have been or will be filed with or approved by any Swiss regulatory authority. In particular, this document will not be filed with, and the offer of shares will not be supervised by, the Swiss Financial Market

Supervisory Authority FINMA (FINMA), and the offer of shares has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes (CISA). The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of shares.

Dubai International Financial Centre

This prospectus relates to an Exempt Offer in accordance with the Offered Securities Rules of the Dubai Financial Services Authority (DFSA). This prospectus is intended for distribution only to persons of a type specified in the Offered Securities Rules of the DFSA. It must not be delivered to, or relied on by, any other person. The DFSA has no responsibility for reviewing or verifying any documents in connection with Exempt Offers. The DFSA has not approved this prospectus nor taken steps to verify the information set forth herein and has no responsibility for the prospectus. The shares to which this prospectus relates may be illiquid and/or subject to restrictions on their resale. Prospective purchasers of the shares offered should conduct their own due diligence on the shares. If you do not understand the contents of this prospectus you should consult an authorized financial advisor.

Australia

No placement document, prospectus, product disclosure statement or other disclosure document has been lodged with the Australian Securities and Investments Commission, in relation to the offering. This prospectus does not constitute a prospectus, product disclosure statement or other disclosure document under the Corporations Act 2001(Corporations Act), and does not purport to include the information required for a prospectus, product disclosure statement or other disclosure document under the Corporations Act.

Any offer in Australia of the shares may only be made to persons (Exempt Investors), who are "sophisticated investors" (within the meaning of section 708(8) of the Corporations Act), "professional investors" (within the meaning of section 708(11) of the Corporations Act) or otherwise pursuant to one or more exemptions contained in section 708 of the Corporations Act so that it is lawful to offer the shares without disclosure to investors under Chapter 6D of the Corporations Act.

The shares applied for by Exempt Investors in Australia must not be offered for sale in Australia in the period of 12 months after the date of allotment under the offering, except in circumstances where disclosure to investors under Chapter 6D of the Corporations Act would not be required pursuant to an exemption under section 708 of the Corporations Act or otherwise or where the offer is pursuant to a disclosure document which complies with Chapter 6D of the Corporations Act. Any person acquiring shares must observe such Australian on-sale restrictions.

This prospectus contains general information only and does not take account of the investment objectives, financial situation or particular needs of any particular person. It does not contain any securities recommendations or financial product advice. Before making an investment decision, investors need to consider whether the information in this prospectus is appropriate to their needs, objectives and circumstances, and, if necessary, seek expert advice on those matters.

Israel

In the State of Israel this prospectus shall not be regarded as an offer to the public to purchase shares of common stock under the Israeli Securities Law, 5728—1968, which requires a prospectus to be published and authorized by the Israel Securities Authority, if it complies with certain provisions of Section 15 of the Israeli Securities Law, 5728—1968, including, inter alia, if: (i) the offer is made, distributed or directed to not more than 35 investors, subject to certain conditions (the Addressed Investors); or (ii) the offer is made, distributed or directed to certain qualified investors defined in the First Addendum of the Israeli Securities Law, 5728—1968, subject to certain conditions (the Qualified Investors). The Qualified Investors shall not be taken into account in

the count of the Addressed Investors and may be offered to purchase securities in addition to the 35 Addressed Investors. The company has not and will not take any action that would require it to publish a prospectus in accordance with and subject to the Israeli Securities Law, 5728—1968. We have not and will not distribute this prospectus or make, distribute or direct an offer to subscribe for our common stock to any person within the State of Israel, other than to Qualified Investors and up to 35 Addressed Investors.

Qualified Investors may have to submit written evidence that they meet the definitions set out in of the First Addendum to the Israeli Securities Law, 5728—1968. In particular, we may request, as a condition to be offered common stock, that Qualified Investors will each represent, warrant and certify to us and/or to anyone acting on our behalf: (i) that it is an investor falling within one of the categories listed in the First Addendum to the Israeli Securities Law, 5728—1968; (ii) which of the categories listed in the First Addendum to the Israeli Securities Law, 5728—1968 regarding Qualified Investors is applicable to it; (iii) that it will abide by all provisions set forth in the Israeli Securities Law, 5728—1968 and the regulations promulgated thereunder in connection with the offer to be issued common stock; (iv) that the shares of common stock that it will be issued are, subject to exemptions available under the Israeli Securities Law, 5728—1968: (a) for its own account; (b) for investment purposes only; and (c) not issued with a view to resale within the State of Israel, other than in accordance with the provisions of the Israeli Securities Law, 5728—1968; and (v) that it is willing to provide further evidence of its Qualified Investor status. Addressed Investors may have to submit written evidence in respect of their identity and may have to sign and submit a declaration containing, inter alia, the Addressed Investor’s name, address and passport number or Israeli identification number.

LEGAL MATTERS

The validity of the common stock offered hereby will be passed upon for us by Goodwin Procter LLP, San Francisco, California. Legal matters in connection with the offering will be passed upon for the underwriters by Cooley LLP, San Diego, California.

EXPERTS

The financial statements as of December 31, 2020 and 2019, and for each of the two years in the period ended December 31, 2020, included in this Prospectus have been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their report appearing herein. Such financial statements have been so included in reliance upon the report of such firm given upon their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act with respect to the shares of common stock being offered by this prospectus, which constitutes a part of the registration statement. This prospectus does not contain all of the information in the registration statement and its exhibits. For further information with respect to us and the common stock offered by this prospectus, we refer you to the registration statement and its exhibits. Statements contained in this prospectus as to the contents of any contract or any other document referred to are not necessarily complete, and in each instance, we refer you to the copy of the contract or other document filed as an exhibit to the registration statement. Each of these statements is qualified in all respects by this reference.

You can read our SEC filings, including the registration statement, over the Internet at the SEC's website at www.sec.gov. Upon completion of this offering, we will be subject to the information reporting requirements of the Exchange Act, and we will file reports, proxy statements and other information with the SEC. These reports, proxy statements and other information will be available via the SEC's website at www.sec.gov. We also maintain a website at https://graphitebio.com/, at which you may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. However, the information contained in or accessible through our website is not part of this prospectus or the registration statement of which this prospectus forms a part, and investors should not rely on such information in making a decision to purchase our common stock in this offering.

Graphite Bio, Inc.
INDEX TO FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Graphite Bio, Inc.

Opinion on the Financial Statements

We have audited the accompanying balance sheets of Graphite Bio, Inc. (the "Company") as of December 31, 2019 and 2020, the related statements of operations and comprehensive loss, redeemable convertible preferred stock and stockholders' deficit, and cash flows, for the years then ended, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2020, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2020, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB and in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ DELOITTE & TOUCHE LLP

San Francisco, California
April 16, 2021

We have served as the Company's auditor since 2021.

Graphite Bio, Inc.
Balance Sheets
(in thousands, except share and per share data)

	As of December 31,	
	2019	2020
Assets		
Current assets:		
Cash and cash equivalents	$ 6	$ 19,782
Restricted cash	—	35
Prepaid expenses and other current assets	—	1,286
Total current assets	6	21,103
Property and equipment, net	—	1,461
Total assets	$ 6	$ 22,564
Liabilities, redeemable convertible preferred stock, and stockholders' deficit		
Current liabilities:		
Accounts payable	$ —	$ 630
Accrued compensation	—	466
Accrued expenses	19	1,890
Redeemable convertible preferred stock tranche liability	—	29,062
Related party convertible note	2,205	—
Total current liabilities	2,224	32,048
Other liabilities	—	316
Total liabilities	2,224	32,364
Commitments and contingencies (Note 7)		
Redeemable convertible preferred stock, $0.00001 par value; 45,024,986 shares authorized, 30,019,945 shares issued and outstanding; liquidation preference $30,020 as of December 31, 2020	—	55,608
Stockholders' deficit:		
Common stock, $0.001 par value: 1,000 shares authorized and 1 share issued and outstanding as of December 31, 2019; $0.00001 par value: 80,000,000 shares authorized and 24,998,807 shares issued and outstanding as of December 31, 2020	—	—
Additional paid-in capital	—	5,183
Accumulated deficit	(2,218)	(70,591)
Total stockholders' deficit	(2,218)	(65,408)
Total liabilities, redeemable convertible preferred stock, and stockholders' deficit	$ 6	$ 22,564

The accompanying notes are an integral part of these financial statements.

Graphite Bio, Inc.
Statements of Operations and Comprehensive Loss
(in thousands, except share and per share data)

	Year Ended December 31,	
	2019	2020
Operating expenses:		
Research and development	$ —	$ 9,123
General and administrative	29	4,377
Total operating expenses	29	13,500
Loss from operations	(29)	(13,500)
Other income (expense), net:		
Related party convertible note interest expense	(80)	(40)
Change in fair value of the redeemable convertible preferred stock tranche liabilities	—	(54,833)
Total other income (expense), net	(80)	(54,873)
Net loss and comprehensive loss	$ (109)	$ (68,373)
Net loss per share attributable to common stockholders—basic and diluted	$ (109,000)	$ (12.31)
Weighted-average shares used in computing net loss per share—basic and diluted	1	5,554,899

The accompanying notes are an integral part of these financial statements.

Graphite Bio, Inc.
Statements of Redeemable Convertible Preferred Stock and Stockholders' Deficit
(in thousands, except share data)

	Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount			
Balance as of December 31, 2018	—	$ —	1	$ —	$ —	$ (2,109)	$ (2,109)
Net loss	—	—	—	—	$ —	(109)	(109)
Balance as of December 31, 2019	—	$ —	1	$ —	—	$ (2,218)	$ (2,218)
Common shares issued to founders and investor	—	—	20,789,999	—	—	—	—
Issuance of restricted common shares	—	—	2,025,821	—	—	—	—
Issuance of redeemable convertible preferred stock upon conversion of outstanding related party convertible note and accrued interest	5,019,945	5,020	—	—	—	—	—
Related party convertible note and accrued interest cancellation	—	—	—	—	2,225	—	2,225
Issuance of redeemable convertible preferred stock for cash, net of issuance costs of $ 184 and fair value of tranche liability of $ 3,329	25,000,000	21,488	—	—	—	—	—
Stock based compensation expense	—	—	—	—	177	—	177
Common stock shares issued upon early exercise of options	—	—	2,182,986	—	—	—	—
Vesting of early exercised stock options	—	—	—	—	9	—	9
Reclassification of tranche liability upon settlement	—	29,100	—	—	—	—	—
Obligation to issue common stock shares for license	—	—	—	—	2,772	—	2,772
Net loss	—	—	—	—	—	(68,373)	(68,373)
Balance as of December 31, 2020	30,019,945	$ 55,608	24,998,807	$ —	$ 5,183	$ (70,591)	$ (65,408)

The accompanying notes are an integral part of these financial statements

Graphite Bio, Inc.
Statements of Cash Flows
(in thousands)

	Year Ended December 31,	
	2019	2020
Cash flows from operating activities:		
Net loss	$ (109)	$ (68,373)
Adjustments to reconcile net loss to net cash used by operations:		
Depreciation	—	121
Interest expense related to convertible notes	80	40
Stock based compensation expense	—	177
Change in fair value of the redeemable convertible preferred stock tranche liability	—	54,833
R&D expense incurred to issue common stock to Stanford	—	2,772
Changes in assets and liabilities:		
Prepaid expenses and other current assets	7	(1,286)
Accounts payable	(12)	594
Accrued compensation	—	466
Accrued expenses	15	1,871
Other liabilities	—	64
Net cash used in operating activities	(19)	(8,721)
Cash flows from investing activities:		
Purchases of property, plant and equipment	—	(1,545)
Net cash used in investing activities	—	(1,545)
Cash flows from financing activities:		
Proceeds from issuance of redeemable convertible preferred stock, net of issuance costs	—	24,816
Proceeds from issuance of related party convertible note	—	5,000
Proceeds from issuance of common stock shares upon early exercises of stock options and restricted stock shares	—	261
Net cash provided by financing activities	—	30,077
Net (decrease) increase in cash, cash equivalents and restricted cash	(19)	19,811
Cash, cash equivalents and restricted cash, at beginning of period	25	6
Cash, cash equivalents and restricted cash, at end of period	$ 6	$ 19,817
Reconciliation of cash, cash equivalents and restricted cash to statement of financial position:		
Cash and cash equivalents	$ 6	$ 19,782
Restricted cash	—	35
Cash, cash equivalents and restricted cash in statement of financial position	$ 6	$ 19,817
Supplemental disclosures of non-cash investing and financing information:		
Related party convertible note and accrued interest cancellation	—	(2,225)
Issuance of redeemable convertible preferred stock upon conversion of outstanding related party convertible note and accrued interest	—	5,020
Purchases of property, plant and equipment included in accounts payable	—	(35)
Vesting of early exercised stock options	—	9
Settlement of redeemable convertible preferred stock tranche liability	—	$ (29,100)

The accompanying notes are an integral part of these financial statements.

Graphite Bio, Inc.
Notes to Financial Statements

1. Description of Business, Organization and Liquidity

Organization and Business

Graphite Bio, Inc. (the "Company") is a clinical-stage, next-generation gene editing company harnessing high efficiency targeted gene integration to develop a new class of therapies to potentially cure a wide range of serious and life-threatening diseases. The Company is pioneering a precision gene editing approach to achieve one of medicine's most elusive goals: to precisely "find & replace" any gene in the genome. The Company's next-generation gene editing platform allows us to precisely correct mutations, replace entire disease-causing genes with normal genes, or insert new genes into predetermined, safe locations. The Company's lead product candidate GPH101 is a highly differentiated approach with the potential to directly correct the mutation that causes sickle cell disease (SCD) and restore normal adult hemoglobin (HgbA) expression. The Company has received clearance of its IND application and intends to enroll the first patient in a Phase 1/2 clinical trial in .

From its inception in 2017, the Company's primary activities have been to perform research and development, undertake preclinical studies and enable manufacturing activities in support of its product development efforts, organize and staff the Company, establish its intellectual property portfolio, and raise capital to support and expand such activities.

The Company was incorporated in Ontario, Canada in June 2017 as Longbow Therapeutics Inc., and was reincorporated in the State of Delaware in October 2019. In February 2020, the Company changed its name to Integral Medicines, Inc., and again in August 2020, changed the name to Graphite Bio, Inc. Research and development of the Company's initial technology ceased at the end of 2018, and the Company did not have any significant operations or any research and development activities in 2019. In March 2020, the Company identified new gene editing technology which the Company sought to further develop, and the Company licensed the related intellectual property from The Board of Trustees of the Leland Stanford Junior University ("Stanford") in December 2020 (Note 6).

Liquidity

The Company has incurred significant operating losses since inception and has primarily relied on private equity and convertible debt financings to fund its operations. As of December 31, 2020, the Company had an accumulated deficit of $70.6 million. The Company expects to continue to incur substantial losses, and its transition to profitability will depend on the successful development, approval and commercialization of product candidates and on the achievement of sufficient revenues to support its cost structure. The Company may never achieve profitability, and unless and until then, the Company will need to continue to raise additional capital. Management expects that the existing cash of $19.8 million as of December 31, 2020, $15.0 million cash received in connection with the closing of the third tranche of Series A preferred stock financing in March 2021 and $150.7 million cash received in March 2021 in connection with the Series B preferred stock financing will be sufficient to fund its current operating plan for at least the next 12 months from the date of issuance of these financial statements.

Coronavirus Pandemic

In March 2020, the World Health Organization declared the global novel coronavirus disease 2019("COVID-19"), outbreak a pandemic. The ongoing COVID-19 pandemic may continue to affect the Company's ability to initiate and complete preclinical studies, delay the initiation of its planned clinical trials or future clinical trials or the progress or completion of its ongoing clinical trials, impede regulatory activities, disrupt the supply chain and the manufacture or shipment of drug substances and finished drug products for its product candidates for use in its clinical trials, impair testing, monitoring, data collection and analysis and other related activities or have other adverse effects on the Company's business, financial condition, results of operations and

prospects. In addition, the pandemic has caused substantial disruption in the financial markets and may adversely impact economies worldwide, both of which could result in adverse effects on the Company's business and operations and its ability to raise additional funds to support its operations.

The Company is following, and will continue to follow, recommendations from the U.S. Centers for Disease Control and Prevention as well as federal, state, and local governments regarding working-from-home practices for non-essential employees as well as return-to-work policies and procedures. The Company expects to continue to take actions as may be required or recommended by government authorities or as the Company determines are in the best interests of its employees and other business partners in light of the pandemic.

In light of the ongoing COVID-19 pandemic, the Company's partner Stanford was delayed in making an IND-filing. While the Company's operations to date have not been significantly impacted by the COVID-19 pandemic, it cannot at this time predict the specific extent, duration, or full impact that the COVID-19 pandemic will have on its business, financial condition and operations, including planned clinical trials and clinical development timelines. The impact of the COVID-19 pandemic on the Company's financial performance will depend on future developments, including the duration and spread of the pandemic, its impact on the Company's clinical trial enrollment, trial sites, contract research organizations ("CROs"), contract manufacturing organizations ("CMOs"), and other third parties with whom it does business, its impact on regulatory authorities and the Company's key scientific and management personnel, progress of vaccination and related governmental advisories and restrictions. These developments and the impact of the COVID-19 pandemic on the financial markets and the overall economy are highly uncertain and cannot be predicted. If the financial markets or the overall economy are impacted for an extended period, the Company's business may be materially adversely affected.

2. Summary of Significant Accounting Policies

Basis of Presentation

These financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP").

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of expenses during the reporting period. On an ongoing basis, the Company evaluates estimates and assumptions, including but are not limited to those related to the fair value of a derivative redeemable convertible preferred stock tranche liabilities, the fair value of redeemable convertible preferred stock and common stock, stock-based compensation expense, accruals for research and development costs, the valuation of deferred tax assets, and uncertain income tax positions. Management bases its estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ materially from those estimates.

Concentration of Credit Risk

Cash and cash equivalents are financial instruments that potentially subject the Company to concentrations of credit risk. Substantially all of the Company's cash and cash equivalents are deposited in accounts with major financial institution and amounts may exceed federally insured limits. Management believes that the Company is not exposed to significant credit risk due to the financial strength of the depository institution in which the cash and cash equivalents are held. The Company has not experienced any losses on deposits of cash and cash equivalents.

Graphite Bio, Inc.
Notes to Financial Statements

Risks and Uncertainties

The Company is subject to certain risks and uncertainties, including, but not limited to, changes in any of the following areas that the Company believes could have a material adverse effect on the future financial position or results of operations: the timing of, and the Company's ability to advance its current and future product candidates into and through clinical development; costs and timelines associated with the manufacture of clinical supplies of the Company's product candidates; regulatory approval and market acceptance of, and reimbursement for its product candidates; performance of third-party CROs and CMOs; competition from pharmaceutical companies with greater financial resources or expertise; protection of the intellectual property; litigation or claims against the Company based on intellectual property or other factors; and its ability to attract and retain employees necessary to support its growth. Disruption from CROs', CMOs' or suppliers' operations would likely have a negative impact on the Company's business, financial position and results of operations.

Segment and Geographical Information

The Company operates and manages its business as one reportable and operating segment. The chief executive officer, who is the chief operating decision maker, reviews financial information on an aggregate basis for purposes of allocating resources and evaluating financial performance. All of the Company's long-lived assets are based in the United States.

Cash and Cash Equivalents

The Company considers all highly liquid investments purchased with a maturity of three months or less at the date of purchase to be cash equivalents. As of December 31, 2019, and 2020, cash and cash equivalents consisted of cash and money market funds.

Restricted Cash

Restricted cash of $34,870 as of December 31, 2020 represented a security deposit in the form of a letter of credit issued in connection with the lease of the Company's headquarters (Note 7).

Deferred Offering Costs

The Company capitalizes certain legal, accounting and other third-party fees that are directly relatedto in-process equity financings, including the planned initial public offering of its common stock (the "IPO"), until such financings are consummated. After consummation of the IPO, these costs are recorded as a reduction of the proceeds received as a result of the offering. Should the planned equity financing be abandoned, the deferred offering costs will be immediately recognized as operating expenses. No deferred offering costs were capitalized as of December 31, 2019 and 2020.

Property and Equipment, Net

Property and equipment are recorded at cost, less accumulated depreciation and amortization. Depreciation is computed using the straight-line method over the estimated useful lives of the assets, generally three to five years. Repairs and maintenance expenditures, which are not considered improvements and do not extend the useful life of property and equipment, are expensed as incurred. When assets are retired or otherwise disposed of, the cost and related accumulated depreciation and amortization are removed from the balance sheet and the resulting gain or loss is reflected in the statements of operations and comprehensive loss in the period realized.

Graphite Bio, Inc.
Notes to Financial Statements

Asset Acquisitions

The Company measures and recognizes asset acquisitions that are not deemed to be business combinations based on the cost to acquire the assets, which includes transaction costs. Goodwill is not recognized in asset acquisitions. In an asset acquisition, the cost allocated to acquire in-process research and development ("IPR&D") with no alternative future use is charged to research and development expense at the acquisition date. Please refer to Note 6 for more details on asset acquisition.

Impairment of Long-Lived Assets

The Company reviews long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability is measured by comparing the carrying amount to the future undiscounted net cash flows which the assets are expected to generate. If such assets are considered to be impaired, the impairment to be recognized is measured as the amount by which the carrying amount of the assets exceeds the projected discounted future net cash flows generated by the assets. There have been no such impairments of long-lived assets in the years ended December 31, 2019 and 2020.

Redeemable Convertible Preferred Stock

The Company records shares of redeemable convertible preferred stock at their respective fair values on the dates of issuance, net of issuance costs. The redeemable convertible preferred stock is recorded outside of permanent equity because while it is not mandatorily redeemable, redemption is contingent upon the occurrence of certain events considered not solely within the Company's control. The Company has not adjusted the carrying values of the redeemable convertible preferred stock to the liquidation preferences of such shares because it is uncertain whether or when a deemed liquidation event would occur that would obligate the Company to pay the liquidation preferences to holders of shares of redeemable convertible preferred stock. Subsequent adjustments to the carrying values to the liquidation preferences will be made only when it becomes probable that such a deemed liquidation event will occur.

Redeemable Convertible Preferred Stock Tranche Liabilities

The Company has determined that its obligation to issue additional shares of redeemable convertible preferred stock upon the occurrence of certain events or the Company's Board of Directors (the "Board") consent represents a freestanding financial instrument. The instrument is classified as a liability on the balance sheets and is subject to re- measurement at each balance sheet date and at the settlement date, any change in fair value is recognized through other income (expense) in the statements of operations and comprehensive loss.

Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. The carrying amounts of financial instruments, including restricted cash, prepaid expenses and other current assets, accounts payable, accrued compensation, accrued expenses, and other liabilities, approximate fair value due to their short-term maturities. The cash invested in money-market funds and redeemable convertible preferred stock tranche liability are carried at fair value.

Graphite Bio, Inc.
Notes to Financial Statements

Research and Development Expenses

Research and development costs are expensed as incurred. Research and development costs include salaries, stock-based compensation, and benefits for employees performing research and development activities, an allocation of facility and overhead expenses, expenses incurred under agreements with consultants, CMOs, CROs and investigative sites that conduct preclinical studies, other supplies and costs associated with product development efforts, preclinical activities, and regulatory operations.

Accrued Research and Development Expenses

The Company has entered into various agreements with outsourced vendors, CROs and CMOs. Research and development accruals are estimated based on the level of services performed, progress of the studies, including the phase or completion of events, and contracted costs. The estimated costs of research and development services provided, but not yet invoiced, are included in accrued expenses on the balance sheets. If the actual timing of the performance of services or the level of effort varies from the original estimates, the Company will adjust the accrual accordingly. Payments made under these arrangements in advance of the performance of the related services are recorded as prepaid expenses and other current assets until the services are rendered. To date, there have been no material differences between estimates of such expenses and the amounts actually incurred.

Tax Credit Receivable

The Company is eligible for federal and California research and development credits for its research and development activities performed within the United States and California, respectively. The credits are, generally, available to offset federal and California income tax liabilities as applicable. The Company has applied $0.2 million of federal research and development credits to offset its federal payroll tax expenses for the year ended December 31, 2020 due to its small business status. The Company is electing to utilize $250,000 of current year R&D credit generated against the employer portion of the payroll tax.

Income Taxes

The Company accounts for income taxes using the asset and liability method. The Company recognizes deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements or tax returns. Deferred tax assets and liabilities are determined based on the difference between the financial statements and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse.

In evaluating the ability to recover deferred income tax assets, the Company considers all available positive and negative evidence, including operating results, ongoing tax planning and forecasts of future taxable income on a jurisdiction-by-jurisdiction basis. In the event the Company determines that it would be able to realize deferred income tax assets in the future in excess of their net recorded amount, the Company would make an adjustment to the valuation allowance that would reduce the provision for income taxes. Conversely, in the event that all or part of the net deferred tax assets are determined not to be realizable in the future, an adjustment to the valuation allowance would be charged to earnings in the period when such determination is made. As of December 31, 2019, and 2020, the Company has recorded a full valuation allowance on deferred tax assets.

On March 27, 2020, the President of the United States signed into law the Coronavirus Aid, Relief, and Economic Security Act (CARES Act). The CARES Act, among other things, includes certain income tax provisions for individual and corporations; however, these benefits do not impact current tax provision.

Graphite Bio, Inc.
Notes to Financial Statements

Tax benefits related to uncertain tax positions are recognized when it is more likely than not that a tax position will be sustained during an audit. Interest and penalties related to unrecognized tax benefits are included within the provision for income tax.

Stock-Based Compensation Expense

The Company's stock-based equity awards include restricted stock awards and stock options that are granted to employees and consultants that are accounted at fair value on the award grant date. Stock-based compensation expense is recognized over the awards' vesting period on a straight-line basis and recorded as either research and development or general and administrative expenses in the statements of operations and comprehensive loss based on the function to which the related services are provided. Forfeitures are accounted for as they occur.

The Black-Scholes option-pricing model, used to estimate fair value of stock-based awards, requires the use of the following assumptions:

- *Expected term*—The expected term represents the period that the stock-based awards are expected to be outstanding. The expected term for the Company's stock options was calculated based on the weighted-average vesting term of the awards and the contract period, or simplified method.
- *Expected volatility*—Since the Company is not yet a public company and does not have any trading history for its common stock, the expected volatility was estimated based on the average historical volatilities of common stock of comparable publicly traded entities over a period equal to the expected term of the stock option grants. The comparable companies were chosen based on their size, stage in the life cycle or area of specialty. The Company will continue to apply this process until enough historical information regarding the volatility of its stock price becomes available.
- *Risk-free interest rate*—The risk-free interest rate is based on the U.S. Treasury yield in effect at the time of grant for zero-coupon U.S. Treasury notes with maturities approximately equal to the expected term of the awards.
- *Expected dividend*—The Company has never paid dividends on the common stock and has no plans to pay dividends on the common stock. Therefore, the Company used an expected dividend yield of zero.

The fair value of the common stock has been determined using independent third-party valuations based on relevant valuation methodologies as outlined in the American Institute of Certified Public Accountants (AICPA) Practice Aid, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*. The Company also considered the amount of time between the independent third-party valuation dates and the grant dates and performed an interpolation of the fair value between the two valuation dates to estimate common stock fair value at each grant date. This determination included an evaluation of whether the subsequent valuation indicated that any significant change in valuation had occurred between the previous valuation and the grant date.

Comprehensive Loss

Comprehensive loss includes all changes in equity (net assets) during a periodfrom non-owner sources. There have been no items qualifying as other comprehensive income or loss, and as such, comprehensive loss was the same as net loss for the periods presented.

Foreign Currency Transactions

Transactions denominated in foreign currencies are initially measured in U.S. dollars using the exchange rate on the date of the transaction. Foreign currency denominated monetary assets and liabilities are

subsequently re-measured at the end of each reporting period using the exchange rate at that date, with the corresponding foreign currency transaction gain or loss recorded in the statements of operations and comprehensive loss and statements of cash flows. Nonmonetary assets and liabilities are not subsequently re-measured.

Net Loss Per Share

Basic net loss per common share is calculated by dividing the net loss attributable to common stockholders by the weighted-average number of common stock outstanding during the period, without consideration of potentially dilutive securities. Diluted net loss per share is computed by dividing the net loss attributable to common stockholders by the weighted-average number of common stock and potentially dilutive securities outstanding for the period. For purposes of the diluted net loss per share calculation, redeemable convertible preferred stock, common stock subject to repurchase, restricted common shares issued, and stock options are considered to be potentially dilutive securities.

Basic and diluted net loss attributable to common stockholders per share is presented in conformity withthe two-class method required for participating securities. The Company's redeemable convertible preferred stock contains participation rights in any dividend paid by the Company and is deemed to be a participating security. Restricted shares issued to the founders and upon early exercise of stock options also participate in dividends from the issuance date and are considered participating securities. Participating securities do not have a contractual obligation to share in losses. As such, the net loss was attributed entirely to common stockholders. Because the Company has reported a net loss for all periods presented, diluted net loss per common share is the same as basic net loss per common share for those periods.

Adopted and Recent Accounting Pronouncements

The Company is a smaller reporting company and an emerging growth company, as defined in the Jumpstart Our Business Startups Act of 2012 (the "JOBS Act"). Under the JOBS Act, emerging growth companies can delay the adoption of new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. Thus, the Company has elected to use the extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date that (i) the Company is no longer an emerging growth company or (ii) the Company affirmatively and irrevocably opts out of the extended transition period provided in the JOBS Act. However as described below, the Company early adopted certain accounting standards, as the JOBS Act does not preclude an emerging growth company from adopting a new or revised accounting standard earlier than the time that such standard applies to private companies to the extent early adoption is permitted.

Recently Adopted Accounting Pronouncements

Effective January 1, 2019, the Company adopted Accounting Standard Update ("ASU") 2016-09, *Improvements to Employee Share Based Payment Accounting*. This ASU affects entities that issue share-based payment awards to their employees. The ASU is designed to simplify several aspects of accounting for share-based payment award transactions which include—the income tax consequences, classification of awards as either equity or liabilities, classification on the statement of cash flows and forfeiture rate calculations. As the Company did not have any significant stock-based compensation at the time of adoption, the adoption did not have a material impact on its financial statements.

Effective January 1, 2019, the Company adopted ASU 2018-18, *Collaborative Arrangements (Topic 808): Clarifying the Interaction between Topic 808 and Topic 606*. The ASU clarifies certain transactions between collaborative arrangement participants should be accounted for as revenue when the collaborative arrangement

participant is a customer in the context of a unit of account and precludes recognizing as revenue consideration received from a collaborative arrangement participant if the participant is not a customer. As the Company did not have any collaborative arrangements at the time of adoption, the adoption had no impact on its financial statements.

Effective January 1, 2019, the Company adopted ASU 2018-07, *Compensation-Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting*. Prior to the adoption of ASU 2018-07, the measurement date for non-employee awards was generally the date the services are completed, resulting in financial reporting period adjustments to share-based compensation during the vesting terms for changes in the fair value of the awards. After the adoption of ASU 2018-07, the measurement date for non-employee awards is the date of grant without changes in the fair value of the award. The adoption had no impact on the Company's financial statements.

Effective January 1, 2019, the Company adopted ASU No. 2018-13, *Fair Value Measurement (Topic 820), Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement*. This ASU removed the following disclosure requirements: (i) the amount of and reasons for transfers between Level I and Level 2 of the fair value hierarchy; (ii) the policy for timing of transfers between levels; and (iii) the valuation processes for Level 3 fair value measurements. Additionally, this update added the following disclosure requirements: (1) the changes in unrealized gains and losses for the period included in other comprehensive income and loss for recurring Level 3 fair value measurements held at the end of the reporting period; and (2) the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements. For certain unobservable inputs, an entity may disclose other quantitative information (such as the median or arithmetic average) in lieu of the weighted average if the entity determines that other quantitative information would be a more reasonable and rational method to reflect the distribution of unobservable inputs used to develop Level 3 fair value measurements. ASU No. 2018-13 is effective for fiscal years beginning after December 15, 2019 with early adoption permitted. The adoption of ASU 2018-13 had no material impact on the Company's financial statements.

Recent Accounting Pronouncements

In February 2016, the Financial Accounting Standards Board ("FASB") issued ASU No. 2016-02, *Leases ("Topic 842")*. The new standard requires lessees to apply a dual approach, classifying leases as either finance or operating leases based on the principle of whether or not the lease is effectively a financed purchase by the lessee. This classification will determine whether lease expense is recognized based on an effective interest method or on a straight-line basis over the term of the lease. A lessee is also required to record a right-of-use asset and a lease liability for all leases with a term of greater than 12 months regardless of their classification. Leases with a term of 12 months or less may be accounted for similar to existing guidance for operating leases today. For non-public entities, ASU 2016-02 is effective for annual reporting periods beginning after December 15, 2021, including interim periods within those fiscal years, and early adoption is permitted. The Company plans to early adopt the new standard as of January 1, 2021 on a modified retrospective basis. At adoption, the Company has one lease with the remaining term of less than 12 months and, as such, it will not record any cumulative adjustment on its balance sheet. In the first quarter of 2021, the Company entered in a long-term lease, for which it will record the related right-of-use asset and lease liability (Note 12).

In June 2016, the FASB issued ASU 2016-13, *Credit Losses*. The FASB also issued amendments and the initial ASU, and all updates are included herein as the Credit Losses standard or Topic 326. The new standard generally applies to financial assets and requires those assets to be reported at the amount expected to be realized. The ASU is effective for fiscal years beginning after December 15, 2022 and interim periods within those fiscal years. The Company is currently evaluating the potential impact of this standard on its financial statements.

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In December 2019, the FASB issued ASU 2019-12, *Income Taxes (Topic 740)*. The amendments in ASU 2019-12 simplify the accounting for income taxes by removing certain exceptions to the general principles in Topic 740. The amendments also improve consistent application of and simplify U.S. GAAP or other areas of Topic 740 by clarifying and amending existing guidance. The new standard is effective for the Company on January 1, 2022 and for interim periods beginning on January 1, 2023. The Company is currently evaluating the potential impact of this standard on its financial statements.

In August 2020, the FASB issued ASU No. 2020-06, *Debt—Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity* (ASU 2020-06), which simplifies the accounting for convertible instruments by reducing the number of accounting models available for convertible debt instruments. This guidance also eliminates the treasury stock method to calculate diluted earnings per share for convertible instruments and requires the use of the if-converted method. This guidance will be effective for the Company in the first quarter of 2022 on a full or modified retrospective basis, with early adoption permitted. The Company is currently evaluating the potential impact of this standard on its financial statements.

3. Fair Value Measurements

Assets and liabilities recorded at fair value on a recurring basis in the balance sheets, as well as assets and liabilities measured at fair value on a non-recurring basis or disclosed at fair value, are categorized based upon the level of judgment associated with inputs used to measure their fair values. The accounting guidance for fair value provides a framework for measuring fair value and requires certain disclosures about how fair value is determined. Fair value is defined as the price that would be received upon the sale of an asset or paid to transfer a liability (an exit price) in an orderly transaction between market participants at the reporting date. The accounting guidance also establishes a three-level valuation hierarchy that prioritizes the inputs to valuation techniques used to measure fair value based upon whether such inputs are observable or unobservable. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect market assumptions made by the reporting entity. The three-level hierarchy for the inputs to valuation techniques is briefly summarized as follows:

Level 1 — Inputs are unadjusted, quoted prices in active markets for identical assets or liabilities at the measurement date;

Level 2 — Inputs are observable, unadjusted quoted prices in active markets for similar assets or liabilities, unadjusted quoted prices for identical or similar assets or liabilities in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the related assets or liabilities; and

Level 3 — Unobservable inputs that are significant to the measurement of the fair value of the assets or liabilities that are supported by little or no market data.

Assets and liabilities measured at fair value are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. An assessment of the significance of a particular input to the fair value measurement in its entirety requires management to make judgments and consider factors specific to the asset or liability. Changes in the ability to observe valuation inputs may result in a reclassification of levels of certain securities within the fair value hierarchy. The Company recognizes transfers into and out of levels within the fair value hierarchy in the period in which the actual event or change in circumstances that caused the transfer occurs.

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As of December 31, 2019, the Company did not have any financial instruments measured at fair value on a recurring basis. As of December 31, 2020, Level 1 securities consist of highly liquid money market funds for which the carrying amounts approximate their fair values due to their short maturities. Level 3 liabilities that are measured at fair value on a recurring basis include the redeemable convertible preferred stock tranche liability. The redeemable convertible preferred stock tranche liability is measured using the option pricing method by estimating the value using the Black-Scholes model. The inputs used in the Black-Scholes model includes the fair value of the redeemable convertible preferred stock, the risk-free interest rate, the expected volatility and the expected term when each tranche will be settled.

Below are inputs used for the Level 3 liabilities in the year ended December 31, 2020:

	Redeemable Convertible Preferred Stock Tranches Liability	
	As of Issuance June 24, 2020	As of December 31, 2020(1)
Value of Series A Preferred Stock per share	$ 0.78	$ 2.94
Risk-free rate	0.16% - 0.18%	0.08%
Expected volatility	66.3%	85.7%
Term (in years)	0.50 - 1.08	0.13

(1) Includes assumptions for the tranche settled on December 28, 2020.

During the period presented, the Company has not changed the manner in which it values liabilities that are measured at estimated fair value using Level 3 inputs. There were no transfers within the hierarchy during the year ended December 31, 2020.

The following tables set forth the financial instruments that were measured at fair value on a recurring basis by level within the fair value hierarchy at December 31, 2020 (in thousands):

	December 31, 2020			
	Total Fair Value	Level 1	Level 2	Level 3
Assets:				
Money market funds(1)	$ 19,782	$19,782	$ —	$ —
Liabilities:				
Redeemable convertible preferred stock tranche liability	$ 29,062	$ —	$ —	$29,062

(1) Included within cash and cash equivalents on the balance sheet.

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The following table provides a summary of changes in the estimated fair value of Level 3 financial instruments (in thousands):

	Redeemable Convertible Preferred Stock Tranche Liability
Balance as of December 31, 2019	$ —
Fair value of Series A redeemable convertible preferred stock tranche liabilities issued in 2020	3,329
Change in fair value	54,833
Settlement of Series A redeemable convertible preferred stock tranche liability	(29,100)
Balance as of December 31, 2020	$ 29,062

4. Balance Sheet Components

Property and Equipment, Net

As of December 31, 2019, the Company did not have any property and equipment. Property and equipment, net as of December 31, 2020, consists of the following (in thousands):

Computers and network equipment	$ 24
Lab equipment	1,558
Less: accumulated depreciation	(121)
Total property and equipment, net	$1,461

Depreciation expense for the year ended December 31, 2020 was $121,000.

5. Accrued Expenses

Accrued expenses as of December 31, 2019 and 2020, consisted of the following (in thousands):

	December 31,	
	2019	2020
Preclinical studies	$ —	$1,764
Professional fees	19	55
Other accrued expenses	—	71
Total accrued expenses	$ 19	$1,890

6. Significant Agreements

Stanford Exclusive License Agreement

In December 2020, we entered into an exclusive license agreement (the License Agreement), with The Board of Trustees of the Leland Stanford Junior University (Stanford), pursuant to which Stanford granted us a worldwide license to specified technology and patent rights to develop, manufacture and commercialize human prophylactic and therapeutic products. Other than with respect to specified, broadly applicable assays and procedures and subject to retained rights by Stanford, the license is exclusive with respect to human prophylactic

and therapeutic products for the treatment of SCD, XSCID and beta thalassemia. The license is non-exclusive with respect to those broadly applicable assays and procedures and with respect to all human prophylactic and therapeutic products other than for the treatment of SCD, XSCID and beta thalassemia.

Pursuant to the License Agreement, we paid an upfront license fee of $50,000, and as additional consideration for the license, we agreed to issue to Stanford approximately 1,558,587 shares of our common stock. As of December 31, 2020, the Company recorded its obligations to issue Stanford shares of common stock at an estimated fair value of $2.8 million to additional paid in capital. The common shares are expected to be issued when Stanford provides the inventors' names for allocation of the shares. Stanford also had an option to buy up to 10% of newly issued shares in the future private financings at the price paid by other participating investors.

The acquisition of the exclusive license, including patent rights andknow-how, and clinical supplies was accounted for as an asset acquisition and as the acquired technology and inventories did not have an alternative use, the total consideration of $2.8 million was recorded as research and development expense in the statements of operations and comprehensive loss for the year ended December 31, 2020.

In connection with the License Agreement, the Company reimbursed Stanford $177,947 for previously incurred patent costs, which were recorded in general and administrative expenses for the year ended December 31, 2020 and, in addition, is obligated to reimburse future patent costs. The Company is also obligated to pay annual maintenance fees as follows: $5,000 in the first year, $10,000 in each year 2 and 3, $25,000 in each year 3 through 6, $50,000 each subsequent year until first commercial sale and $200,000 each subsequent year after the first commercial sale.

The Company is also obligated to make future development and regulatory milestones in total of up to $5.3 million, sales based milestones of up to $7.5 million and royalties on future sales at percentage rates ranging in the low single digits. In addition, if the Company receives any sublicense income, it is required to share it with Stanford as a certain percentage defined for each milestone in the License Agreement. The Company will record the maintenance fees, when payable, and will record milestones when contingencies are resolved, and milestones are due. No milestones were achieved and recorded as of December 31, 2020.

The term of the License Agreement expires on the later of (a) the expiration of the last patent or abandonment of the last patent application within the license patent rights or (b) the expiration of all royalty terms with respect to Licensed Products.

The Stanford License terminates on a product by product and country by country basis on the latest to occur of (i) expiration of the last valid claim of a licensed patent that covers the sale or manufacture of the applicable licensed product in such country, (ii) expiration of any period of regulatory exclusivity granted with respect to such licensed product in such country or (iii) ten years after the first commercial sale of such licensed product in a country Stanford also has a right to terminate the agreement if milestones plan is rejected by Stanford as specified in the License Agreement.

7. Commitments and Contingencies

Research and Development Agreements

The Company enters into contracts in the normal course of business with CROs for clinical trials, with CMOS or other vendors for preclinical studies, supplies and other services and products for operating purposes. These contracts generally provide for termination on notice or may have a potential termination fee if a purchase order is cancelled within a specified time. As of December 31, 2019, and 2020, there were no amounts accrued related to termination and cancellation charges as the Company has not determined cancellation to be probable.

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License Agreements

The Company entered into the License Agreement (Note 6), pursuant to which the Company is required to pay certain cash milestones contingent upon the achievement of specific events. No such milestones were achieved or probable as of December 31, 2020. The Company is required to pay royalties on sales of products developed under this agreement. All products are in development as of December 31, 2020 and no such royalties were due.

Legal Contingencies

From time to time, the Company may become involved in legal proceedings arising from the ordinary course of business. The Company records a liability for such matters when it is probable that future losses will be incurred and that such losses can be reasonably estimated. Significant judgment by the Company is required to determine both probability and the estimated amount. Management is currently not aware of any legal matters that could have a material adverse effect on financial position, results of operations or cash flows.

Operating Leases

In May 2020, the Company entered into a one-year lease agreement for its headquarter facility located in South San Francisco, California with a significant portion of premises allocated to research lab. Due to COVID-19, the use of the entire facility was designated to research and, as such, all associated costs were expensed as research and development. In addition to payment of base rent, the Company is also required to pay property taxes, insurance and common area expenses. The Company records rent expense on a straight-line basis over the term of the lease. The term of the lease is from May 8, 2020 to June 30, 2021, with an option to renew.

As of December 31, 2020, the Company had a remaining obligation for the base rent in the amount $0.2 million.

Guarantees and Indemnifications

In the normal course of business, the Company enters into agreements that contain a variety of representations and provide for general indemnification. Its exposure under these agreements is unknown because it involves claims that may be made against the Company in the future. To the extent permitted under Delaware law, the Company has agreed to indemnify its directors and officers for certain events or occurrences while the director or officer is, or was serving, at a request in such capacity. To date, the Company has not paid any claims or been required to defend any action related to its indemnification obligations. As of December 31, 2019, and 2020, the Company did not have any material indemnification claims that were probable or reasonably possible and consequently has not recorded related liabilities.

8. Redeemable Convertible Preferred Stock

Series A Redeemable Convertible Preferred Stock

In June 2020, the Company issued 10,000,000 shares of its Series A redeemable convertible preferred stock at a price of $1.00 per share for gross cash proceeds of $10.0 million and issued 5,019,949 shares of its Series A redeemable convertible preferred stock upon the conversion of the outstanding convertible note and accrued interest.

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In connection with the initial issuance of the shares of its Series A redeemable convertible preferred stock, the Company had an obligation to sell and the holders had the obligation to purchase the additional 30,000,000 shares of Series A redeemable convertible preferred stock at $1.00 per share upon the achievement of certain milestones as determined by the Board and approved by at least one of the investors, or upon the waiver of such milestones by the holders of at least 75% of the outstanding shares of Series A redeemable convertible preferred stock, in two equal tranches of $15.0 million each. The Company determined that the obligation to sell additional shares is a freestanding financing instrument and a liability. The Company estimated the fair value of the liability to be $3.3 million and recorded it as a reduction to redeemable convertible preferred stock and as a derivative redeemable convertible preferred stock tranche liability in its balance sheet at the issuance date.

In December 2020, the requisite holders waived the second tranche milestone event and the Company issued 15,000,000 shares of its Series A redeemable convertible preferred stock for gross cash proceeds of $15.0 million. The redeemable convertible preferred stock tranche liability related to the second tranche shares was remeasured to fair value of $29.1 million and reclassified to redeemable convertible preferred shares upon the settlement.

In connection with the issuance of Series A redeemable convertible preferred stock, in the year ended December, 31, 2020, the Company incurred issuance costs of $184,000.

As of December 31, 2020, the redeemable convertible preferred stock tranche liability related to the third tranche shares was remeasured at fair value of $29.1 million and continued to be reported in current liabilities. The Company settled the third tranche in February 2021, prior to the closing of the Series B financing (refer to Note 14) and issued 15,000,000 shares of its Series A redeemable convertible preferred stock for gross cash proceeds of $15.0 million. The Company recognized a total of $54.8 million as other loss in the statements of operations and comprehensive loss related to the changes in the fair value of the redeemable convertible preferred stock tranche liabilities during the year ended December 31, 2020.

As of December 31, 2020, the Company was authorized to issue 45,024,986 shares and had issued 30,019,945 shares of its Series A redeemable convertible preferred stock with the following rights, preferences and privileges:

Dividends—The holders of Series A redeemable convertible preferred stock are entitled to receive noncumulative dividends at the rate of 8% per share of the original issuance price, when, as and if declared by the Board. No dividends or other distributions shall be made with respect to the common stock unless dividends on the preferred stock have been declared in accordance with the preferences stated within the certificate of incorporation and all declared dividends on the preferred stock have been paid. No dividends were declared and paid or payable in the year ended December 31, 2020.

Liquidation Rights—In the event of the liquidation, dissolution, or winding up of the Company, or a deemed liquidation event, including a merger or consolidation, or a sale or other disposition of all or substantially all of the Company's assets, the holders of shares of Series A preferred stock are entitled to receive, before any payment are made to the holders of common stock, an amount per share equal to the greater of (i) the Series A original issue price $1.00, plus any dividends declared but unpaid, or (ii) such amount per share as would have been payable had all shares of Series A preferred stock been converted into common stock immediately prior to such liquidation, dissolution, winding up or deemed liquidation. The remaining assets of the Company available for distribution to its stockholders will be distributed (1) first, pro rata among the holders of the common stock and Series A preferred stock on an as-converted basis, until the holders of the Series A preferred stock have received an aggregate of three times the original purchase price per share plus all declared and unpaid dividends on such shares and (2) second, among the holders of shares of common stock, pro rata based on the number of shares held by each such holder.

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***Conversion*—**Each share of Series A preferred stock is be convertible, at the option of the holder thereof, at any time and from time to time, and without the payment of additional consideration by the holder, into such number of shares of common stock as is determined by dividing the Series A original issue price ($1.00) by the Series A conversion price in effect at the time of conversion. The Series A conversion price is initially equal to the Series A original issue price. Such initial Series A conversion price, and the rate at which shares of Series A preferred stock may be converted into shares of common stock, is subject to recapitalization and other adjustments as provided in the certificate of incorporation. In the event of a liquidation, dissolution or winding up of the Company or a deemed liquidation event, the conversion rights shall terminate at the close of business on the last full day preceding the date fixed for the payment of any such amounts distributable on such event to the holders of Series A preferred stock.

All outstanding shares of Series A preferred stock are automatically converted into shares of common stock, at the then effective Series A conversion price and such shares may not be reissued by the Company upon either: (i) the closing of the sale of shares of common stock to the public at a price per share of at least three times the Series A original issue price, in a firm-commitment underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, resulting in at least $50.0 million of gross proceeds to the Company (before deduction of estimated underwriting discounts and commissions and offering expenses payable by the Company) and in connection with such offering the common stock is listed for trading on the Nasdaq Stock Market's Global Market, the New York Stock Exchange or another exchange or marketplace approved by the Board (including in any event, at least one of the preferred directors), or (ii) upon a receipt of a written request for such conversion from the holders of at least 75% of the redeemable convertible preferred stock then outstanding.

In addition, if any holder of shares of Series A preferred stock fails to purchase all of the shares required to be purchased by such holder at a tranche milestone closing and becomes a defaulting purchaser, then each share of Series A preferred stock held by such holder immediately prior to the tranche milestone closing will automatically and without any further action on the part of the Company or such holder, be converted into fully-paid and non-assessable shares of common stock at the rate of 10 shares of Series A preferred stock to one share of common stock. In addition, any common shares owned by such holder at the time of default would also convert at the ratio of 10 shares of common stock to one share of common stock. All investors participated in the second tranche closing and special mandatory conversion was not triggered.

Voting Rights—Except for certain matters or as required by law, the holders of redeemable convertible preferred stock and the holders of common stock vote together and not as separate classes. Each holder of Series A preferred stock is entitled to the number of votes equal to the number of shares of common stock into which the shares of Series A preferred stock could be converted as of the record date.

Certain protective provisions, such as any actions that could adversely affect the Series A preferred stock rights and privileges, alter the capital structure, increase or decrease the size of the Board, or effect any liquidation event, require approval of at least 75% of the outstanding shares of redeemable convertible preferred stock, voting as a single class on an as-converted basis.

Series A redeemable convertible preferred stockholders, voting as a separate class, are entitled to elect three members of the Board (the "preferred directors"). Common stockholders, voting as a separate class, are entitled to elect two members of the Board. The remaining members of the Board are elected by the holders of redeemable convertible preferred stock and common stock, voting together as a single class on an as-converted basis.

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Redemption—Upon the occurrence of certain change in control events that are outside of the Company's control, including liquidation, sale or transfer, holders of the redeemable convertible preferred stock can effectively cause redemption for cash. As a result, the Company classified the redeemable convertible preferred stock as mezzanine equity on the balance sheets as the stock is contingently redeemable.

9. Common Stock

Immediately prior to the effectiveness of domestication and incorporation in the State of Delaware, as described in the Note 1, the Company's outstanding capital consisted of one share with par value of $0.0001 (the "Canadian Share"). Upon effectiveness of the domestication in October 2019, one Canadian Share outstanding converted into one share of common stock with par value of $0.001, which was outstanding at December 31, 2019.

As of December 31, 2020, the Company was authorized to issue 80,000,000 shares of its common stock with $0.00001 par value per share. As of December 31, 2020, 24,998,807 shares of common stock were issued and outstanding. Each share of the Company's common stock is entitled to one vote.

Shares Reserved for Future Issuance

As of December 31, 2020, the Company reserved common stock for future issuances as follows:

Redeemable convertible preferred stock	30,019,945
Outstanding stock option awards	746,000
Shares available for future stock option grants	5,020,152
Total shares reserved for future issuance	35,786,097

Founders' and Investor's Restricted Common Stock

In March 2020 the Board approved and in April 2020, the Company issued 14,790,000 shares of its common stock to its founders and 5,999,999 shares of its common stock to its investor at the purchase price of $0.00001 per share. As of December 31, 2020, the investor's shares were fully vested and a portion of the shares issued were subject to the Company's option to repurchase per the Stanford Adjustment Repurchase Right, as described below.

The shares of the Company's common stock issued to its founders for their advisory and consulting services vest monthly over four years with one year cliff from the vesting commencement date. The vesting commencement date was the date of the initial closing of the Series A preferred stock financing or June 24, 2020. Per the Series A agreement, the vesting of the founders' common stock shares could be accelerated upon signing of term-sheet for the license with Stanford, a change in control, or if the service is terminated by the Company without cause. The Company signed the term sheet with Stanford in June 2020 and as a result 2,218,500 shares of founders' common stock vested pursuant to the acceleration terms.

If a founder terminates the relationship with the Company during the vesting period, the Company may repurchase any unvested restricted common stock at the price per share equal to the lower of (i) the original purchase price, subject to adjustment in the event of any reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split, or (ii) the current fair market value as of the date the Company elects to exercise this repurchase. The repurchase right lapses in 180 days after the termination of the founder's service or employment. During the vesting term, holders of founders' common stock awards are deemed to be common stockholders and have the right to receive dividends and voting rights.

The founders' shares of common stock are also subject to the Company's option to repurchase per the Stanford Adjustment Repurchase Right, as described below.

The Company accounts for shares issued to founders as equity compensation awards and the estimated fair value at the grant date was minimal. As of December 31, 2020, 12,571,500 shares of founders' common stock awards were unvested and expected to vest in 3.5 years.

Stanford Adjustment Repurchase Right: upon the issuance of shares of common stock to Stanford pursuant to the License Agreement, as discussed in Note 6, the Company has a right to repurchase from each founder and an investor a number of shares of common stock equal to the number of shares issued to Stanford multiplied the applicable number of shares issued to the founder or investor, as applicable, divided by 17,690,000 shares (a fully diluted number of shares of the Company at the end of March 2020, after founders and the investor's shares were approved by the board of directors). The Stanford Adjustment Repurchase Right may be exercised by the Company within six months following the date of the issuance of the shares of common stock to Stanford. The repurchase price per share is equal to the lower of (i) the purchase price, subject to adjustment in the event of any reorganization, recapitalization, reclassification, etc., or (ii) the current fair market value as of the date the Company elects to exercise its Stanford Adjustment Repurchase Right. As of December 31, 2020, the Company did not issue any shares of common stock to Stanford and did not repurchase any founders' or the investor's shares. The Company accounts for founders and investor's shares of restricted common stock as equity share-based awards.

10. Equity Incentive Plans

The Company grants share-based awards under the 2020 Stock Option Plan, as amended (the "2020 Plan"). The Company may grant under the 2020 Plan incentive stock options, nonqualified stock options, restricted stock awards, restricted stock units and other share-based awards to the Company's officers, employees, directors and consultants. Options under the 2020 Plan may be granted for periods of up to 10 years and at prices no less than 100.0% of the estimated fair value of the shares on the date of grant as determined by the Board, provided, however, that the exercise price of an incentive stock option granted to a 10.0% stockholder shall not be less than 110.0% of the estimated fair value of the shares on the date of grant and the option is not exercisable after the expiration of five years from the date of grant. Options generally vest monthly over four years with or without one year cliff vesting. Per the 2020 Plan, granted options maybe early exercised and the Company will issue shares of restricted stock upon the early exercise with vesting terms consistent with the original grant.

As of December 31, 2020, 9,974,959 shares were reserved for issuance under the 2020 Plan and 5,020,152 shares were available for future grants. The table below presents a summary of activities and a reconciliation of common shares remaining for grant under the 2020 Plan:

Shares authorized under 2020 Plan	9,974,959
Options granted	(2,928,986)
Restricted stock awards granted	(2,025,821)
Remaining shares available for grant as of December 31, 2020	5,020,152

Restricted Stock Awards

The Company issued 2,025,821 shares as restricted stock awards under the 2020 Plan. The purchase price of the restricted common stock awards was fair value as determined by the Board at the issuance date. The shares vest monthly over four years with the one-year cliff vesting from the grant date. Upon termination of employment, the Company has the right to repurchase any unvested restricted shares. The repurchase price for unvested shares of common stock will be the lower of (i) the fair market value on the date of repurchase or (ii) their original purchase price.

Graphite Bio, Inc.
Notes to Financial Statements

The Company accounted for restricted stock awards as early exercised options and recognized a liability in other liabilities when cash was received for the purchase of shares of restricted stock awards. As shares of restricted stock awards vest, the Company reclassified the liability to common stock and additional paid in capital. As of December 31, 2020, the Company recorded a liability for restricted stock awards included in other liabilities of $36.

The Company used the Black-Scholes option pricing model to estimate stock-based compensation expense related for issued restricted stock awards with the following assumptions for the year ended December 31, 2020:

Expected volatility	66.30% - 67.60%
Expected dividend yield	0%
Expected term (in years)	2.84 - 3.12
Risk-free interest rate	0.16% - 0.39%

Awards granted during the year ended December 31, 2020 had an estimated weighted average grant date fair value per share of $0.02 and the total fair value of such awards was $36,000. No restricted stock awards shares were cancelled, repurchased or vested as of December 31, 2020. Total intrinsic value of outstanding unvested restricted stock awards was $4.0 million as of December 31, 2020. There was no activity for restricted stock awards in the year ended December 31, 2019.

Incentive Stock Options and Nonqualified Stock Options

Stock options issued under the 2020 Plan, generally, vest over a four-year period and expire ten years from the date of grant. Certain options provide for accelerated vesting if there is a change in control, as defined in the individual award agreements.

The Company used the Black-Scholes option pricing model to estimate stock-based compensation expense for stock option awards with the following assumptions for the year ended December 31, 2020:

Expected volatility	77.91% - 79.18%
Expected dividend yield	0%
Expected term (in years)	5.91 - 6.07
Risk-free interest rate	0.37% - 0.53%

A summary of option activity under the 2020 Plan is as follows:

	Number of Options	Weighted-Average Exercise Price Per Share	Weighted-Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Outstanding as of December 31, 2019	—	$ —	—	—
Granted	2,928,986	$ 0.12		
Exercised	(2,182,986)	$ 0.12		
Outstanding as of December 31, 2020	746,000	$ 0.12	9.9	$ 1,365
Exercisable	—	$ —	—	$ —
Vested and expected to vest at December 31, 2020	746,000	$ 0.12	9.9	$ 1,365

Graphite Bio, Inc.
Notes to Financial Statements

Aggregate intrinsic value represents the difference between the fair value of the underlying common stock and the exercise price as of December 31, 2020. The weighted-average grant date fair value of options granted in 2020 is $1.04. The intrinsic value of the stock options exercised was $2.8 million for the year ended December 31, 2020. There was no activity for options in the year ended December 31, 2019.

Early Exercise of Stock Options

The terms of the 2020 Plan permit the exercise of options granted prior to vesting, subject to required approvals. The unvested shares are subject to the repurchase right upon termination of employment at the original purchase price. The repurchase right lapses in 180 days after the termination of the employee's employment. Shares purchased by employees pursuant to the early exercise of stock options are not deemed, for accounting purposes, to be issued until those shares vest according to their respective vesting schedules. Cash received for early exercised stock options is recorded as other liabilities on the balance sheet and is reclassified to common stock and additional paid-in capital as such shares vest.

At December 31, 2020, 2,103,994 shares remained subject to the right of repurchase as a result of the early exercised stock options. The remaining liability related to early exercised shares as of December 31, 2020 was $0.3 million and was recorded in other liabilities in the balance sheet.

Stock-Based Compensation Expense

The following table presents the components of stock-based compensation expense for the Company's stock-based awards for the year ended December 31, 2020 (in thousands):

Restricted stock awards and founders' common stock awards	$ 6
Stock options	171
Total stock-based compensation expense	$177

The following table presents the classification of stock-based compensation expense for the Company's stock-based awards for the year ended December 31, 2020 (in thousands):

Research and development expenses	$123
General and administrative expenses	54
Total stock-based compensation expense	$177

As of December 31, 2020, there was $2.9 million of unrecognized stock-based compensation expense related to the employee andnon-employee awards, which is expected to be recognized over a weighted-average period of 3.7 years. There was no stock-based compensation expense recognized in the year ended December 31, 2019.

Graphite Bio, Inc.
Notes to Financial Statements

11. Net Loss Per Share Attributable to Common Stockholders

The following table sets forth the computation of basic and diluted net loss per share in the year ended December 31, 2020 attributable to common stockholders, which excludes shares which are legally outstanding, but subject to repurchase by the Company (in thousands, except share and per share amounts):

	Year Ended December 31,	
	2019	2020
Numerator:		
Net loss	$ (109)	$ (68,373)
Denominator:		
Weighted-average common shares outstanding	1	17,033,101
Less: Weighted-average unvested restricted shares and shares subject to repurchase	—	(11,478,202)
Weighted-average shares used to computing basic and diluted net loss per share	1	5,554,899
Net loss per share attributable to common stockholders—basic and diluted:	($109,000.00)	($ 12.31)
Anti-dilutive outstanding shares or equivalents		
Redeemable convertible preferred stock	—	30,019,945
Options to purchase common stock	—	746,000
Unvested restricted common stock	—	14,597,321
Total	—	45,363,266

As of December 31, 2019, 1 common share was issued and outstanding and total net loss of $109,000 was allocated to this share. No other securities were outstanding as of December 31, 2019 that potentially might be dilutive.

12. Related Party Transactions

Related Party Convertible Notes and Expenses Reimbursement

In June 2017, the Company issued a convertible promissory note (the "2017 Note") to its sole investor, Versant, for $2.0 million with 4% annual interest rate payable upon maturity in December 2018. The outstanding principal amount of the 2017 Note and any unpaid accrued interest were automatically convertible into preferred shares sold in a qualified financing, as defined in the agreement at a conversion price equal to the lesser of: 80% of the purchase price paid per preferred share, and $5.0 million divided by the aggregate number of the Company's fully diluted equity immediately prior to the closing of the qualified financing. The Company could not prepay the 2017 Note without the consent of the holder. In an event of change of control, the holder could, at the option of the holder and upon written notice to the Company, elect to convert the principal and accrued interest as of the date of such election (if not previously converted or repaid) into number of shares of the Company's common shares at the conversion price equal to $3.0 million divided by the aggregate number of the Company's fully diluted equity immediately prior to the date of such election. On the maturity date, the holder could, at the option of the holder and upon a written notice to the Company, elect to convert the principal and accrued interest into number of shares of a newly designated series of the Company's preferred shares (at the conversion price equal to $3.0 million divided by the aggregate number of the Company's fully diluted equity prior to the maturity date. Upon an event of default, as defined in the agreement, at the option and upon the declaration of the holder and upon written notice to the Company, all principal and unpaid accrued interest would become due and payable.

Graphite Bio, Inc.
Notes to Financial Statements

As of December 31, 2019, the 2017 Note was outstanding and in default and continued to accrue interest at 4% per year. In April 2020, the outstanding principal and accrued interest of $2.3 million was forgiven and the transaction was recorded to additional paid in capital as a related party investor note forgiveness. The Company accounted for the forgiveness as a debt extinguishment. The estimated fair values of the embedded share-settlement put option and default options were minimal as of December 31, 2019 and as of the cancellation date.

In March 2020, the Company issued a new convertible promissory note (the 2020 Note) for $5.0 million to the same investor with an interest rate of 1.6% per annum payable at maturity in March 2021. The outstanding principal amount of the 2020 Note and any unpaid accrued interest were automatically convertible into the Company's preferred shares sold in a qualified financing, as defined in the agreement, into that number of preferred shares sold in such qualified financing as is equal to the quotient of (i) the conversion amount (note principal and accrued interest) divided by (ii) the per share price at which the preferred shares are sold in such qualified financing and on such other terms and conditions provided to investors in the qualified financing. The Company could not prepay the note without the consent of the holder. In an event of change of control, the holder could, at the option of the holder and upon written notice to the Company, elect to convert the principal and accrued interest as of the date of such election (if not previously converted or repaid) into number of shares of the Company's common shares at the conversion price equal to $31.7 million divided by the aggregate number of the Company's fully diluted equity immediately prior to the date of such election. On the maturity date, the holder could, at the option of the holder and upon a written notice to the Company, elect to convert the principal and accrued interest into number of shares of a newly designated series of the Company's preferred shares (at the conversion price equal to $31.7 million divided by the aggregate number of the Company's fully diluted equity prior to the maturity date. Upon an event of default, as defined in the agreement, at the option and upon the declaration of the holder and upon written notice to the Company, all principal and unpaid accrued interest would become due and payable.

The principal and accrued interest of the 2020 Note were converted to 5,019,945 shares of the Company's Series A redeemable convertible preferred stock in June 2020, per its embedded share-settlement put option provision. Issued preferred shares were recorded at fair value at the issuance date, and there was no extinguishment gain or loss recorded on the conversion.

During 2020, the Company reimbursed certain expenses to the same investor, primarily due diligence, legal and marketing expenses. As of December 31, 2020, the Company had recorded $86,000 in accrued expenses payable, of which $66,000 were recorded as preferred stock financing issuance costs and $20,000 as general and administrative expenses.

Founders Consulting Agreements and Expenses Reimbursement

In March 2020, the Company entered into the consulting agreements with two founders, who also received founders' common stock shares. The Company paid $107,000 for board services, advisory and consulting services, which were recorded as general and administrative expenses in the statements of operations and comprehensive loss.

The Company also agreed to reimburse $250,000 of legal, travel and other expenses incurred by the founders prior to joining the Company, which were paid in September 2020. Founders' expenses are recorded as general and administrative expenses in the statements of operations and comprehensive loss.

13. Income Taxes

No provision for income taxes was recorded for the years ended December 31, 2019 and 2020. The Company has incurred net operating losses only in the United States since its inception. The Company has not reflected any benefit of such net operating loss carryforwards in the financial statements.

Graphite Bio, Inc.
Notes to Financial Statements

A reconciliation of the U.S. federal statutory income tax rate to the Company's effective income tax rate was as follows:

	Year Ended December 31,	
	2019	2020
Income tax computed at federal statutory rate	21.00%	21.00%
State taxes, net of federal tax benefit	1.83	0.17
Preferred stock tranche liability	—	(16.84)
Cancellation of debt	—	(0.61)
General business credit—federal	—	(0.05)
Interest expense	(15.42)	(0.01)
Other permanent differences	—	(0.13)
Change in valuation allowance	(7.41)	(3.53)
Effective income tax rate	—%	—%

Net deferred tax assets and liabilities consisted of the following (in thousands):

	As of December 31,	
	2019	2020
Deferred tax assets		
Net operating losses	$ 8	$ 2,269
Research and development credits	—	81
Accrued expenses	—	105
Gross deferred tax assets	8	2,455
Valuation allowance	(8)	(2,414)
Total deferred tax assets	—	41
Deferred tax liabilities		
Other	—	(41)
Total deferred tax liabilities	—	(41)
Net deferred tax balance	$ —	$ —

Net operating losses and tax credit carryforwards were as follows as of December 31, 2020 (dollars in thousands):

		Expiration Year
Net operating losses, federal (starting from January 1, 2018)	$ 10,793	Does not expire
Net operating losses, federal (before January 1, 2018)	—	—
Net operating losses, state	29	2039
Tax credits, federal	—	—
Tax credits, state	147	Does not expire

Utilization of the net operating loss carryforwards and research credit carryforwards may be subject to an annual limitation due to the ownership percentage change limitations provided by the Internal Revenue Code, as amended, ("IRC"), and similar state provisions. Annual limitations may result in the expiration of the net operating losses and tax credit carryforwards before they are utilized. The Company did not perform an IRC Section 382 analysis and any previous ownership changes may result in a limitation that will reduce the total

amount of net operating loss and tax credit carryforwards disclosed that can be utilized. Subsequent ownership changes may affect the limitation in future years.

During the years ended December 31, 2019 and 2020, the Company recorded a full valuation allowance on federal and state deferred balances since management does not forecast the Company to be in a profitable position in the near future. Changes in the valuation allowance for deferred tax assets during the years ended December 31, 2019 and 2020 related primarily to the increases in net operating loss carryforwards and research and development tax credit carryforwards and were as follows (in thousands):

	Year Ended December 31,	
	2019	2020
Valuation allowance at the beginning of the year	$ —	$ 8
Increases recorded to income tax provision	8	2,406
Valuation allowance at the end of the year	$ 8	$2,414

The Company's U.S. federal and state income tax returns are generally subject to tax examinations for the tax years from inception through December 31, 2020. There are currently no pending income tax examinations. To the extent the Company has tax attribute carryforwards, the tax years in which the attribute was generated may still be adjusted upon examination by the Internal Revenue Service and state tax authorities to the extent utilized in a future period.

As of December 31, 2020, the Company had no unrecognized tax benefits. The entire amount of the unrecognized tax benefits would not impact the Company's effective tax rate if recognized. The Company's policy is to record interest and penalties related to income taxes as part of its income tax provision. The Company has elected to include interest and penalties as a component of tax expense. During the years ended December 31, 2019 and 2020, the Company did not recognize accrued interest and penalties related to unrecognized tax benefits. The Company does not anticipate that the amount of existing unrecognized tax benefits will significantly increase or decrease during the next 12 months.

14. Subsequent Events

The Company has reviewed and evaluated subsequent events as of December 31, 2020 through April 16, 2021, the date that the financial statements were available to be issued.

On January 22, 2021, the Company entered into the first exclusive option agreement with Stanford for additional technologies and will pay $10,000 upon exercise of the option. In addition, upon exercise of the option, the Company will issue Stanford 321,358 shares of common stock.

On January 27, 2021, the Company entered into a new lease agreement for lab space in South San Francisco, CA which will commence on October 1, 2021. The term of the lease is 42 months with a right to extend the term of for additional two years on the same terms and conditions.

On February 16, 2021, the Company issued 15,000,000 shares of Series A redeemable convertible preferred stock with the settlement of the tranche liability for $15.0 million gross cash proceeds.

On March 4, 2021, the Company amended the Stanford License to increase the number of shares to be issued to Stanford in connection with the closing of the second tranche of Series A preferred financing from 459,433 to 478,325, and extended by a month the time when the shares are expected to be issued. On April 7, 2021, the Company amended the Stanford License again and extended the time when the shares will be issued by another month to May 7, 2021.

Graphite Bio, Inc.
Notes to Financial Statements

On March 11, 2021, the Company authorized and issued 29,792,487 shares of Series B redeemable convertible stock at the purchase price of $5.06 per share for a total of $150.7 million in gross cash proceeds. In connection with entering into Series B agreement, the Company increased the number of authorized shares of common stock to 120,000,000.

On April 13, 2021, the Company entered into the second exclusive option agreement with Stanford for additional technologies. Pursuant to the second option agreement, the Company agreed to pay Stanford option fees in an aggregate amount of $30,000 over the term of the option.

Graphite Bio, Inc.
Condensed Balance Sheets
(in thousands, except share and per share data) (unaudited)

	As of December 31, 2020	As of March 31, 2021
Assets		
Current assets:		
Cash and cash equivalents	$ 19,782	$ 177,015
Restricted cash	35	149
Prepaid expenses and other current assets	1,286	3,102
Total current assets	21,103	180,266
Property and equipment, net	1,461	1,918
Other assets	—	728
Total assets	$ 22,564	$ 182,912
Liabilities, redeemable convertible preferred stock, and stockholders' deficit		
Current liabilities:		
Accounts payable	$ 630	$ 1,606
Accrued compensation	466	287
Accrued expenses and other current liabilities	1,890	4,500
Series A redeemable convertible preferred stock tranche liability	29,062	—
Total current liabilities	32,048	6,393
Other liabilities	316	64
Total liabilities	32,364	6,457
Commitments and contingencies (Note 7)		
Series A redeemable convertible preferred stock, $0.00001 par value; 45,024,986 and 45,019,945 shares authorized as of December 31, 2020 and March 31, 2021, respectively; 30,019,945 and 45,019,945 shares issued and outstanding as of December 31, 2020 and March 31, 2021, respectively; liquidation preference $30,020 and $45,020 as of December 31, 2020 and March 31, 2021, respectively.	55,608	110,008
Series B redeemable convertible preferred stock, $0.00001 par value; 29,792,487 shares authorized, 29,792,487 shares issued and outstanding; liquidation preference $150,750 as of March 31, 2021	—	150,524
Stockholders' deficit:		
Common stock, $0.00001 par value, 80,000,000 and 120,000,000 shares authorized as of December 31, 2020 and March 31, 2021, respectively; 24,998,807 and 27,233,407 shares issued and outstanding as of December 31, 2020 and March 31, 2021, respectively.	—	—
Additional paid-in capital	5,183	6,223
Accumulated deficit	(70,591)	(90,300)
Total stockholders' deficit	(65,408)	(84,077)
Total liabilities, redeemable convertible preferred stock, and stockholders' deficit	$ 22,564	$ 182,912

The accompanying notes are an integral part of these unaudited condensed financial statements.

Graphite Bio, Inc.
Condensed Statements of Operations and Comprehensive Loss
(in thousands, except share and per share data)
(unaudited)

	Three Months Ended March 31,	
	2020	2021
Operating expenses:		
Research and development	$ —	$ 5,377
General and administrative	121	3,991
Total operating expenses	121	9,368
Loss from operations	(121)	(9,368)
Other income (expense), net:		
Related party convertible note interest expense	(20)	—
Change in fair value of the Series A redeemable convertible preferred stock tranche liability	—	(10,341)
Total other income (expense), net	(20)	(10,341)
Net loss and comprehensive loss	$ (141)	$ (19,709)
Net loss per share attributable to common stockholders—basic and diluted	$ (141,000)	$ (2.37)
Weighted-average shares used in computing net loss per share—basic and diluted	1	8,329,815

The accompanying notes are an integral part of these unaudited condensed financial statements.

Graphite Bio, Inc.
Condensed Statements of Redeemable Convertible Preferred Stock and Stockholders' Deficit
(in thousands, except share data)
(unaudited)

	Redeemable Convertible Preferred Stock				Common Stock		Additional Paid-In Capital	Accumulated Deficit	Total Stockholders' Deficit
	Series A		Series B						
	Shares	Amount	Shares	Amount	Shares	Amount			
Balance as of December 31, 2019	—	$ —	—	$ —	1	$ —	$ —	$ (2,218)	$ (2,218)
Net loss	—	—	—	—	—	—	—	(141)	(141)
Balance as of March 31, 2020	—	$ —	—	$ —	1	$ —	$ —	$ (2,359)	$ (2,359)

The accompanying notes are an integral part of these unaudited condensed financial statements

Graphite Bio, Inc.
Condensed Statements of Redeemable Convertible Preferred Stock and Stockholders' Deficit
(in thousands, except share data)
(unaudited)

	Redeemable Convertible Preferred Stock				Common Stock		Additional Paid-In Capital	Accumulated Deficit	Total Stockholders' Deficit
	Series A		Series B						
	Shares	Amount	Shares	Amount	Shares	Amount			
Balance as of December 31, 2020	30,019,945	$ 55,608	—	$ —	24,998,807	$ —	$ 5,183	$ (70,591)	$ (65,408)
Issuance of Series A redeemable convertible preferred stock for cash, net of issuance costs of $4	15,000,000	14,997	—	—	—	—	—	—	—
Issuance of Series B redeemable convertible preferred stock for cash, net of issuance costs of $226	—	—	29,792,487	150,524	—	—	—	—	—
Stock based compensation expense	—	—	—	—	—	—	1,033	—	1,033
Common stock shares issued upon early exercise of options	—	—	—	—	2,234,600	—	—	—	—
Vesting of early exercised stock options	—	—	—	—	—	—	7	—	7
Reclassification of tranche liability upon settlement	—	39,403	—	—	—	—	—	—	—
Net loss	—	—	—	—	—	—	—	(19,709)	(19,709)
Balance as of March 31, 2021	45,019,945	$ 110,008	29,792,487	$ 150,524	27,233,407	$ —	$ 6,223	$ (90,300)	$ (84,077)

The accompanying notes are an integral part of these unaudited condensed financial statements

Graphite Bio, Inc.
Condensed Statements of Cash Flows
(in thousands)
(unaudited)

	Three Months Ended March 31,	
	2020	2021
Cash flows from operating activities:		
Net loss	$ (141)	$ (19,709)
Adjustments to reconcile net loss to net cash used in operations:		
Depreciation	—	90
Interest expense related to convertible notes	20	—
Stock based compensation expense	—	1,033
Change in fair value of the Series A redeemable convertible preferred stock tranche liability	—	10,341
Changes in assets and liabilities:		
Prepaid expenses and other current assets	—	(1,816)
Accounts payable	8	83
Accrued compensation	—	(179)
Accrued expenses and other current liabilities	109	2,097
Net cash used in operating activities	(4)	(8,060)
Cash flows from investing activities		
Purchases of property and equipment	—	(360)
Net cash used in investing activities	—	(360)
Cash flows from financing activities		
Net proceeds from issuance of Series B redeemable convertible preferred stock	—	150,635
Net proceeds from issuance of Series A redeemable convertible preferred stock	—	14,997
Payment of deferred offering costs	—	(133)
Proceeds from issuance of common stock shares upon early exercises of stock options	—	268
Net cash provided by financing activities	—	165,767
Net (decrease) increase in cash, cash equivalents and restricted cash	(4)	157,347
Cash, cash equivalents and restricted cash, at beginning of period	6	19,817
Cash, cash equivalents and restricted cash, at end of period	$ 2	$ 177,164
Reconciliation of cash, cash equivalents and restricted cash to statement of financial position		
Cash and cash equivalents	$ 2	$ 177,015
Restricted cash	—	149
Cash, cash equivalents and restricted cash in statement of financial position	$ 2	$ 177,164
Supplemental disclosures of non-cash investing and financing information:		
Property and equipment included in accounts payable	$ —	$ (187)
Vesting of early exercised stock options	$ —	$ 7
Settlement of Series A redeemable convertible preferred stock tranche liability	$ —	$ (39,403)
Deferred offering costs included in accounts payable and accrued expenses	$ —	$ (595)
Issuance costs for Series B redeemable convertible preferred stock included in accounts payable	$	$ 111

The accompanying notes are an integral part of these unaudited condensed financial statements.

Graphite Bio, Inc.
Notes to Condensed Financial Statements
(unaudited)

1. Description of Business, Organization and Liquidity

Organization and Business

Graphite Bio, Inc. (the "Company") is a clinical-stage, next-generation gene editing company harnessing high efficiency targeted gene integration to develop a new class of therapies to potentially cure a wide range of serious and life-threatening diseases. The Company is pioneering a precision gene editing approach to achieve one of medicine's most elusive goals: to precisely "find & replace" any gene in the genome. The Company's next-generation gene editing platform allows us to precisely correct mutations, replace entire disease-causing genes with normal genes, or insert new genes into predetermined, safe locations. The Company's lead product candidate GPH101 is a highly differentiated approach with the potential to directly correct the mutation that causes sickle cell disease (SCD) and restore normal adult hemoglobin (HgbA) expression. The Company has received clearance of its IND application and intends to enroll the first patient in a Phase 1/2 clinical trial in .

From its inception in 2017, the Company's primary activities have been to perform research and development, undertake preclinical studies and enable manufacturing activities in support of its product development efforts, organize and staff the Company, establish its intellectual property portfolio, and raise capital to support and expand such activities.

The Company was incorporated in Ontario, Canada in June 2017 as Longbow Therapeutics Inc., and was reincorporated in the State of Delaware in October 2019. In February 2020, the Company changed its name to Integral Medicines, Inc., and again in August 2020, changed the name to Graphite Bio, Inc. Research and development of the Company's initial technology ceased at the end of 2018, and the Company did not have any significant operations or any research and development activities in 2019. In March 2020, the Company identified new gene editing technology which the Company sought to further develop, and the Company licensed the related intellectual property from The Board of Trustees of the Leland Stanford Junior University ("Stanford") in December 2020 (Note 6).

Liquidity

The Company has incurred significant operating losses since inception and has primarily relied on private equity and convertible debt financings to fund its operations. As of March 31, 2021, the Company had an accumulated deficit of $90.3 million, of which $10.3 million related to the change in the fair value of the redeemable convertible preferred stock tranche liability. The Company expects to continue to incur substantial losses, and its transition to profitability will depend on the successful development, approval and commercialization of product candidates and on the achievement of sufficient revenues to support its cost structure. The Company may never achieve profitability, and unless and until then, the Company will need to continue to raise additional capital. Management expects that the existing cash of $177.0 million as of March 31, 2021, including $15.0 million cash received in connection with the closing of the third tranche of Series A preferred stock financing in February 2021 and $150.7 million cash received in March 2021 in connection with the Series B preferred stock financing, will be sufficient to fund its current operating plan for at least the next 12 months from the date of issuance of these unaudited condensed financial statements.

Coronavirus Pandemic

In March 2020, the World Health Organization declared the global novel coronavirus disease 2019("COVID-19"), outbreak a pandemic. The ongoing COVID-19 pandemic may continue to affect the Company's ability to initiate and complete preclinical studies, delay the initiation of its planned clinical trials or future clinical trials or the progress or completion of its ongoing clinical trials, impede regulatory activities, disrupt the

Graphite Bio, Inc.
Notes to Condensed Financial Statements
(unaudited)

supply chain and the manufacture or shipment of drug substances and finished drug products for its product candidates for use in its clinical trials, impair testing, monitoring, data collection and analysis and other related activities or have other adverse effects on the Company's business, financial condition, results of operations and prospects. In addition, the pandemic has caused substantial disruption in the financial markets and may adversely impact economies worldwide, both of which could result in adverse effects on the Company's business and operations and its ability to raise additional funds to support our operations.

The Company is following, and will continue to follow, recommendations from the U.S. Centers for Disease Control and Prevention as well as federal, state, and local governments regarding working-from-home practices for non-essential employees as well as return-to-work policies and procedures. The Company expects to continue to take actions as may be required or recommended by government authorities or as the Company determines are in the best interests of its employees and other business partners in light of the pandemic.

In light of the ongoing COVID-19 pandemic, the Company's partner Stanford was delayed in making an IND- filing. While the Company's operations to date have not been significantly impacted by the COVID-19 pandemic, it cannot at this time predict the specific extent, duration, or full impact that the COVID-19 pandemic will have on its business, financial condition and operations, including planned clinical trials and clinical development timelines, The impact of the COVID-19 pandemic on the Company's financial performance will depend on future developments, including the duration and spread of the pandemic, its impact on the Company's clinical trial enrollment, trial sites, contract research organizations ("CROs"), contract manufacturing organizations ("CMOs"), and other third parties with whom it does business, its impact on regulatory authorities and the Company's key scientific and management personnel, progress of vaccination and related governmental advisories and restrictions. These developments and the impact of the COVID-19 pandemic on the financial markets and the overall economy are highly uncertain and cannot be predicted. If the financial markets or the overall economy are impacted for an extended period, the Company's business may be materially adversely affected**.**

2. Summary of Significant Accounting Policies

Basis of Presentation

These financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP").

Unaudited Interim Condensed Financial Statements

The interim condensed balance sheet as of March 31, 2021, and the condensed statements of operations, and cash flows for the three months ended March 31, 2020 and 2021 are unaudited. The unaudited interim condensed financial statements have been prepared on the same basis as the annual financial statements and reflect, in the opinion of management, all adjustments of a normal and recurring nature that are necessary for the fair statement of the Company's financial position as of March 31, 2021 and its results of operations and cash flows for the three months ended March 31, 2020 and 2021. The financial data and the other financial information disclosed in these notes to the financial statements related to the three-month periods are also unaudited. The results of operations for the three months ended March 31, 2021 are not necessarily indicative of the results to be expected for the year ending December 31, 2021, or for any other future annual or interim period. The condensed balance sheet as of December 31, 2020, included herein was derived from the audited financial statements as of that date. Certain information and footnote disclosures normally included in financial statements prepared in accordance with U.S. GAAP have been condensed or omitted from these interim financial statements. These unaudited condensed financial statements should be read in conjunction with the Company's audited financial statements included elsewhere in this prospectus.

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Use of Estimates

The preparation of condensed financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the condensed financial statements, and the reported amounts of expenses during the reporting period. On an ongoing basis, the Company evaluates estimates and assumptions, including but are not limited to those related to the fair value of the redeemable convertible preferred stock tranche liability, the fair value of redeemable convertible preferred stock and common stock, stock-based compensation expense, accruals for research and development costs, the valuation of deferred tax assets, and uncertain income tax positions. Management bases its estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ materially from those estimates.

Concentration of Credit Risk

Cash, cash equivalents, and restricted cash are financial instruments that potentially subject the Company to concentrations of credit risk. Substantially all of the Company's cash and cash equivalents are deposited in accounts with major financial institution and amounts may exceed federally insured limits. Management believes that the Company is not exposed to significant credit risk due to the financial strength of the depository institution in which the cash and cash equivalents are held. The Company has not experienced any losses on deposits of cash and cash equivalents.

Risks and Uncertainties

The Company is subject to certain risks and uncertainties, including, but not limited to, changes in any of the following areas that the Company believes could have a material adverse effect on the future financial position or results of operations: the timing of, and the Company's ability to advance its current and future product candidates into and through clinical development; costs and timelines associated with the manufacture of clinical supplies of the Company's product candidates; regulatory approval and market acceptance of, and reimbursement for its product candidates; performance of third-party CROs and CMOs; competition from pharmaceutical companies with greater financial resources or expertise; protection of the intellectual property; litigation or claims against the Company based on intellectual property or other factors; and its ability to attract and retain employees necessary to support its growth. Disruption from CROs', CMOs' or suppliers' operations would likely have a negative impact on the Company's business, financial position and results of operations.

Segment and Geographical Information

The Company operates and manages its business as one reportable and operating segment. The chief executive officer, who is the chief operating decision maker, reviews financial information on an aggregate basis for purposes of allocating resources and evaluating financial performance. All of the Company's long-lived assets are based in the United States.

Cash and Cash Equivalents

The Company considers all highly liquid investments purchased with a maturity of three months or less at the date of purchase to be cash equivalents. As of December 31, 2020 and March 31, 2021, cash and cash equivalents consisted of cash and money market funds.

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Restricted Cash

Restricted cash of $34,870 and $149,079 as of December 31, 2020 and March 31, 2021, respectively, represented security deposits in the form of a letter of credit issued in connection with the leases of the Company's headquarters (refer to Note 7).

Deferred Offering Costs

The Company capitalizes certain legal, accounting and other third-party fees that are directly relatedto in-process equity financings, including the planned initial public offering of its common stock (the "IPO"), until such financings are consummated. After consummation of the IPO, these costs are recorded as a reduction of the proceeds received as a result of the offering. Should the planned equity financing be abandoned, the deferred offering costs will be immediately recognized as operating expenses. As of December 31, 2020 and March 31, 2021, the Company incurred $0 and $0.7 million of deferred offering costs related to the IPO, which were capitalized and recorded within other assets on the Company's condensed balance sheets.

Property and Equipment, Net

Property and equipment are recorded at cost, less accumulated depreciation and amortization. Depreciation is computed using the straight-line method over the estimated useful lives of the assets, generally three to five years. Repairs and maintenance expenditures, which are not considered improvements and do not extend the useful life of property and equipment, are expensed as incurred. When assets are retired or otherwise disposed of, the cost and related accumulated depreciation and amortization are removed from the balance sheet and the resulting gain or loss is reflected in the condensed statements of operations and comprehensive loss in the period realized.

Asset Acquisitions

The Company measures and recognizes asset acquisitions that are not deemed to be business combinations based on the cost to acquire the assets, which includes transaction costs. Goodwill is not recognized in asset acquisitions. In an asset acquisition, the cost allocated to acquire in-process research and development ("IPR&D") with no alternative future use is charged to research and development expense at the acquisition date. Please refer to Note 6 for more details on the asset acquisition.

Impairment of Long-Lived Assets

The Company reviews long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability is measured by comparing the carrying amount to the future undiscounted net cash flows which the assets are expected to generate. If such assets are considered to be impaired, the impairment to be recognized is measured as the amount by which the carrying amount of the assets exceeds the projected discounted future net cash flows generated by the assets. There have been no such impairments of long-lived assets in the three months ended March 31, 2020 and 2021.

Redeemable Convertible Preferred Stock

The Company records shares of redeemable convertible preferred stock at their respective fair values on the dates of issuance, net of issuance costs. The redeemable convertible preferred stock is recorded outside of permanent equity because while it is not mandatorily redeemable, redemption is contingent upon the occurrence

of certain events considered not solely within the Company's control. The Company has not adjusted the carrying values of the redeemable convertible preferred stock to the liquidation preferences of such shares because it is uncertain whether or when a deemed liquidation event would occur that would obligate the Company to pay the liquidation preferences to holders of shares of redeemable convertible preferred stock. Subsequent adjustments to the carrying values to the liquidation preferences will be made only when it becomes probable that such a deemed liquidation event will occur.

Series A Redeemable Convertible Preferred Stock Tranche Liability

The Company has determined that its obligation to issue additional shares of Series A redeemable convertible preferred stock upon the occurrence of certain events or the Company's Board of Directors (the "Board") consent represents a freestanding financial instrument. The instrument is classified as a liability on the condensed balance sheets and is subject to re-measurement at each balance sheet date and at the settlement date, any change in fair value is recognized in the change in fair value of the redeemable convertible preferred stock tranche liability in the condensed statements of operations and comprehensive loss. During the three months ended March 31, 2021, the Company settled the remaining liability related to the third tranche of the Series A redeemable convertible preferred stock.

Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. The carrying amounts of financial instruments, including restricted cash, prepaid expenses and other current assets, accounts payable, accrued compensation, accrued expenses, and other liabilities, approximate fair value due to their short-term maturities. The cash invested in money-market funds and redeemable convertible preferred stock tranche liability are carried at fair value.

Research and Development Expenses

Research and development costs are expensed as incurred. Research and development costs include salaries, stock-based compensation, and benefits for employees performing research and development activities, an allocation of facility and overhead expenses, expenses incurred under agreements with consultants, CMOs, CROs and investigative sites that conduct preclinical studies, other supplies and costs associated with product development efforts, preclinical activities, and regulatory operations.

Accrued Research and Development Expenses

The Company has entered into various agreements with outsourced vendors, CROs and CMOs. Research and development accruals are estimated based on the level of services performed, progress of the studies, including the phase or completion of events, and contracted costs. The estimated costs of research and development services provided, but not yet invoiced, are included in accrued expenses on the condensed balance sheets. If the actual timing of the performance of services or the level of effort varies from the original estimates, the Company will adjust the accrual accordingly. Payments made under these arrangements in advance of the performance of the related services are recorded as prepaid expenses and other current assets until the services are rendered. To date, there have been no material differences between estimates of such expenses and the amounts actually incurred.

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Accrued Repurchase Liability for Common Stock

The Company records as a liability the purchase price of unvested common stock that the Company has a right to repurchase if and when the stockholder ceases to be a service provider to the Company before the end of the requisite service period. The liability is recorded in the amount of proceeds received from a stockholder and related to the early exercise of unvested common stock. The proceeds are initially recorded as a liability within accrued expenses and other current liabilities, and subsequently are reclassified to additional paid-in capital as the Company's repurchase right lapses.

Tax Credit Receivable

The Company is eligible for federal and California research and development credits for its research and development activities performed within the United States and California, respectively. The credits are, generally, available to offset federal and California income tax liabilities as applicable. The Company has applied $0.2 million of federal research and development credits to offset its federal payroll tax expenses for the year ended December 31, 2020 due to its small business status, which was outstanding as of December 31, 2020 and March 31, 2021. The Company is electing to utilize $0.3 million of current year R&D credit generated against the employer portion of the payroll tax.

Income Taxes

The Company accounts for income taxes using the asset and liability method. The Company recognizes deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the condensed financial statements or tax returns. Deferred tax assets and liabilities are determined based on the difference between the condensed financial statements and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse.

In evaluating the ability to recover deferred income tax assets, the Company considers all available positive and negative evidence, including operating results, ongoing tax planning and forecasts of future taxable income on a jurisdiction-by-jurisdiction basis. In the event the Company determines that it would be able to realize deferred income tax assets in the future in excess of their net recorded amount, the Company would make an adjustment to the valuation allowance that would reduce the provision for income taxes. Conversely, in the event that all or part of the net deferred tax assets are determined not to be realizable in the future, an adjustment to the valuation allowance would be charged to earnings in the period when such determination is made. As of December 31, 2019, and 2020, the Company has recorded a full valuation allowance on deferred tax assets.

On March 27, 2020, the President of the United States signed into law the Coronavirus Aid, Relief, and Economic Security Act (CARES Act). The CARES Act, among other things, includes certain income tax provisions for individual and corporations; however, these benefits do not impact current tax provision.

Tax benefits related to uncertain tax positions are recognized when it is more likely than not that a tax position will be sustained during an audit. Interest and penalties related to unrecognized tax benefits are included within the provision for income tax.

Stock-Based Compensation Expense

The Company's stock-based equity awards include restricted stock awards and stock options that are granted to employees and consultants that are accounted at fair value on the award grant date. Stock-based

compensation expense is recognized over the awards' vesting period on a straight-line basis and recorded as either research and development or general and administrative expenses in the condensed statements of operations and comprehensive loss based on the function to which the related services are provided. Forfeitures are accounted for as they occur.

The Black-Scholes option-pricing model, used to estimate fair value of stock-based awards, requires the use of the following assumptions:

- *Expected term*—The expected term represents the period that the stock-based awards are expected to be outstanding. The expected term for the Company's stock options was calculated based on the weighted-average vesting term of the awards and the contract period.
- *Expected volatility*—Since the Company is not yet a public company and does not have any trading history for its common stock, the expected volatility was estimated based on the average historical volatilities of common stock of comparable publicly traded entities over a period equal to the expected term of the stock option grants. The comparable companies were chosen based on their size, stage in the life cycle or area of specialty. The Company will continue to apply this process until enough historical information regarding the volatility of its stock price becomes available.
- *Risk-free interest rate*—The risk-free interest rate is based on the U.S. Treasury yield in effect at the time of grant for zero-coupon U.S. Treasury notes with maturities approximately equal to the expected term of the awards.
- *Expected dividend*—The Company has never paid dividends on the common stock and has no plans to pay dividends on the common stock. Therefore, the Company used an expected dividend yield of zero.

The fair value of the common stock has been determined using independent third-party valuations based on relevant valuation methodologies as outlined in the American Institute of Certified Public Accountants (AICPA) Practice Aid, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*. The Company also considered the amount of time between the independent third-party valuation dates and the grant dates and performed an interpolation of the fair value between the two valuation dates to estimate common stock fair value at each grant date. This determination included an evaluation of whether the subsequent valuation indicated that any significant change in valuation had occurred between the previous valuation and the grant date.

Comprehensive Loss

Comprehensive loss includes all changes in equity (net assets) during a periodfrom non-owner sources. There have been no items qualifying as other comprehensive income or loss, and as such, comprehensive loss was the same as net loss for the periods presented.

Foreign Currency Transactions

Transactions denominated in foreign currencies are initially measured in U.S. dollars using the exchange rate on the date of the transaction. Foreign currency denominated monetary assets and liabilities are subsequently re-measured at the end of each reporting period using the exchange rate at that date, with the corresponding foreign currency transaction gain or loss recorded in the condensed statements of operations and comprehensive loss and condensed statements of cash flows. Nonmonetary assets and liabilities are not subsequently re-measured.

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Net Loss Per Share Attributable to Common Stockholders

Basic net loss per common share is calculated by dividing the net loss attributable to common stockholders by the weighted-average number of common stock outstanding during the period, without consideration of potentially dilutive securities. Diluted net loss per share is computed by dividing the net loss attributable to common stockholders by the weighted-average number of common stock and potentially dilutive securities outstanding for the period. For purposes of the diluted net loss per share calculation, redeemable convertible preferred stock, common stock subject to repurchase, restricted common shares issued, and stock options are considered to be potentially dilutive securities.

Basic and diluted net loss attributable to common stockholders per share is presented in conformity withthe two-class method required for participating securities. The Company's redeemable convertible preferred stock contains participation rights in any dividend paid by the Company and is deemed to be a participating security. Restricted shares issued to the founders and upon early exercise of stock options also participate in dividends from the issuance date and are considered participating securities. Participating securities do not have a contractual obligation to share in losses. As such, the net loss was attributed entirely to common stockholders. Because the Company has reported a net loss for all periods presented, diluted net loss per common share is the same as basic net loss per common share for those periods.

Adopted and Recent Accounting Pronouncements

The Company is a smaller reporting company and an emerging growth company, as defined in the Jumpstart Our Business Startups Act of 2012 (the "JOBS Act"). Under the JOBS Act, emerging growth companies can delay the adoption of new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. Thus, the Company has elected to use the extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date that (i) the Company is no longer an emerging growth company or (ii) the Company affirmatively and irrevocably opts out of the extended transition period provided in the JOBS Act. However as described below, the Company early adopted certain accounting standards, as the JOBS Act does not preclude an emerging growth company from adopting a new or revised accounting standard earlier than the time that such standard applies to private companies to the extent early adoption is permitted.

In February 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2016-02, *Leases ("Topic 842")*. Under Topic 842, the Company determines if an arrangement is a lease at inception. Lease liabilities and their corresponding right-of-use assets are recorded based on the present value of lease payments over the expected lease term. In determining the present value of lease payments, the Company uses its incremental borrowing rate based on the information available at the lease commencement date if the rate implicit in the lease is not readily determinable. The new standard requires lessees to apply a dual approach, classifying leases as either finance or operating leases based on the principle of whether or not the lease is effectively a financed purchase by the lessee. This classification will determine whether lease expense is recognized based on an effective interest method or on a straight-line basis over the term of the lease. A lessee is also required to record a right-of-use asset and a lease liability for all leases with a term of greater than 12 months regardless of their classification. Leases with a term of 12 months or less may be accounted for similar to existing guidance for operating leases today and are not recorded on the Company's balance sheet. For non-public entities, ASU 2016-02 is effective for annual reporting periods beginning after December 15, 2021, including interim periods within those fiscal years, and early adoption is permitted. The Company early adopted the new standard as of January 1, 2021 on a modified retrospective basis with no cumulative adjustment to accumulated deficit since the Company has only one operating lease, with a term of less than 12 months, and

no plans to extend. The Company elected to take the practical expedient to not separate lease and non-lease components as part of the adoption. Lease agreements entered into after the adoption of Topic 842 that include lease and non-lease components are accounted for as a single lease component. Beginning on January 1, 2021, the Company's operating leases, excluding those with terms less than 12 months, will be discounted and recorded as assets and liabilities on the Company's balance sheet. As of March 31, 2021, the Company had no assets or liabilities related to the lease recorded on its condensed balance sheets.

In June 2016, the FASB issued ASU 2016-13, *Credit Losses*. The FASB also issued amendments and the initial ASU, and all updates are included herein as the Credit Losses standard or Topic 326. The new standard generally applies to financial assets and requires those assets to be reported at the amount expected to be realized. The ASU is effective for fiscal years beginning after December 15, 2022 and interim periods within those fiscal years. The Company is currently evaluating the potential impact of this standard on its condensed financial statements.

In December 2019, the FASB issued ASU 2019-12, *Income Taxes (Topic 740)*. The amendments in ASU 2019-12 simplify the accounting for income taxes by removing certain exceptions to the general principles in Topic 740. The amendments also improve consistent application of and simplify U.S. GAAP or other areas of Topic 740 by clarifying and amending existing guidance. The new standard is effective for the Company on January 1, 2022 and for interim periods beginning on January 1, 2023. The Company is currently evaluating the potential impact of this standard on its condensed financial statements.

In August 2020, the FASB issued ASU No. 2020-06, *Debt—Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity* (ASU 2020-06), which simplifies the accounting for convertible instruments by reducing the number of accounting models available for convertible debt instruments. This guidance also eliminates the treasury stock method to calculate diluted earnings per share for convertible instruments and requires the use of the if-converted method. This guidance will be effective for the Company in the first quarter of 2022 on a full or modified retrospective basis, with early adoption permitted. The Company is currently evaluating the potential impact of this standard on its condensed financial statements.

3. Fair Value Measurements

Assets and liabilities recorded at fair value on a recurring basis in the condensed balance sheets, as well as assets and liabilities measured at fair value on a non-recurring basis or disclosed at fair value, are categorized based upon the level of judgment associated with inputs used to measure their fair values. The accounting guidance for fair value provides a framework for measuring fair value and requires certain disclosures about how fair value is determined. Fair value is defined as the price that would be received upon the sale of an asset or paid to transfer a liability (an exit price) in an orderly transaction between market participants at the reporting date. The accounting guidance also establishes a three-level valuation hierarchy that prioritizes the inputs to valuation techniques used to measure fair value based upon whether such inputs are observable or unobservable. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect market assumptions made by the reporting entity. The three-level hierarchy for the inputs to valuation techniques is briefly summarized as follows:

Level 1 — Inputs are unadjusted, quoted prices in active markets for identical assets or liabilities at the measurement date;

Level 2 — Inputs are observable, unadjusted quoted prices in active markets for similar assets or liabilities, unadjusted quoted prices for identical or similar assets or liabilities in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the related assets or liabilities; and

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Level 3 — Unobservable inputs that are significant to the measurement of the fair value of the assets or liabilities that are supported by little or no market data.

Assets and liabilities measured at fair value are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. An assessment of the significance of a particular input to the fair value measurement in its entirety requires management to make judgments and consider factors specific to the asset or liability. Changes in the ability to observe valuation inputs may result in a reclassification of levels of certain securities within the fair value hierarchy. The Company recognizes transfers into and out of levels within the fair value hierarchy in the period in which the actual event or change in circumstances that caused the transfer occurs.

As of December 31, 2020 and March 31, 2021, Level 1 securities consist of highly liquid money market funds, for which the carrying amounts approximate their fair values due to their short maturities. The Level 3 liability that is measured at fair value on a recurring basis is the redeemable convertible preferred tranche liability. The redeemable convertible preferred stock tranche liability is measured using the option pricing method by estimating the value using the Black-Scholes model. The inputs used in the Black-Scholes model include the fair value of the redeemable convertible preferred stock, the risk-free interest rate, the expected volatility and the expected term when the tranche will be settled.

Below are inputs used for the Level 3 liability as of December 31, 2020:

	Redeemable Convertible Preferred Stock Tranche Liability
Value of Series A Preferred Stock per share	$ 2.94
Risk-free rate	0.08%
Expected volatility	85.7%
Term (in years)	0.13

In February 2021, the Company closed on the third tranche of the Series A redeemable convertible preferred stock financing, the remaining tranche liability was settled and, as such, the Company did not have any Level 3 financial instruments measured at fair value as of March 31, 2021.

During the periods presented, the Company has not changed the manner, in which it values liabilities that are measured at estimated fair value using Level 3 inputs. There were no transfers within the hierarchy during the year ended December 31, 2020 and the three months ended March 31, 2021.

The following tables set forth the financial instruments that were measured at fair value on a recurring basis by level within the fair value hierarchy as of December 31, 2020 and March 31, 2021 (in thousands):

	December 31, 2020			
	Total Fair Value	Level 1	Level 2	Level 3
Assets:				
Money market funds(1)	$ 19,782	$19,782	$ —	$ —
Liabilities:				
Redeemable convertible preferred stock tranche liability	$ 29,062	$ —	$ —	$29,062

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	March 31, 2021			
	Total Fair Value	Level 1	Level 2	Level 3
Assets:				
Money market funds[1]	$177,015	$177,015	$ —	$ —

(1) Included within cash and cash equivalents on the condensed balance sheet.

The following table provides a summary of changes in the estimated fair value of Level 3 financial instruments (in thousands):

	Redeemable Convertible Preferred Stock Tranche Liability
Balance as of December 31, 2020	$ 29,062
Change in fair value	10,341
Settlement of Series A redeemable convertible preferred stock tranche liability	(39,403)
Balance as of March 31, 2021	$ —

4. Condensed Balance Sheets Components

Property and Equipment, Net

Property and equipment, net as of December 31, 2020 and March 31, 2021, consists of the following (in thousands):

	December 31, 2020	March 31, 2021
Computers and network equipment	$ 24	$ 24
Lab equipment	1,558	1,954
Construction in progress	—	151
Total property and equipment	1,582	2,129
Less: accumulated depreciation	(121)	(211)
Total property and equipment, net	$ 1,461	$ 1,918

Depreciation expense for the three months ended March 31, 2020 and 2021 was $0 and $0.1 million, respectively.

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5. Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities as of December 31, 2020 and March 31, 2021, consisted of the following (in thousands):

	December 31, 2020	March 31, 2021
Preclinical and clinical studies	$ 1,764	$ 2,980
Professional fees	55	866
Early exercise liability	—	513
Other accrued expenses	71	141
Total accrued expenses and other current liabilities	$ 1,890	$ 4,500

6. Significant Agreements

Stanford Exclusive License Agreement and Option Agreement

In December 2020, the Company entered into an exclusive license agreement (the License Agreement), with The Board of Trustees of the Leland Stanford Junior University (Stanford), pursuant to which Stanford granted the Company a worldwide license to specified technology and patent rights to develop, manufacture and commercialize human prophylactic and therapeutic products. Other than with respect to specified, broadly applicable assays and procedures and subject to retained rights by Stanford, the license is exclusive with respect to human prophylactic and therapeutic products for the treatment of SCD, XSCID and beta thalassemia. The license is non-exclusive with respect to those broadly applicable assays and procedures and with respect to all human prophylactic and therapeutic products other than for the treatment of SCD, XSCID and beta thalassemia.

Pursuant to the License Agreement, the Company paid an upfront license fee of $50,000, and, as additional consideration for the license, the Company agreed to issue to Stanford approximately 1.6 million shares of common stock. As of December 31, 2020, the Company recorded its obligations to issue Stanford shares of common stock at an estimated fair value of $2.8 million to additional paid in capital. The shares of common stock are expected to be issued when Stanford provides the inventors' names for allocation of the shares. Stanford also received an option to purchase up to 10% of newly issued shares in the future private financings at the price paid by other participating investors. During the three months ended March 31, 2021, the Company entered into an amendment to the License Agreement, pursuant to which it extended the time when the shares will be issued to April 7, 2021.

The acquisition of the exclusive license, including patent rights and know-how, and clinical supplies was accounted for as an asset acquisition and as the acquired technology and inventories did not have an alternative use, the total consideration of $2.8 million was recorded as research and development expense in the statements of operations and comprehensive loss for the year ended December 31, 2020.

In connection with the License Agreement, the Company reimbursed Stanford $0.2 million for previously incurred patent costs, which were recorded in general and administrative expenses for the year ended December 31, 2020 and, in addition, is obligated to reimburse future patent costs. The Company is also obligated to pay annual maintenance fees as follows: $5,000 in the first year, $10,000 in each year 2 and 3, $25,000 in each year 3 through 6, $50,000 each subsequent year until first commercial sale and $200,000 each subsequent year after the first commercial sale. During the three months ended March 31, 2021, the reimbursements of patent costs to Stanford were minimal and the Company did not record any maintenance expenses. During the year ended December 31, 2020 and the three months ended March 31, 2021, the Company has recognized zero and $50,000 in research and development expense in connection with the License Agreement.

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The Company is also obligated to make future development and regulatory milestones in total of up to $5.3 million, sales based milestones of up to $7.5 million and royalties on future sales at percentage rates ranging in the low single digits. In addition, if the Company receives any sublicense income, it is required to share it with Stanford as a certain percentage defined for each milestone in the License Agreement. The Company will record the maintenance fees, when payable, and will record milestones when contingencies are resolved, and milestones are due. No milestones were achieved and recorded as of December 31, 2020 and March 31, 2021.

The term of the License Agreement expires on the later of (a) the expiration of the last patent or abandonment of the last patent application within the license patent rights or (b) the expiration of all royalty terms with respect to Licensed Products.

The Stanford License terminates on a product by product and country by country basis on the latest to occur of (i) expiration of the last valid claim of a licensed patent that covers the sale or manufacture of the applicable licensed product in such country, (ii) expiration of any period of regulatory exclusivity granted with respect to such licensed product in such country or (iii) ten years after the first commercial sale of such licensed product in a country Stanford also has a right to terminate the agreement if milestones plan is rejected by Stanford as specified in the License Agreement.

In January 2021, the Company entered into an option agreement (the First Option Agreement), with Stanford, pursuant to which Stanford granted the Company the right to obtain a license to specified patent rights relating to human prophylactic and therapeutic products. The Company may exercise the option in whole or in part to obtain a license under one or more of the optioned patent rights.

Subject to the Company's exercise of the option under the First Option Agreement and its execution of an amendment to the License Agreement that incorporates the optioned patent rights and any optioned technology, the Company has agreed to issue to Stanford 321,358 shares of its common stock and pay a license execution fee of $10,000.

The term of the First Option Agreement expires 18 months after its effective date, subject to the Company's right to extend such expiration date by up to an additional one year upon notice to Stanford and by another additional one year upon the reasonable agreement of Stanford. The First Option Agreement will terminate if the License Agreement terminates.

As of March 31, 2021, the Company had not exercised the option under the First Option Agreement.

7. Commitments and Contingencies

Research and Development Agreements

The Company enters into contracts in the normal course of business with CROs for clinical trials, with CMOs or other vendors for preclinical studies, supplies and other services and products for operating purposes. These contracts generally provide for termination on notice or may have a potential termination fee if a purchase order is cancelled within a specified time. As of December 31, 2020 and March 31, 2021, there were no amounts accrued related to termination and cancellation charges as the Company has not determined cancellation to be probable.

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License Agreements

The Company entered into the License Agreement (Note 6), pursuant to which the Company is required to pay certain cash milestones contingent upon the achievement of specific events. No such milestones were achieved or probable as of December 31, 2020 and March 31, 2021. The Company is required to pay royalties on sales of products developed under this agreement. All products are in development as of December 31, 2020 and March 31, 2021, and no such royalties were due.

Legal Contingencies

From time to time, the Company may become involved in legal proceedings arising from the ordinary course of business. The Company records a liability for such matters when it is probable that future losses will be incurred and that such losses can be reasonably estimated. Significant judgment by the Company is required to determine both probability and the estimated amount. Management is currently not aware of any legal matters that could have a material adverse effect on its financial position, results of operations or cash flows.

Operating Leases

In April 2020, the Company entered into a one-year lease agreement for its headquarter facility located in South San Francisco, California with a significant portion of the premises allocated to the research lab. Due to the COVID-19 pandemic, the use of the entire facility was temporarily designated to research and, as such, all associated costs were expensed as research and development. In addition to payment of base rent, the Company is also required to pay property taxes, insurance and common area expenses. The Company records rent expense on a straight-line basis over the term of the lease. The original term of the lease was from May 11, 2020 to June 30, 2021, with an option to renew. In March 2021, the Company entered into an amendment to the lease agreement and extended the term of the lease to September 30, 2021.

As of December 31, 2020 and March 31, 2021, the Company had a remaining obligation for the base rent in the amount $0.2 million and $0.2 million, respectively.

Guarantees and Indemnifications

In the normal course of business, the Company enters into agreements that contain a variety of representations and provide for general indemnification. Its exposure under these agreements is unknown because it involves claims that may be made against the Company in the future. To the extent permitted under Delaware law, the Company has agreed to indemnify its directors and officers for certain events or occurrences while the director or officer is, or was serving, at a request in such capacity. To date, the Company has not paid any claims or been required to defend any action related to its indemnification obligations. As of December 31, 2020 and March 31, 2021, the Company did not have any material indemnification claims that were probable or reasonably possible and consequently has not recorded related liabilities.

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8. Redeemable Convertible Preferred Stock

The redeemable convertible preferred stock authorized, issued, and outstanding at March 31, 2021, is as follows (dollars in thousands):

	March 31, 2021				
	Authorized	Issued and Outstanding	Original Issue Price per Share	Liquidation Preference	Carrying Value
Series A	45,019,945	45,019,945	$ 1.00	$ 45,020	$ 110,008
Series B	29,792,487	29,792,487	$ 5.06	150,750	150,524
	74,812,432	74,812,432		$ 195,770	$ 260,532

Series A Redeemable Convertible Preferred Stock

In June 2020, the Company issued 10,000,000 shares of its Series A redeemable convertible preferred stock at a price of $1.00 per share for gross cash proceeds of $10.0 million and issued 5,019,949 shares of its Series A redeemable convertible preferred stock upon the conversion of the outstanding convertible note and accrued interest.

In connection with the initial issuance of the shares of its Series A redeemable convertible preferred stock, the Company had an obligation to sell and the holders had the obligation to purchase the additional 30,000,000 shares of Series A redeemable convertible preferred stock at $1.00 per share upon the achievement of certain milestones as determined by the Board and approved by at least one of the investors, or upon the waiver of such milestones by the holders of at least 75% of the outstanding shares of Series A redeemable convertible preferred stock, in two equal tranches of $15.0 million each. The Company determined that the obligation to sell additional shares is a freestanding financing instrument and a liability. The Company estimated the fair value of the liability to be $3.3 million and recorded it as a reduction to redeemable convertible preferred stock and as a derivative redeemable convertible preferred stock tranche liability in its balance sheet at the issuance date.

In December 2020, the requisite holders waived the second tranche milestone event and the Company issued 15,000,000 shares of its Series A redeemable convertible preferred stock for gross cash proceeds of $15.0 million. The redeemable convertible preferred stock tranche liability related to the second tranche shares was remeasured to fair value of $29.1 million and reclassified to redeemable convertible preferred shares upon the settlement.

In connection with the issuance of Series A redeemable convertible preferred stock, in the year ended December 31, 2020, the Company incurred issuance costs of $0.2 million.

As of December 31, 2020, the redeemable convertible preferred stock tranche liability related to the third tranche shares was remeasured at fair value of $29.1 million and continued to be reported in current liabilities. The Company settled the third tranche in February 2021 and issued 15,000,000 shares of its Series A redeemable convertible preferred stock for gross cash proceeds of $15.0 million. The Company recognized a total of $54.8 million as other loss in the statements of operations and comprehensive loss related to the changes in the fair value of the redeemable convertible preferred stock tranche liabilities during the year ended December 31, 2020.

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Prior to the closing of the third tranche of the Series A preferred stock financing in February 2021, the remaining tranche liability was remeasured at a fair value of $39.4 million. The Company recognized a loss of $10.3 million in the condensed statements of operations and comprehensive loss related to the change in the fair value of the redeemable convertible preferred stock tranche liability during the three months ended March 31, 2021.

In connection with the closing of the third tranche of Series A redeemable convertible preferred stock, during the three months ended March 31, 2021, the Company incurred issuance costs of $4,000.

Series B Redeemable Convertible Preferred Stock

In March 2021, the Company issued 29,792,487 shares of the Series B redeemable convertible preferred stock at $5.06 per share for gross cash proceeds of $150.7 million. The Company incurred issuance costs of $0.2 million.

As of March 31, 2021, the Company was authorized to issue, and issued, 45,019,945 shares of its Series A redeemable convertible preferred stock and 29,792,487 shares of its Series B redeemable convertible preferred stock (collectively, the "preferred stock") with the following rights, preferences and privileges:

Dividends—The holders of preferred stock are entitled to receive noncumulative dividends at the rate of 8% per share of the respective original issuance price, when, as and if declared by the Board. No dividends or other distributions shall be made with respect to the common stock unless dividends on the preferred stock have been declared in accordance with the preferences stated within the certificate of incorporation and all declared dividends on the preferred stock have been paid. No dividends were declared and paid or payable during the three months ended March 31, 2021.

Liquidation Rights—In the event of the liquidation, dissolution, or winding up of the Company, or a deemed liquidation event, including a merger or consolidation, or a sale or other disposition of all or substantially all of the Company's assets, the holders of shares of preferred stock are entitled to receive, before any payment are made to the holders of common stock, an amount per share equal to the greater of (i) the respective original issue price, plus any dividends declared but unpaid, or (ii) such amount per share as would have been payable had all shares of preferred stock been converted into common stock immediately prior to such liquidation, dissolution, winding up or deemed liquidation. After payment in full of these liquidation preference amounts, the remaining assets of the Company available for distribution to its stockholders will be distributed among the holders of shares of common stock, pro rata based on the number of shares held by each such holder.

Conversion—Each share of redeemable convertible preferred stock is to be convertible, at the option of the holder thereof, at any time and from time to time, and without the payment of additional consideration by the holder, into such number of shares of common stock as is determined by dividing the respective original issue price by the respective conversion price in effect at the time of conversion. The conversion price is initially equal to respective original issue price. Such initial conversion prices, and the rates at which shares of preferred stock may be converted into shares of common stock, is subject to recapitalization and other adjustments as provided in the certificate of incorporation. In the event of a liquidation, dissolution or winding up of the Company or a deemed liquidation event, the conversion rights shall terminate at the close of business on the last full day preceding the date fixed for the payment of any such amounts distributable on such event to the holders of preferred stock.

All outstanding shares of redeemable convertible preferred stock will be automatically converted into shares of common stock, at the then effective respective conversion price and such shares may not be reissued by the

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Company upon either: (i) the closing of the sale of shares of common stock to the public at a price per share of at least $5.06 subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization, in a firm-commitment underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, resulting in at least $75.0 million of gross proceeds to the Company (before deduction of underwriting discounts and commissions and offering expenses payable by the Company) and in connection with such offering the common stock is listed for trading on the Nasdaq Stock Market's Global Market, the New York Stock Exchange or another exchange or marketplace approved by the Board (including in any event, at least one of the preferred directors), or (ii) upon the date and time, or the occurrence of an event, as specified by the holders of at least 72% of the redeemable convertible preferred stock then outstanding.

Voting Rights—Except for certain matters or as required by law, the holders of redeemable convertible preferred stock and the holders of common stock vote together and not as separate classes. Each holder of preferred stock is entitled to the number of votes equal to the number of shares of common stock into which the shares of preferred stock could be converted as of the record date.

Certain protective provisions, such as any actions that could adversely affect the preferred stock rights and privileges, alter the capital structure, increase or decrease the size of the Board, or effect any liquidation event, require approval of at least 72% of the outstanding shares of redeemable convertible preferred stock, voting as a single class on an as-converted basis.

Series A redeemable convertible preferred stockholders, voting as a separate class, are entitled to elect three members of the Board (the "preferred directors"). Common stockholders, voting as a separate class, are entitled to elect two members of the Board. The remaining members of the Board are elected by the holders of the preferred stock and common stock, voting together as a single class on an as-converted basis.

Redemption—Upon the occurrence of certain change in control events that are outside of the Company's control, including liquidation, sale or transfer, holders of the redeemable convertible preferred stock can effectively cause redemption for cash. As a result, the Company classified the redeemable convertible preferred stock as mezzanine equity on the condensed balance sheets as the stock is contingently redeemable.

9. Common Stock

As of December 31, 2020, the Company was authorized to issue 80,000,000 shares of its common stock with $0.00001 par value per share. In March 2021, the Board of Directors increased the authorized number of shares of common stock to 120,000,000. Each share of the Company's common stock is entitled to one vote.

Shares Reserved for Future Issuance

As of December 31, 2020 and March 31, 2021, the Company reserved common stock for future issuances as follows:

	December 31, 2020	March 31, 2021
Series A redeemable convertible preferred stock	30,019,945	45,019,945
Series B redeemable convertible preferred stock	—	29,792,487
Outstanding stock option awards	746,000	5,538,444
Shares available for future stock option grants	5,020,152	6,199,876
Total shares reserved for future issuance	35,786,097	86,550,752

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Founders' and Investor's Restricted Common Stock

In March 2020 the Board approved and in April 2020, the Company issued 14,790,000 shares of its common stock to its founders and 5,999,999 shares of its common stock to its investor at the purchase price of $0.00001 per share. As of December 31, 2020, the investor's shares were fully vested and a portion of the shares issued were subject to the Company's option to repurchase per the Stanford Adjustment Repurchase Right, as described below.

The shares of the Company's common stock issued to its founders for their services as an employee, advisor or consultant vest monthly over four years with one year cliff from the vesting commencement date. The vesting commencement date was the date of the initial closing of the Series A preferred stock financing or June 24, 2020. Pursuant to the restricted stock purchase agreements with each of the founders, the vesting of the founders' common stock shares could be accelerated upon the occurrence of certain events, including signing of the term sheet for the license with Stanford, a change in control, or if the founder's service is terminated by the Company without cause. The Company signed the term sheet with Stanford in June 2020, and as a result, an aggregate of 2,218,500 shares of founders' common stock vested pursuant to the acceleration terms.

If a founder terminates the service relationship with the Company during the vesting period, the Company may repurchase any unvested restricted common stock at the price per share equal to the lower of (i) the original purchase price, subject to adjustment in the event of any reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split, or (ii) the current fair market value as of the date the Company elects to exercise its Stanford Adjustment Repurchase Right, as described below. The repurchase right lapses in 180 days after the termination of the founder's service or employment. During the vesting term, holders of founders' common stock awards are deemed to be common stockholders and have the right to receive dividends and voting rights.

The founders' shares of common stock are also subject to the Company's option to repurchase per the Stanford Adjustment Repurchase Right, as described below.

The Company accounts for shares issued to founders as equity compensation awards and the estimated fair value at the grant date was minimal. 12,571,500 shares of founders' common stock awards were unvested and expected to vest in 3.5 years and 3.2 years as of December 31, 2020 and March 31, 2021, respectively.

Stanford Adjustment Repurchase Right

Upon the issuance of shares of common stock to Stanford pursuant to the License Agreement, as discussed in Note 6, the Company has a right to repurchase from each founder and an investor a number of shares of common stock equal to the number of shares issued to Stanford multiplied by the applicable number of shares issued to the founder or investor, as applicable, divided by 17,690,000 shares (a fully diluted number of shares of the Company at the end of March 2020, after founders and the investor's shares were approved by the board of directors). The Stanford Adjustment Repurchase Right may be exercised by the Company within six months following the date of the issuance of the shares of common stock to Stanford. The repurchase price per share is equal to the lower of (i) the purchase price, subject to adjustment in the event of any reorganization, recapitalization, reclassification, etc., or (ii) the current fair market value as of the date the Company elects to exercise its Stanford Adjustment Repurchase Right. As of December 31, 2020 and March 31, 2021, the Company has not issued any shares of common stock to Stanford and did not repurchase any founders' or the investor's shares. The Company accounts for the founders and investor's shares of restricted common stock as equity share-based awards.

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10. Equity Incentive Plans

The Company grants share-based awards under the 2020 Stock Option and Grant Plan, as amended (the "2020 Plan"). The Company may grant under the 2020 Plan incentive stock options, nonqualified stock options, restricted stock awards, restricted stock units and other share-based awards to the Company's officers, employees, directors and consultants. Options under the 2020 Plan may be granted for periods of up to 10 years and at prices no less than 100.0% of the estimated fair value of the shares on the date of grant as determined by the Board, provided, however, that the exercise price of an incentive stock option granted to a 10.0% stockholder shall not be less than 110.0% of the estimated fair value of the shares on the date of grant and the option is not exercisable after the expiration of five years from the date of grant. Options generally vest monthly over four years with or without one year cliff vesting. Per the 2020 Plan, granted options maybe early exercised prior to vesting and the Company will issue shares of restricted stock upon the early exercise with vesting terms consistent with the original grant.

The table below presents a summary of activities and a reconciliation of shares of common stock remaining for grant under the 2020 Plan during the year ended December 31, 2020 and the three months ended March 31, 2021:

	December 31, 2020	March 31, 2021
Shares authorized under 2020 Plan	9,974,959	18,181,727
Options granted	(2,928,986)	(9,956,030)
Restricted stock awards granted	(2,025,821)	(2,025,821)
Remaining shares available for grant	5,020,152	6,199,876

Restricted Stock Awards

In 2020, the Company issued 2,025,821 shares of common stock as restricted stock awards under the 2020 Plan. The purchase price of the restricted common stock awards was fair value as determined by the Board at the issuance date. The shares vest monthly over four years with the one-year cliff vesting from the grant date. Upon termination of employment, the Company has the right to repurchase any unvested restricted shares. The repurchase price for unvested shares of common stock will be the lower of (i) the fair market value on the date of repurchase or (ii) their original purchase price. There were no grants of restricted stock awards for the three months ended March 31, 2020 and 2021.

The Company accounted for restricted stock awards as early exercised options and recognized a liability in other liabilities when cash was received for the purchase of shares of restricted stock awards. As shares of restricted stock awards vest, the Company reclassified the liability to common stock and additional paid in capital. At December 31, 2020 and March 31, 2021, the Company recorded a liability for restricted stock awards included in other liabilities of $36 and $36, respectively.

No restricted stock award shares were cancelled, repurchased or vested as of December 31, 2020 and March 31, 2021. The total intrinsic value of outstanding unvested restricted stock awards was $4.0 million and $5.8 million as of December 31, 2020 and March 31, 2021, respectively.

Incentive Stock Options and Nonqualified Stock Options

Stock options issued under the 2020 Plan generally vest over a four-year period and expire ten years from the date of grant. Certain options provide for accelerated vesting if there is a change in control, as defined in the individual award agreements.

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The Company used the Black-Scholes option pricing model to estimate stock-based compensation expense for stock option awards granted during the three months ended March 31, 2021, with the following assumptions:

Expected volatility	76.90% - 77.74%
Expected dividend yield	0%
Expected term (in years)	5.48 - 6.04
Risk-free interest rate	0.56% - 1.04%

A summary of option activity under the 2020 Plan during the three months ended March 31, 2021 is as follows:

	Number of Options	Weighted-Average Exercise Price Per Share	Weighted-Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Outstanding as of December 31, 2020	746,000	$ 0.12	9.9	$ 1,365
Granted	7,027,044	$ 1.65	—	$ —
Exercised	(2,234,600)	$ 0.12	—	$ —
Outstanding as of March 31, 2021	5,538,444	$ 2.06	9.92	$ 4,521
Exercisable	34,106	$ 0.12	9.79	$ 94
Vested and expected to vest at March 31, 2021	5,538,444	$ 2.06	9.92	$ 4,521

Aggregate intrinsic value represents the difference between the fair value of the underlying common stock and the exercise price as of March 31, 2021. The weighted-average grant date fair value of options granted during the three months ended March 31, 2021 was $2.01 per share. The intrinsic value of the stock options exercised during the three months ended March 31, 2021 was $4.6 million.

The total fair value of stock options vested during the three months ended March 31, 2021 was $71,000.

There was no activity for options during the three months ended March 31, 2020.

Early Exercise of Stock Options

The terms of the 2020 Plan permit the exercise of options granted prior to vesting, subject to required approvals. The unvested shares are subject to the repurchase right upon termination of employment at the original purchase price. The repurchase right lapses in 180 days after the termination of the employee's employment. Shares purchased by employees pursuant to the early exercise of stock options are not deemed, for accounting purposes, to be issued until those shares vest according to their respective vesting schedules. Cash received for early exercised stock options is recorded as other liabilities on the balance sheet and is reclassified to common stock and additional paid-in capital as such shares vest.

At December 31, 2020 and March 31, 2021, 2,103,994 shares and 4,276,354 shares, respectively, remained subject to the right of repurchase as a result of the early exercised stock options. The remaining liability related to early exercised shares as of December 31, 2020 and March 31, 2021 was $0.3 million and $0.5 million, respectively, and was recorded within accrued expenses and other liabilities on the Company's condensed balance sheets.

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Stock-Based Compensation Expense

The following table presents the components of stock-based compensation expense for the Company's stock-based awards for the three months ended March 31, 2021 (in thousands):

Restricted stock awards and founders' common stock awards	$ —
Stock options(1)	1,033
Total stock-based compensation expense	$ 1,033

(1) The above stock-based compensation expense also includes the expenses of $0.1 million related to stock options issued to the non-employees.

The following table presents the classification of stock-based compensation expense for the Company's stock-based awards for the three months ended March 31, 2021 (in thousands):

Research and development expenses	$ 196
General and administrative expenses	837
Total stock-based compensation expense	$ 1,033

As of December 31, 2020 and March 31, 2021, there was $2.9 million and $16.0 million, respectively, of unrecognized stock-based compensation expense related to the employee and non-employee awards, which is expected to be recognized over a weighted-average period of 3.7 years and 3.7 years, respectively. There was no stock-based compensation expense recognized during the three months ended March 31, 2020.

11. Net Loss Per Share Attributable to Common Stockholders

The following table sets forth the computation of basic and diluted net loss per share during the three months ended March 31, 2020 and 2021 attributable to common stockholders, which excludes shares which are legally outstanding, but subject to repurchase by the Company (in thousands, except share and per share amounts):

	Three Months Ended March 31,	
	2020	2021
Numerator:		
Net loss	$ (141)	$ (19,709)
Denominator:		
Weighted-average common shares outstanding	1	26,927,941
Less: Weighted-average unvested restricted shares and shares subject to repurchase	—	(18,598,126)
Weighted-average shares used to computing basic and diluted net loss per share	1	8,329,815
Net loss per share attributable to common stockholders—basic and diluted:	$(141,000.00)	$ (2.37)

Graphite Bio, Inc.
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Anti-dilutive Outstanding Shares or Equivalents

	Three Months Ended March 31,	
	2020	2021
Redeemable convertible preferred stock	—	74,812,432
Options to purchase common stock	—	5,538,444
Unvested restricted common stock	—	14,597,321
Total	—	94,948,197

As of March 31, 2020, one common share was issued and outstanding and total net loss of $141,000 was allocated to this share. No other securities were outstanding as of March 31, 2020 that potentially might be dilutive.

12. Related Party Transactions

Related Party Convertible Notes and Expenses Reimbursement

In June 2017, the Company issued a convertible promissory note (the "2017 Note") to its sole investor, Versant, for $2.0 million with 4% annual interest rate payable upon maturity in December 2018. The outstanding principal amount of the 2017 Note and any unpaid accrued interest were automatically convertible into preferred shares sold in a qualified financing, as defined in the agreement at a conversion price equal to the lesser of: 80% the purchase price paid per preferred share, and $5.0 million divided by the aggregate number of the Company's fully diluted equity immediately prior to the closing of the qualified financing. The Company could not prepay the 2017 Note without the consent of the holder. In an event of change of control, the holder could, at the option of the holder and upon written notice to the Company, elect to convert the principal and accrued interest as of the date of such election (if not previously converted or repaid) into number of shares of the Company's common shares at the conversion price equal to $3.0 million divided by the aggregate number of the Company's fully diluted equity immediately prior to the date of such election. On the maturity date, the holder could, at the option of the holder and upon a written notice to the Company, elect to convert the principal and accrued interest into number of shares of a newly designated series of the Company's preferred shares (at the conversion price equal to $3.0 million divided by the aggregate number of the Company's fully diluted equity prior to the maturity date. Upon an event of default, as defined in the agreement, at the option and upon the declaration of the holder and upon written notice to the Company, all principal and unpaid accrued interest would become due and payable.

As of March 31, 2020, the 2017 Note principal of $2.0 million and the related interest of $0.3 million were outstanding and in default and continued to accrue interest at 4% per year. In April 2020, the outstanding principal and accrued interest were forgiven and the transaction was recorded to additional paid in capital as a related party investor note forgiveness. The Company accounted for the forgiveness as a debt extinguishment. The estimated fair values of the embedded share-settlement put option and default options were minimal as of March 31, 2020 and as of the cancellation date.

In March 2020, the Company issued a new convertible promissory note (the 2020 Note) for $5.0 million to Versant with an interest rate of 1.6% per annum payable at maturity in March 2021. As the funds were not received till April 6, 2020, there is no outstanding balance as of March 31, 2020 recorded on the Company's unaudited condensed balance sheets. The outstanding principal amount of the 2020 Note and any unpaid accrued interest are to be automatically convertible into the Company's preferred shares sold in a qualified financing, as defined in the agreement, into that number of preferred shares sold in such qualified financing as is equal to the

quotient of (i) the conversion amount (note principal and accrued interest) divided by (ii) the per share price at which the preferred shares are sold in such qualified financing and on such other terms and conditions provided to investors in the qualified financing. The Company could not prepay the note without the consent of the holder. In an event of change of control, the holder could, at the option of the holder and upon written notice to the Company, elect to convert the principal and accrued interest as of the date of such election (if not previously converted or repaid) into number of shares of the Company's common shares at the conversion price equal to $31.7 million divided by the aggregate number of the Company's fully diluted equity immediately prior to the date of such election. On the maturity date, the holder could, at the option of the holder and upon a written notice to the Company, elect to convert the principal and accrued interest into number of shares of a newly designated series of the Company's preferred shares (at the conversion price equal to $31.7 million divided by the aggregate number of the Company's fully diluted equity prior to the maturity date. Upon an event of default, as defined in the agreement, at the option and upon the declaration of the holder and upon written notice to the Company, all principal and unpaid accrued interest would become due and payable.

During the three months ended March 31, 2020, the Company reimbursed to its investor certain legal expenses of $4,000, which were recorded as general and administrative expenses in the Company's unaudited condensed statements of operations and comprehensive loss. As of December 31, 2020 and March 31, 2021, the Company had recorded $86,000 and $0 in accrued expenses payable to Versant.

13. Subsequent Events

The Company has reviewed and evaluated subsequent events through May 21, 2021, the date that the condensed financial statements were available to be issued.

On April 13, 2021, the Company entered into the second exclusive option agreement with Stanford to negotiate the license for additional technologies from Stanford. Pursuant to the second option agreement, the Company agreed to pay Stanford option fees in an aggregate amount of $30,000 over the term of the option.

On May 7, 2021, the Company issued an aggregate of 1,558,587 shares of the Company's common stock to Stanford and certain individuals designated by Stanford in consideration for rights granted to the Company under the Company's exclusive license agreement with Stanford.

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Part II

Information Not Required in Prospectus

Item 13. Other Expenses of Issuance and Distribution.

The following table sets forth the fees and expenses, other than estimated underwriting discounts and commissions, payable in connection with the registration of the common stock hereunder. All amounts are estimates except the SEC registration fee, the Financial Industry Regulatory Authority, Inc. (FINRA) filing fee and the Nasdaq Global Market listing fee.

	Amount Paid or to Be Paid
SEC registration fee	$ *
FINRA filing fee	*
Nasdaq Global Market listing fee	*
Printing and mailing	*
Legal fees and expenses	*
Accounting fees and expenses	*
Transfer agent and registrar fees and expenses	*
Miscellaneous	*
Total	$ *

* To be completed by amendment.

Item 14. Indemnification of Directors and Officers.

Section 145 of the Delaware General Corporation Law (DGCL), authorizes a corporation to indemnify its directors and officers against liabilities arising out of actions, suits and proceedings to which they are made or threatened to be made a party by reason of the fact that they have served or are currently serving as a director or officer to a corporation. The indemnity may cover expenses (including attorneys' fees) judgments, fines and amounts paid in settlement actually and reasonably incurred by the director or officer in connection with any such action, suit or proceeding. Section 145 permits corporations to pay expenses (including attorneys' fees) incurred by directors and officers in advance of the final disposition of such action, suit or proceeding. In addition, Section 145 provides that a corporation has the power to purchase and maintain insurance on behalf of its directors and officers against any liability asserted against them and incurred by them in their capacity as a director or officer, or arising out of their status as such, whether or not the corporation would have the power to indemnify the director or officer against such liability under Section 145.

We have adopted provisions in our amended and restated certificate of incorporation and amended and restated bylaws to be in effect immediately prior to the completion of this offering that limit or eliminate the personal liability of our directors to the fullest extent permitted by the DGCL, as it now exists or may in the future be amended. Consequently, a director will not be personally liable to us or our stockholders for monetary damages or breach of fiduciary duty as a director, except for liability for:

- any breach of the director's duty of loyalty to us or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- any unlawful payments related to dividends or unlawful stock purchases, redemptions or other distributions; or
- any transaction from which the director derived an improper personal benefit.

These limitations of liability do not alter director liability under the federal securities laws and do not affect the availability of equitable remedies such as an injunction or rescission.

In addition, our bylaws provide that:

- we will indemnify our directors, officers and, in the discretion of our board of directors, certain employees to the fullest extent permitted by the DGCL, as it now exists or may in the future be amended; and
- we will advance reasonable expenses, including attorneys' fees, to our directors and, in the discretion of our board of directors, to our officers and certain employees, in connection with legal proceedings relating to their service for or on behalf of us, subject to limited exceptions.

We intend to enter into indemnification agreements with each of our directors and executive officers. These agreements will provide that we will indemnify each of our directors, certain of our executive officers and, at times, their affiliates to the fullest extent permitted by Delaware law. We will advance expenses, including attorneys' fees (but excluding judgments, fines and settlement amounts), to each indemnified director, executive officer or affiliate in connection with any proceeding in which indemnification is available and we will indemnify our directors and officers for any action or proceeding arising out of that person's services as a director or officer brought on behalf of us or in furtherance of our rights. Additionally, certain of our directors or officers may have certain rights to indemnification, advancement of expenses or insurance provided by their affiliates or other third parties, which indemnification relates to and might apply to the same proceedings arising out of such director's or officer's services as a director referenced herein. Nonetheless, we will agree in the indemnification agreements that our obligations to those same directors or officers are primary and any obligation of such affiliates or other third parties to advance expenses or to provide indemnification for the expenses or liabilities incurred by those directors are secondary.

We will maintain general liability insurance which covers certain liabilities of our directors and officers arising out of claims based on acts or omissions in their capacities as directors or officers, including liabilities under the Securities Act of 1933, as amended (the Securities Act).

The underwriting agreement filed as Exhibit 1.1 to this registration statement provides for indemnification of us and our directors and officers by the underwriters against certain liabilities under the Securities Act and the Securities Exchange Act of 1934.

Item 15. Recent Sales of Unregistered Securities.

In the three years preceding the filing of this registration statement, we have issued the following securities that were not registered under the Securities Act. No underwriters were involved in the sales and the certificates representing the securities sold and issued contain legends restricting transfer of the securities without registration under the Securities Act or an applicable exemption from registration.

(a) Issuances of Capital Stock

On October 30, 2019, we converted one share of our common stock outstanding at our Company originally incorporated in Ontario, Canada, to one share of the company reincorporated in the State of Delaware at a purchase price of $0.001 in connection with our reincorporation.

In April 2020, we sold an aggregate of 20,789,999 shares of our common stock at a purchase price of $0.00001 per share, for an aggregate purchase price of approximately $208.00.

On June 24, 2020, we sold an aggregate of 15,019,945 shares of our Series A redeemable convertible preferred stock at a purchase price of $1.00 per share, for an aggregate purchase price of approximately $15.0 million.

On December 28, 2020, we sold an additional 15,000,000 shares of our Series A redeemable convertible preferred stock at a purchase price of $1.00 per share, for an aggregate purchase price of approximately $15.0 million.

On February 16, 2021, we sold an additional 15,000,000 shares of our Series A redeemable convertible preferred stock at a purchase price of $1.00 per share, for an aggregate purchase price of approximately $15.0 million.

On March 11, 2021, we sold an aggregate of 29,792,487 shares of our Series B redeemable convertible preferred stock at a purchase price of $5.06 per share, for an aggregate purchase price of approximately $150.7 million.

On May 7, 2021, we issued an aggregate of 1,558,587 shares of our common stock to Stanford and certain individuals designated by Stanford in consideration for rights granted to us under our exclusive license agreement with Stanford.

The offers and sales of the securities described above were deemed to be exempt from registration pursuant to Section 4(a)(2) of the Securities Act, including Regulation D and Rule 506 promulgated thereunder, as transactions by an issuer not involving a public offering. All of the purchasers in these transactions represented to us in connection with their purchase that they were acquiring the securities for investment and not distribution, that they could bear the risks of the investment and could hold the securities for an indefinite period of time. Such purchasers received written disclosures that the securities had not been registered under the Securities Act and that any resale must be made pursuant to a registration or an available exemption from such registration. All of the foregoing securities are deemed restricted securities for the purposes of the Securities Act.

(b) Grants and Exercises of Stock Options

Since March 31, 2018, we granted stock options to purchase 15,057,087 shares of our common stock to our employees, directors and consultants at a weighted average exercise price of $1.80 per share under the 2020 Plan. We sold an aggregate of 4,425,814 shares of common stock to employees, directors and consultants for cash consideration in the aggregate amount of $550,763 pursuant to the exercise of stock options under the 2020 Plan.

The issuances of the securities described above were deemed to be exempt from registration pursuant to Section 4(a)(2) of the Securities Act or Rule 701 promulgated under the Securities Act as transactions pursuant to compensatory benefit plans and contracts relating to compensation as provided under Rule 701. The recipients of such securities were the registrant's employees, consultants or directors and received the securities under the registrant's 2020 Stock Plan. The shares of common stock issued upon the exercise of options are deemed to be restricted securities for purposes of the Securities Act.

Item 16. Exhibits and Financial Statement Schedules.

(a) Exhibits.

The exhibits to the registration statement are listed in the Exhibit Index to this registration statement and are incorporated herein by reference.

(b) Financial Statement Schedules.

None.

Exhibit Index

Exhibit No.	Description
1.1*	Form of Underwriting Agreement.
3.1	Amended and Restated Certificate of Incorporation, as amended, of the Registrant, as currently in effect.
3.2*	Form of Amended and Restated Certificate of Incorporation of the Registrant, to be in effect immediately prior to completion of the offering.
3.3	Bylaws of the Registrant and the amendments thereto, as currently in effect.
3.4*	Form of Amended and Restated Bylaws of the Registrant, to be in effect upon completion of the offering.
4.1*	Specimen Common Stock Certificate.
4.2	Amended and Restated Investors' Rights Agreement by and among the Registrant and certain of its stockholders, dated March 11, 2021.
5.1*	Opinion of Goodwin Procter LLP.
10.1#	2020 Stock Option and Grant Plan and forms of award agreements thereunder.
10.2*#	2021 Stock Option and Incentive Plan and forms of award agreements thereunder.
10.3*#	2021 Employee Stock Purchase Plan.
10.4*#	Senior Executive Cash Incentive Bonus Plan.
10.5*#	Non-Employee Director Compensation Policy.
10.6#	Offer Letter, by and between the Registrant and Josh Lehrer, M.D., dated March 1, 2020.
10.7#	Offer Letter, by and between the Registrant and Katherine V. Stultz, dated August 3, 2020.
10.8#	Offer Letter, by and between the Registrant and Philip P. Gutry, dated September 15, 2020.
10.9*	Form of Indemnification Agreement by and between the Registrant and each of its directors and officers.
10.10	Office Lease, by and between the Registrant and ARE-San Francisco No. 12, LLC, dated April 24, 2020, as amended by the First Amendment to Lease dated March 3, 2021.
10.11	Laboratory Lease, by and between the Registrant and ARE-San Francisco No. 65, LLC, dated February 26, 2021.
10.12†	Exclusive License Agreement by and between the Registrant and The Board of Trustees of the Leland Stanford Junior University, dated December 7, 2020.
10.13†	Amendment No. 1 to the Exclusive License Agreement by and between the Registrant and The Board of Trustees of the Leland Stanford Junior University, dated March 4, 2021.
10.14†	Amendment No. 2 to the Exclusive License Agreement by and between the Registrant and The Board of Trustees of the Leland Stanford Junior University, dated April 7, 2021.
10.15†	Exclusive Option Agreement by and between the Registrant and The Board of Trustees of the Leland Stanford Junior University, dated January 22, 2021.
10.16†	Exclusive Option Agreement by and between the Registrant and The Board of Trustees of the Leland Stanford Junior University, dated April 12, 2021.

Exhibit No.	Description
23.1*	Consent of Deloitte & Touche LLP, Independent Registered Public Accounting Firm.
23.2*	Consent of Goodwin Procter LLP (included in Exhibit 5.1).
24.1*	Power of Attorney (included on signature page).

* To be filed by amendment.
† Certain confidential portions (indicated by brackets and asterisks) have been omitted from this exhibit.
# Represents management compensation plan, contract or arrangement.

Signatures

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant has duly caused this Registration Statement on Form S-1 to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of South San Francisco, California, on the day of , 2021.

GRAPHITE BIO, INC.

By: _____
Josh Lehrer, M.D.
Chief Executive Officer and Director

Power of Attorney

Each person whose individual signature appears below hereby authorizes and appoints Josh Lehrer, M.D. and Philip Gutry and each of them, with full power of substitution and resubstitution and full power to act without the other, as his true and lawful attorney in fact and agent to act in his name, place and stead and to execute in the name and on behalf of each person, individually and in each capacity stated below, and to file any and all amendments to this Registration Statement, including any and all post effective amendments and amendments thereto, and any registration statement relating to the same offering as this Registration Statement that is to be effective upon filing pursuant to Rule 462(b) under the Securities Act of 1933, as amended, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys in fact and agents, and each of them, full power and authority to do and perform each and every act and thing, ratifying and confirming all that said attorneys in fact and agents or any of them or their or his substitute or substitutes may lawfully do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated below.

Signature	Title	Date
Josh Lehrer, M.D.	Chief Executive Officer and Director (Principal Executive Officer)	, 2021
Philip P. Gutry	Chief Business Officer, Head of Finance & Investor Relations (Principal Financial and Accounting Officer)	, 2021
Perry Karsen	Chairman of the Board and Director	, 2021
Abraham Bassan	Director	, 2021
Jerel Davis, Ph.D.	Director	, 2021
Kristen M. Hege, M.D.	Director	, 2021

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Signature	Title	Date
Joseph Jimenez	Director	, 2021
Matthew Porteus, M.D., Ph.D.	Director	, 2021
Carlo Rizzuto, Ph.D.	Director	, 2021
Smital Shah	Director	, 2021
Jo Viney, Ph.D.	Director	, 2021

Exhibit 3.1

AMENDED AND RESTATED
CERTIFICATE OF INCORPORATION
OF
GRAPHITE BIO, INC.

(Pursuant to Sections 242 and 245 of the
General Corporation Law of the State of Delaware)

Graphite Bio, Inc., a corporation organized and existing under and by virtue of the provisions of the General Corporation Law of the State of Delaware (the "**General Corporation Law**"),

DOES HEREBY CERTIFY:

1. That the name of this corporation is Graphite Bio, Inc., and that this corporation was originally incorporated pursuant to the General Corporation Law on October 29, 2019 under the name Longbow Therapeutics Inc.

2. That the Board of Directors duly adopted resolutions proposing to amend and restate the Certificate of Incorporation of this corporation, declaring said amendment and restatement to be advisable and in the best interests of this corporation and its stockholders, and authorizing the appropriate officers of this corporation to solicit the consent of the stockholders therefor, which resolution setting forth the proposed amendment and restatement is as follows:

RESOLVED, that the Certificate of Incorporation of this corporation be amended and restated in its entirety to read as follows:

FIRST: The name of this corporation is Graphite Bio, Inc. (the "**Corporation**").

SECOND: The address of the registered office of the Corporation in the State of Delaware is 1201 North Market Street, 18th Floor, in the City of Wilmington, County of New Castle, 19801. The name of its registered agent at such address is Delaware Corporation Organizers, Inc.

THIRD: The nature of the business or purposes to be conducted or promoted is to engage in any lawful act or activity for which corporations may be organized under the General Corporation Law.

FOURTH: The total number of shares of all classes of stock which the Corporation shall have authority to issue is (i) 120,000,000 shares of Common Stock, $0.00001 par value per share ("**Common Stock**") and (ii) 74,812,432 shares of Preferred Stock, $0.00001 par value per share ("**Preferred Stock**").

The following is a statement of the designations and the powers, privileges and rights, and the qualifications, limitations or restrictions thereof in respect of each class of capital stock of the Corporation.

A. COMMON STOCK

1. General. The voting, dividend and liquidation rights of the holders of the Common Stock are subject to and qualified by the rights, powers and preferences of the holders of the Preferred Stock set forth herein.

2. Voting. The holders of the Common Stock are entitled to one vote for each share of Common Stock held at all meetings of stockholders (and written actions in lieu of meetings); provided, however, that, except as otherwise required by law, holders of Common Stock, as such, shall not be entitled to vote on any amendment to this Amended and Restated Certificate of Incorporation that relates solely to the terms of one or more outstanding series of Preferred Stock if the holders of such affected series are entitled, either separately or together with the holders of one or more other such series, to vote thereon pursuant to this Amended and Restated Certificate of Incorporation or pursuant to the General Corporation Law. No person entitled to vote at an election for directors may cumulate votes to which such person is entitled, unless, at the time of such election, the Corporation is subject to Section 2115 of the California Corporations Code. During such time or times that the Corporation is subject to Section 2115(b) of the California Corporations Code, every stockholder entitled to vote at an election for directors may cumulate such stockholder's votes and give one candidate a number of votes equal to the number of directors to be elected multiplied by the number of votes to which such stockholder's shares are otherwise entitled, or distribute the stockholder's votes on the same principle among as many candidates as such stockholder desires. No stockholder, however, shall be entitled to so cumulate such stockholder's votes unless (i) the names of such candidate or candidates have been placed in nomination prior to the voting, and (ii) the stockholder has given notice at the meeting, prior to the voting, of such stockholder's intention to cumulate such stockholder's votes. If any stockholder has given proper notice to cumulate votes, all stockholders may cumulate their votes for any candidates who have been properly placed in nomination. Under cumulative voting, the candidates receiving the highest number of votes, up to the number of directors to be elected, are elected. The number of authorized shares of Common Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by (in addition to any vote of the holders of one or more series of Preferred Stock that may be required by the terms of this Amended and Restated Certificate of Incorporation) the affirmative vote of the holders of shares of capital stock of the Corporation representing a majority of the votes represented by all outstanding shares of capital stock of the Corporation entitled to vote, irrespective of the provisions of Section 242(b)(2) of the General Corporation Law.

B. PREFERRED STOCK

45,019,945 shares of the authorized Preferred Stock of the Corporation are hereby designated "**Series A Preferred Stock**" with the following rights, preferences, powers, privileges and restrictions, qualifications and limitations and 29,792,487 shares of the authorized and unissued Preferred Stock of the Corporation are hereby designated "**Series B Preferred Stock**" with the following rights, preferences, powers, privileges and restrictions, qualifications and limitations. Unless otherwise indicated, references to "sections" or "subsections" in this Part B of this Article Fourth refer to sections and subsections of Part B of this Article Fourth.

1. Dividends.

The holders of Preferred Stock shall be entitled to receive, on a*pari passu* basis, a non-cumulative dividend of eight percent (8%) per annum of the Applicable Original Issue Price (as defined below) (the "**Preferred Dividends**"); provided, however, such Preferred Dividends shall be payable only when, as and if declared by the Board of Directors of the Corporation and the Corporation shall be under no obligation to declare or pay any such dividends. The Corporation shall not declare, pay or set aside any dividends on shares of any other class or series of capital stock of the Corporation (other than dividends on shares of Common Stock payable in shares of Common Stock) in any calendar year unless (in addition to the obtaining of any consents required elsewhere in the Restated Certificate) the holders of Preferred Stock then outstanding shall first receive, or simultaneously receive, a dividend on each outstanding share of Preferred Stock in an amount at least equal to the greater of (i) the amount of the aggregate Preferred Dividends then declared on such share of Preferred Stock and not previously paid and (ii) (A) in the case of a dividend on Common Stock or any class or series that is convertible into Common Stock, that dividend per share of Preferred Stock as would equal the product of (1) the dividend payable on each share of such class or series determined, if applicable, as if all shares of such class or series had been converted into Common Stock and (2) the number of shares of Common Stock issuable upon conversion of a share of such series of Preferred Stock, in each case calculated on the record date for determination of holders entitled to receive such dividend or (B) in the case of a dividend on any class or series that is not convertible into Common Stock, at a rate per share of Preferred Stock determined by (1) dividing the amount of the dividend payable on each share of such class or series of capital stock by the original issuance price of such class or series of capital stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to such class or series) and (2) multiplying such fraction by an amount equal to the Applicable Original Issue Price; provided that, if the Corporation declares, pays or sets aside, on the same date, a dividend on shares of more than one (1) class or series of capital stock of the Corporation, the dividend payable to the holders of Preferred Stock pursuant to this Section 1 shall be calculated based upon the dividend on the class or series of capital stock that would result in the highest Preferred Stock dividend. The "**Series A Original Issue Price**" shall mean $1.00 per share with respect to the Series A Preferred Stock, subject in each case to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series A Preferred Stock. The "**Series B Original Issue Price**" shall mean $5.06 per share with respect to the Series B Preferred Stock, subject in each case to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series B Preferred Stock. The "**Applicable Original Issue Price**" shall mean, as the context so requires, the Series A Original Issue Price with respect to the Series A Preferred Stock and the Series B Original Issue Price with respect to the Series B Preferred Stock.

2. Liquidation, Dissolution or Winding Up; Certain Mergers, Consolidations and Asset Sales

2.1 Preferential Payments to Holders of Preferred Stock. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation, the holders of shares of Preferred Stock then outstanding shall be entitled to be paid out of the assets of the Corporation available for distribution to its stockholders, and in the event of a Deemed Liquidation Event (as defined below), the holders of shares of Preferred Stock then outstanding shall be entitled to be paid out of the consideration payable to stockholders in such Deemed Liquidation Event or out of the Available Proceeds (as defined below), as applicable and in each case on a *pari passu* basis, before any payment shall be made to the holders of Common Stock by reason of their ownership thereof, an amount per share equal to the greater of (i) the Applicable Original Issue Price, plus any dividends declared but unpaid thereon, or (ii) such amount per share as would have been payable had all shares of such series of Preferred Stock been converted into Common Stock pursuant to Section 4 immediately prior to such liquidation, dissolution, winding up or Deemed Liquidation Event (the amount payable pursuant to this sentence is hereinafter referred to as the "**Liquidation Amoun**t"). If upon any such liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, the assets of the Corporation available for distribution to its stockholders shall be insufficient to pay the holders of shares of Preferred Stock the full amount to which they shall be entitled under this Section 2.1, the holders of shares of Preferred Stock shall share ratably in any distribution of the assets available for distribution in proportion to the respective amounts which would otherwise be payable in respect of the shares held by them upon such distribution if all amounts payable on or with respect to such shares were paid in full.

2.2 Payments to Holders of Common Stock. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation, after the payment in full of all Liquidation Amounts required to be paid to the holders of shares of Preferred Stock, the remaining assets of the Corporation available for distribution to its stockholders or, in the case of a Deemed Liquidation Event, the consideration not payable to the holders of shares of Preferred Stock pursuant to Section 2.1 or the remaining Available Proceeds, as the case may be, shall be distributed among the holders of shares of Common Stock, pro rata based on the number of shares held by each such holder.

2.3 Deemed Liquidation Events.

2.3.1 Definition. Each of the following events shall be considered a "**Deemed Liquidation Event**" unless the holders of at least seventy two percent (72%) of the outstanding shares of Preferred Stock, voting together as a single class on an as-converted to Common Stock basis (the "**Requisite Holders**"), elect otherwise by written notice sent to the Corporation at least ten (10) days prior to the effective date of any such event:

(a) a merger or consolidation in which

(i) the Corporation is a constituent party or

(ii) a subsidiary of the Corporation is a constituent party and the Corporation issues shares of its capital stock pursuant to such merger or consolidation, or

(iii) the stockholders of the Corporation do not own a majority of the outstanding shares of the surviving corporation,

except any such merger or consolidation involving the Corporation or a subsidiary in which the shares of capital stock of the Corporation outstanding immediately prior to such merger or consolidation continue to represent, or are converted into or exchanged for shares of capital stock that represent, immediately following such merger or consolidation, at least a majority, by voting power, of the capital stock of (1) the surviving or resulting corporation; or (2) if the surviving or resulting corporation is a wholly owned subsidiary of another corporation immediately following such merger or consolidation, the parent corporation of such surviving or resulting corporation; or

(b) (1) the sale, lease, transfer, exclusive license or other disposition, in a single transaction or series of related transactions, by the Corporation or any subsidiary of the Corporation of all or substantially all the assets of the Corporation and its subsidiaries taken as a whole or (2) the sale or disposition (whether by merger, consolidation or otherwise, and whether in a single transaction or a series of related transactions) of one or more subsidiaries of the Corporation if substantially all of the assets of the Corporation and its subsidiaries taken as a whole are held by such subsidiary or subsidiaries, except where such sale, lease, transfer, exclusive license or other disposition is to a wholly owned subsidiary of the Corporation.

2.3.2 Effecting a Deemed Liquidation Event.

(a) The Corporation shall not have the power to effect a Deemed Liquidation Event referred to in Subsection 2.3.1(a)(i) unless the agreement or plan of merger or consolidation for such transaction (the "**Merger Agreement**") provides that the consideration payable to the stockholders of the Corporation in such Deemed Liquidation Event shall be paid to the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2.

(b) In the event of a Deemed Liquidation Event referred to in Subsection 2.3.1(a)(ii) or 2.3.1(b), if the Corporation does not effect a dissolution of the Corporation under the General Corporation Law within ninety (90) days after such Deemed Liquidation Event, then (i) the Corporation shall send a written notice to each holder of Preferred Stock no later than the ninetieth (90th) day after the Deemed Liquidation Event advising such holders of their right (and the requirements to be met to secure such right) pursuant to the terms of the following clause; (ii) to require the redemption of such shares of Preferred Stock, and (iii) if the Requisite Holders so request in a written instrument delivered to the Corporation not later than one hundred twenty (120) days after such Deemed Liquidation Event, the Corporation shall use the consideration received by the Corporation for such Deemed Liquidation Event (net of any retained liabilities associated with the assets sold or technology licensed, as determined in good faith by the Board of Directors of the Corporation), together with any other assets of the Corporation available for distribution to its stockholders, all to the extent permitted by Delaware law governing distributions to stockholders (the "**Available Proceeds**"), on the one hundred fiftieth (150th) day after such Deemed Liquidation Event, to redeem all outstanding shares of Preferred Stock at a price per share equal to the Liquidation Amount. Notwithstanding the foregoing, in the event of a redemption pursuant to the preceding sentence, if the Available Proceeds are not sufficient to redeem all outstanding shares of Preferred Stock, the Corporation shall redeem a pro rata portion of each holder's shares of Preferred Stock to the fullest extent of such Available Proceeds, based on the respective amounts which would otherwise be payable in

respect of the shares to be redeemed if the Available Proceeds were sufficient to redeem all such shares, and shall redeem the remaining shares as soon as it may lawfully do so under Delaware law governing distributions to stockholders. Prior to the distribution or redemption provided for in this Subsection 2.3.2(b), the Corporation shall not expend or dissipate the consideration received for such Deemed Liquidation Event, except to discharge expenses incurred in connection with such Deemed Liquidation Event or in the ordinary course of business.

(c) The Corporation shall send written notice of the redemption pursuant to Section 2.3.2(b) (the "**Redemption Notice**") to each holder of record of Preferred Stock not less than 90 days after the Deemed Liquidation Event. Each Redemption Notice shall state:

(i) the number of shares of Preferred Stock held by the holder that the Corporation shall redeem;

(ii) the date of redemption (the "**Redemption Date**") and price per share of Preferred Stock to be redeemed (the "**Redemption Price**");

(iii) the date upon which the holder's right to convert such shares terminates (as determined in accordance with Section 4.1); and

(iv) that the holder is to surrender to the Corporation, in the manner and at the place designated, his, her or its certificate or certificates representing the shares of Preferred Stock to be redeemed.

(d) On or before the applicable Redemption Date, each holder of shares of Preferred Stock to be redeemed on such Redemption Date, unless such holder has exercised his, her or its right to convert such shares as provided in Section 4, shall surrender the certificate or certificates representing such shares (or, if such registered holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation, in the manner and at the place designated in the Redemption Notice, and thereupon the Redemption Price for such shares shall be payable to the order of the person whose name appears on such certificate or certificates as the owner thereof. In the event less than all of the shares of Preferred Stock represented by a certificate are redeemed, a new certificate representing the unredeemed shares of Preferred Stock shall promptly be issued to such holder.

(e) If the Redemption Notice shall have been duly given, and if on the applicable Redemption Date the Redemption Price payable upon redemption of the shares of Preferred Stock to be redeemed on such Redemption Date is paid or tendered for payment or deposited with an independent payment agent so as to be available therefor in a timely manner, then notwithstanding that the certificates evidencing any of the shares of Preferred Stock so called for redemption shall not have been surrendered, dividends with respect to such shares of Preferred Stock shall cease to accrue after such Redemption Date and all rights with respect to such shares shall forthwith after the Redemption Date terminate, except only the right of the holders to receive the Redemption Price without interest upon surrender of their certificate or certificates therefor. Any shares of Preferred Stock which are redeemed or otherwise acquired by the Corporation or any of its subsidiaries shall be automatically and immediately canceled and shall not be reissued, sold or transferred. Neither the Corporation nor any of its subsidiaries may exercise any voting or other rights granted to the holders of Preferred Stock following redemption

2.3.3 Amount Deemed Paid or Distributed. The amount deemed paid or distributed to the holders of capital stock of the Corporation upon any such merger, consolidation, sale, transfer, exclusive license, other disposition or redemption shall be the cash or the value of the property, rights or securities to be paid or distributed to such holders pursuant to such Deemed Liquidation Event. The value of such property, rights or securities shall be determined in good faith by the Board of Directors of the Corporation, (including in any event, at least one Preferred Director).

2.3.4 Allocation of Escrow and Contingent Consideration. In the event of a Deemed Liquidation Event pursuant to Subsection 2.3.1(a)(i), if any portion of the consideration payable to the stockholders of the Corporation is payable only upon satisfaction of contingencies (the "**Additional Consideration**"), the Merger Agreement shall provide that (a) the portion of such consideration that is not Additional Consideration (such portion, the "**Initial Consideration**") shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2 as if the Initial Consideration were the only consideration payable in connection with such Deemed Liquidation Event; and (b) any Additional Consideration which becomes payable to the stockholders of the Corporation upon satisfaction of such contingencies shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2 after taking into account the previous payment of the Initial Consideration as part of the same transaction. For the purposes of this Subsection 2.3.4, consideration placed into escrow or retained as a holdback to be available for satisfaction of indemnification or similar obligations in connection with such Deemed Liquidation Event shall be deemed to be Additional Consideration.

3. Voting.

3.1 General. On any matter presented to the stockholders of the Corporation for their action or consideration at any meeting of stockholders of the Corporation (or by written consent of stockholders in lieu of meeting), each holder of outstanding shares of Preferred Stock shall be entitled to cast the number of votes equal to the number of whole shares of Common Stock into which the shares of Preferred Stock held by such holder are convertible as of the record date for determining stockholders entitled to vote on such matter. Except as provided by law or by the other provisions of this Amended and Restated Certificate of Incorporation, holders of Preferred Stock shall vote together with the holders of Common Stock as a single class and on an as-converted to Common Stock basis.

3.2 Election of Directors. The holders of record of the shares of Series A Preferred Stock, exclusively and as a separate class, shall be entitled to elect three (3) directors of the Corporation (the "**Preferred Directors**") and the holders of record of the shares of Common Stock, exclusively and as a separate class, shall be entitled to elect two (2) directors of the Corporation. Any director elected as provided in the preceding sentence may be removed without cause by, and only by, the affirmative vote of the holders of the shares of the class or series of capital stock entitled to elect such director or directors, given either at a special meeting of such stockholders duly called for that purpose or pursuant to a written consent of stockholders. If the holders of shares of Series A Preferred Stock or Common Stock, as the case may be, fail to elect a sufficient number of directors to fill all directorships for which they are entitled to elect directors, voting exclusively and as a separate class, pursuant to the first sentence of this Subsection 3.2, then any directorship not so filled shall remain vacant until such time as the holders of the Series A Preferred Stock or Common Stock, as the case may be, elect a person to fill such directorship by vote or written consent in lieu of a meeting; and no such directorship may be filled by stockholders of the Corporation other than by the stockholders of the Corporation that are entitled to elect a person to fill such directorship, voting exclusively and as a separate class. The holders of record of the shares of Common Stock and of any other class or series of voting stock (including the Series A Preferred Stock), exclusively and voting together as a single class, shall be entitled to elect the balance of the total number of directors of the Corporation. At any meeting held for the purpose of electing a director, the presence in person or by proxy of the holders of a majority of the outstanding shares of the class or series entitled to elect such director shall constitute a quorum for the purpose of electing such director. Except as otherwise provided in this Subsection 3.2, a vacancy in any directorship filled by the holders of any class or series shall be filled only by vote or written consent in lieu of a meeting of the holders of such class or series or by any remaining director or directors elected by the holders of such class or series pursuant to this Subsection 3.2.

3.3 Preferred Stock Protective Provisions. At any time when at least 7,481,243 shares of Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Preferred Stock) are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without (in addition to any other vote required by law or this Amended and Restated Certificate of Incorporation) the written consent or affirmative vote of the Requisite Holders given in writing or by vote at a meeting, consenting or voting (as the case may be) separately as a class, and any such act or transaction entered into without such consent or vote shall be null and void *ab initio*, and of no force or effect.

3.3.1 liquidate, dissolve or wind-up the business and affairs of the Corporation, effect any merger or consolidation or other corporate reorganization or sale of voting control or any other Deemed Liquidation Event, or consent to any of the foregoing;

3.3.2 amend, alter, waive or repeal any provision of this Amended and Restated Certificate of Incorporation or Bylaws of the Corporation in a manner that adversely affects the powers, preferences or rights of the Preferred Stock;

3.3.3 (i) create, or authorize the creation of, or issue or obligate itself to issue shares of, or reclassify, any capital stock unless the same ranks junior to the Preferred Stock with respect to its rights, preferences and privileges, (ii) increase the authorized number of shares of Preferred Stock or any additional class or series of capital stock of the Corporation unless the same ranks junior to the Preferred Stock with respect to its rights, preferences and privileges or (iii) increase the authorized number of shares of Common Stock;

3.3.4 purchase or redeem (or permit any subsidiary to purchase or redeem) or pay or declare any dividend or make any distribution on, any shares of capital stock of the Corporation other than (i) redemptions of or dividends or distributions on the Preferred Stock as expressly authorized herein, (ii) dividends or other distributions payable on the Common Stock solely in the form of additional shares of Common Stock and (iii) repurchases of stock from former employees, officers, directors, consultants or other persons who performed services for the Corporation or any subsidiary in connection with the cessation of such employment or service at thereof, at no greater than the original purchase price thereof;

3.3.5 create, or hold capital stock in, any subsidiary that is not wholly owned (either directly or through one or more other subsidiaries) by the Corporation, or permit any subsidiary to create, or authorize the creation of, or issue or obligate itself to issue, any shares of any class or series of capital stock, or sell, transfer or otherwise dispose of any capital stock of any direct or indirect subsidiary of the Corporation, or permit any direct or indirect subsidiary to sell, lease, transfer, exclusively license or otherwise dispose (in a single transaction or series of related transactions) of all or substantially all of the assets of such subsidiary; or

3.3.6 increase or decrease the authorized number of directors constituting the Board of Directors.

3.4 Series A Preferred Stock Protective Provisions. At any time when at least 1,502,499 shares of Series A Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series A Preferred Stock) are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without (in addition to any other vote required by law or this Amended and Restated Certificate of Incorporation) the written consent or affirmative vote of the holders of a majority of the Series A Preferred Stock then outstanding, given in writing or by vote at a meeting, consenting or voting (as the case may be) separately as a class, and any such act or transaction entered into without such consent or vote shall be null and void ab initio, and of no force or effect.

3.4.1 increase or decrease the authorized number of shares of Series A Preferred Stock; or

3.4.2 amend, alter, waive or repeal any provision of this Amended and Restated Certificate of Incorporation or the Corporation's Bylaws in a manner that would alter or change the powers, preferences or rights of the Series A Preferred Stock so as to affect the class adversely.

3.5 Series B Preferred Stock Protective Provisions. At any time when at least 2,979,249 shares of Series B Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series B Preferred Stock) are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without (in addition to any other vote required by law or this Amended and Restated Certificate of Incorporation) the

written consent or affirmative vote of the holders of a majority of the Series B Preferred Stock then outstanding, given in writing or by vote at a meeting, consenting or voting (as the case may be) separately as a class, and any such act or transaction entered into without such consent or vote shall be null and void ab initio, and of no force or effect.

3.5.1 increase or decrease the authorized number of shares of Series B Preferred Stock; or

3.5.2 amend, alter, waive or repeal any provision of this Amended and Restated Certificate of Incorporation or the Corporation's Bylaws in a manner that would alter or change the powers, preferences or rights of the Series B Preferred Stock so as to affect the class adversely.

4. Optional Conversion.

The holders of the Preferred Stock shall have conversion rights as follows (the "**Conversion Rights**"):

4.1 Right to Convert.

4.1.1 Conversion Ratio. Each share of Preferred Stock shall be convertible, at the option of the holder thereof, at any time and from time to time, and without the payment of additional consideration by the holder thereof, into such number of fully paid and non-assessable shares of Common Stock as is determined by dividing the Applicable Original Issue Price by the Applicable Conversion Price (as defined below) in effect at the time of conversion; provided that such holder may waive such option to convert upon written notice to the Corporation. The "**Series A Conversion Price**" shall initially be equal to the Series A Original Issue Price. Such initial Series A Conversion Price, and the rate at which shares of Series A Preferred Stock may be converted into shares of Common Stock, shall be subject to adjustment as provided below. The "**Series B Conversion Price**" shall initially be equal to the Series B Original Issue Price. Such initial Series B Conversion Price, and the rate at which shares of Series B Preferred Stock may be converted into shares of Common Stock, shall be subject to adjustment as provided below. The "**Applicable Conversion Price**" shall mean, as the context so requires, the Series A Conversion Price with respect to the Series A Preferred Stock and the Series B Conversion Price with respect to the Series B Preferred Stock.

4.1.2 Termination of Conversion Rights. In the event of a liquidation, dissolution or winding up of the Corporation or a Deemed Liquidation Event, the Conversion Rights shall terminate at the close of business on the last full day preceding the date fixed for the payment of any such amounts distributable on such event to the holders of Preferred Stock.

4.2 Fractional Shares. No fractional shares of Common Stock shall be issued upon conversion of the Preferred Stock. In lieu of any fractional shares to which the holder would otherwise be entitled, the Corporation shall pay cash equal to such fraction multiplied by the fair market value of a share of Common Stock as determined in good faith by the Board of Directors of the Corporation. Whether or not fractional shares would be issuable upon such conversion shall be determined on the basis of the total number of shares of Preferred Stock the holder is at the time converting into Common Stock and the aggregate number of shares of Common Stock issuable upon such conversion.

4.3 Mechanics of Conversion.

4.3.1 Notice of Conversion. In order for a holder of Preferred Stock to voluntarily convert shares of Preferred Stock into shares of Common Stock, such holder shall (a) provide written notice to the Corporation's transfer agent at the office of the transfer agent for the Preferred Stock (or at the principal office of the Corporation if the Corporation serves as its own transfer agent) that such holder elects to convert all or any number of such holder's shares of Preferred Stock and, if applicable, any event on which such conversion is contingent and (b), if such holder's shares are certificated, surrender the certificate or certificates for such shares of Preferred Stock (or, if such registered holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate), at the office of the transfer agent for the Preferred Stock (or at the principal office of the Corporation if the Corporation serves as its own transfer agent). Such notice shall state such holder's name or the names of the nominees in which such holder wishes the shares of Common Stock to be issued. If required by the Corporation, any certificates surrendered for conversion shall be endorsed or accompanied by a written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or his, her or its attorney duly authorized in writing. The close of business on the date of receipt by the transfer agent (or by the Corporation if the Corporation serves as its own transfer agent) of such notice and, if applicable, certificates (or lost certificate affidavit and agreement) shall be the time of conversion (the "**Conversion Time**"), and the shares of Common Stock issuable upon conversion of the specified shares shall be deemed to be outstanding of record as of such date. The Corporation shall, as soon as practicable after the Conversion Time (i) issue and deliver to such holder of Preferred Stock, or to his, her or its nominees, a certificate or certificates for the number of full shares of Common Stock issuable upon such conversion in accordance with the provisions hereof and a certificate for the number (if any) of the shares of Preferred Stock represented by the surrendered certificate that were not converted into Common Stock, (ii) pay in cash such amount as provided in Subsection 4.2 in lieu of any fraction of a share of Common Stock otherwise issuable upon such conversion and (iii) pay all declared but unpaid dividends on the shares of Preferred Stock converted.

4.3.2 Reservation of Shares. The Corporation shall at all times when the Preferred Stock shall be outstanding, reserve and keep available out of its authorized but unissued capital stock, for the purpose of effecting the conversion of the Preferred Stock, such number of its duly authorized shares of Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding Preferred Stock; and if at any time the number of authorized but unissued shares of Common Stock shall not be sufficient to effect the conversion of all then outstanding shares of the Preferred Stock, the Corporation shall take such corporate action as may be necessary to increase its authorized but unissued shares of Common Stock to such number of shares as shall be sufficient for such purposes, including, without limitation, engaging in best efforts to obtain the requisite stockholder approval of any necessary amendment to this Amended and Restated Certificate of Incorporation. Before taking any action which would cause an adjustment reducing the Applicable Conversion Price below the then par value of the shares of Common Stock issuable upon conversion of the Preferred Stock, the Corporation will take any corporate action which may, in the opinion of its counsel, be necessary in order that the Corporation may validly and legally issue fully paid and non-assessable shares of Common Stock at such adjusted Applicable Conversion Price.

4.3.3 Effect of Conversion. All shares of Preferred Stock which shall have been surrendered for conversion as herein provided shall no longer be deemed to be outstanding and all rights with respect to such shares shall immediately cease and terminate at the Conversion Time, except only the right of the holders thereof to receive shares of Common Stock in exchange therefor, to receive payment in lieu of any fraction of a share otherwise issuable upon such conversion as provided in Subsection 4.2 and to receive payment of any dividends declared but unpaid thereon. Any shares of Preferred Stock so converted shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Preferred Stock accordingly.

4.3.4 No Further Adjustment. Upon any such conversion, no adjustment to the Applicable Conversion Price shall be made for any declared but unpaid dividends on the Preferred Stock surrendered for conversion or on the Common Stock delivered upon conversion.

4.3.5 Taxes. The Corporation shall pay any and all issue and other similar taxes that may be payable in respect of any issuance or delivery of shares of Common Stock upon conversion of shares of Preferred Stock pursuant to this Section 4. The Corporation shall not, however, be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of shares of Common Stock in a name other than that in which the shares of Preferred Stock so converted were registered, and no such issuance or delivery shall be made unless and until the person or entity requesting such issuance has paid to the Corporation the amount of any such tax or has established, to the satisfaction of the Corporation, that such tax has been paid.

4.4 Adjustments to Applicable Conversion Price for Diluting Issues.

4.4.1 Special Definitions. For purposes of this Article Fourth, the following definitions shall apply:

(a) "**Option**" shall mean rights, options or warrants to subscribe for, purchase or otherwise acquire Common Stock or Convertible Securities.

(b) "**Series B Original Issue Date**" shall mean the date on which the first share of Series B Preferred Stock was issued.

(c) "**Convertible Securities**" shall mean any evidences of indebtedness, shares or other securities directly or indirectly convertible into or exchangeable for Common Stock, but excluding Options.

(d) "**Additional Shares of Common Stock**" shall mean all shares of Common Stock issued (or, pursuant to Subsection 4.4.3 below, deemed to be issued) by the Corporation after the Series B Original Issue Date, other than (1) the following shares of Common Stock and (2) shares of Common Stock deemed issued pursuant to the following Options and Convertible Securities (clauses (1) and (2), collectively, "**Exempted Securities**"):

(i) shares of Common Stock, Options or Convertible Securities issued as a dividend or distribution on the Preferred Stock;

(ii) shares of Common Stock, Options or Convertible Securities issued by reason of a dividend, stock split, split-up or other distribution on shares of Common Stock that is covered by Subsection 4.5, 4.6, 4.7 or 4.8**;**

(iii) shares of Common Stock or Options issued to employees, officers or directors of, or consultants or advisors to, the Corporation or any of its subsidiaries pursuant to a plan, agreement or arrangement approved by (A) the Board of Directors of the Corporation (including, in any event, each of the Preferred Directors) and (B) by the Requisite Holders; provided, that such approval by the Requisite Holders shall not be required for shares of Common Stock or Options issued to employees, officers or directors of, or consultants or advisors to, the Corporation or any of its subsidiaries out of an aggregate of 18,181,727 shares authorized for issuance pursuant to the Corporation's 2020 Stock Option and Grant Plan as of the Series B Original Issue Date;

(iv) shares of Common Stock or Convertible Securities actually issued upon the exercise of Options or shares of Common Stock actually issued upon the conversion or exchange of Convertible Securities, in each case provided such issuance is pursuant to the terms of such Option or Convertible Security;

(v) shares of Common Stock, Options or Convertible Securities issued to banks, equipment lessors or other financial institutions, or to real property lessors, pursuant to a debt financing, equipment leasing or real property leasing transaction approved by the Board of Directors of the Corporation, including the approval of each of the Preferred Directors, and by the Requisite Holders;

(vi) shares of Common Stock, Options or Convertible Securities issued as acquisition consideration pursuant to the acquisition of another corporation by the Corporation by merger, purchase of substantially all of the assets or other reorganization or to a joint venture agreement, provided that such issuances are approved by the Board of Directors of the Corporation, including each of the Preferred Directors, and by the Requisite Holders;

(vii) shares of Common Stock, Options or Convertible Securities issued in connection with sponsored research, collaboration, technology license, development, OEM, marketing or other similar agreements or strategic partnerships approved by the Board of Directors of the Corporation, including each of the Preferred Directors, and by the Requisite Holders;

(viii) shares of Series B Preferred Stock issued pursuant to that certain Series B Preferred Stock Purchase Agreement, dated on or about the Series B Original Issue Date, among the Corporation and the other parties thereto, and the shares of Common Stock issued or issuable upon conversion of such Series B Preferred Stock;

(ix) shares of Common Stock issuable upon conversion or exercise of Options or Convertible Securities outstanding as of the Series B Original Issue Date; or

(x) up to an aggregate of 1,879,945 shares of Common Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Common Stock) issuable to a university licensor pursuant to an exclusive license agreement and an exclusive option agreement; provided, that in connection with

such issuance, the Corporation shall repurchase from certain stockholders an equal number of shares of Common Stock at the lower of such stockholders' original purchase price for such shares or the then-current fair market value.

4.4.2 No Adjustment of Applicable Conversion Price. No adjustment in the Applicable Conversion Price of any series of Preferred Stock shall be made as the result of the issuance or deemed issuance of Additional Shares of Common Stock if the Corporation receives written notice from the holders of a majority of the outstanding shares of such series agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock.

4.4.3 Deemed Issue of Additional Shares of Common Stock.

(a) If the Corporation at any time or from time to time after the Series B Original Issue Date shall issue any Options or Convertible Securities (excluding Options or Convertible Securities which are themselves Exempted Securities) or shall fix a record date for the determination of holders of any class of securities entitled to receive any such Options or Convertible Securities, then the maximum number of shares of Common Stock (as set forth in the instrument relating thereto, assuming the satisfaction of any conditions to exercisability, convertibility or exchangeability but without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or, in the case of Convertible Securities and Options therefor, the conversion or exchange of such Convertible Securities, shall be deemed to be Additional Shares of Common Stock issued as of the time of such issue or, in case such a record date shall have been fixed, as of the close of business on such record date.

(b) If the terms of any Option or Convertible Security, the issuance of which resulted in an adjustment to the Applicable Conversion Price pursuant to the terms of Subsection 4.4.4, are revised as a result of an amendment to such terms or any other adjustment pursuant to the provisions of such Option or Convertible Security (but excluding automatic adjustments to such terms pursuant to anti-dilution or similar provisions of such Option or Convertible Security) to provide for either (1) any increase or decrease in the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any such Option or Convertible Security or (2) any increase or decrease in the consideration payable to the Corporation upon such exercise, conversion and/or exchange, then, effective upon such increase or decrease becoming effective, the Applicable Conversion Price computed upon the original issue of such Option or Convertible Security (or upon the occurrence of a record date with respect thereto) shall be readjusted to such Applicable Conversion Price as would have obtained had such revised terms been in effect upon the original date of issuance of such Option or Convertible Security. Notwithstanding the foregoing, no readjustment pursuant to this clause (b) shall have the effect of increasing the Applicable Conversion Price to an amount which exceeds the lower of (i) the Applicable Conversion Price in effect immediately prior to the original adjustment made as a result of the issuance of such Option or Convertible Security, or (ii) the Applicable Conversion Price that would have resulted from any issuances of Additional Shares of Common Stock (other than deemed issuances of Additional Shares of Common Stock as a result of the issuance of such Option or Convertible Security) between the original adjustment date and such readjustment date.

(c) If the terms of any Option or Convertible Security (excluding Options or Convertible Securities which are themselves Exempted Securities), the issuance of which did not result in an adjustment to the Applicable Conversion Price pursuant to the terms of Subsection 4.4.4 (either because the consideration per share (determined pursuant to Subsection 4.4.5) of the Additional Shares of Common Stock subject thereto was equal to or greater than the Applicable Conversion Price then in effect, or because such Option or Convertible Security was issued before the Series B Original Issue Date), are revised after the Series B Original Issue Date as a result of an amendment to such terms or any other adjustment pursuant to the provisions of such Option or Convertible Security (but excluding automatic adjustments to such terms pursuant to anti-dilution or similar provisions of such Option or Convertible Security) to provide for either (1) any increase in the number of shares of Common Stock issuable upon the exercise, conversion or exchange of any such Option or Convertible Security or (2) any decrease in the consideration payable to the Corporation upon such exercise, conversion or exchange, then such Option or Convertible Security, as so amended or adjusted, and the Additional Shares of Common Stock subject thereto (determined in the manner provided in Subsection 4.4.3(a) shall be deemed to have been issued effective upon such increase or decrease becoming effective.

(d) Upon the expiration or termination of any unexercised Option or unconverted or unexchanged Convertible Security (or portion thereof) which resulted (either upon its original issuance or upon a revision of its terms) in an adjustment to the Applicable Conversion Price pursuant to the terms of Subsection 4.4.4, the Applicable Conversion Price shall be readjusted to such Applicable Conversion Price as would have obtained had such Option or Convertible Security (or portion thereof) never been issued.

(e) If the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any Option or Convertible Security, or the consideration payable to the Corporation upon such exercise, conversion and/or exchange, is calculable at the time such Option or Convertible Security is issued or amended but is subject to adjustment based upon subsequent events, any adjustment to the Applicable Conversion Price provided for in this Subsection 4.4.3 shall be effected at the time of such issuance or amendment based on such number of shares or amount of consideration without regard to any provisions for subsequent adjustments (and any subsequent adjustments shall be treated as provided in clauses (b) and (c) of this Subsection 4.4.3). If the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any Option or Convertible Security, or the consideration payable to the Corporation upon such exercise, conversion and/or exchange, cannot be calculated at all at the time such Option or Convertible Security is issued or amended, any adjustment to the Applicable Conversion Price that would result under the terms of this Subsection 4.4.3 at the time of such issuance or amendment shall instead be effected at the time such number of shares and/or amount of consideration is first calculable (even if subject to subsequent adjustments), assuming for purposes of calculating such adjustment to the Applicable Conversion Price that such issuance or amendment took place at the time such calculation can first be made.

4.4.4 Adjustment of Applicable Conversion Price Upon Issuance of Additional Shares of Common Stock. In the event the Corporation shall at any time after the Series B Original Issue Date issue Additional Shares of Common Stock (including Additional Shares of Common Stock deemed to be issued pursuant to Subsection 4.4.3), without consideration or for a consideration per share less than the Applicable Conversion Price in effect immediately prior to such issuance or deemed issuance, then the Applicable Conversion Price shall be reduced, concurrently with such issue, to a price (calculated to the nearest one-hundredth of a cent) determined in accordance with the following formula:

$$CP_2 = CP_1 * (A + B) \div (A + C).$$

For purposes of the foregoing formula, the following definitions shall apply:

(a) "CP_2" shall mean the Applicable Conversion Price in effect immediately after such issuance or deemed issuance of Additional Shares of Common Stock

(b) "CP_1" shall mean the Applicable Conversion Price in effect immediately prior to such issuance or deemed issuance of Additional Shares of Common Stock;

(c) "A" shall mean the number of shares of Common Stock outstanding immediately prior to such issuance or deemed issuance of Additional Shares of Common Stock (treating for this purpose as outstanding all shares of Common Stock issuable upon exercise of Options outstanding immediately prior to such issuance or deemed issuance or upon conversion or exchange of Convertible Securities (including the Preferred Stock) outstanding (assuming exercise of any outstanding Options therefor) immediately prior to such issue);

(d) "B" shall mean the number of shares of Common Stock that would have been issued if such Additional Shares of Common Stock had been issued or deemed issued at a price per share equal to CP_1 (determined by dividing the aggregate consideration received by the Corporation in respect of such issue by CP_1); and

(e) "C" shall mean the number of such Additional Shares of Common Stock issued in such transaction.

4.4.5 Determination of Consideration. For purposes of this Subsection 4.4, the consideration received by the Corporation for the issuance or deemed issuance of any Additional Shares of Common Stock shall be computed as follows:

(a) Cash and Property: Such consideration shall:

(i) insofar as it consists of cash, be computed at the aggregate amount of cash received by the Corporation, excluding amounts paid or payable for accrued interest;

(ii) insofar as it consists of property other than cash, be computed at the fair market value thereof at the time of such issue, as determined in good faith by the Board of Directors of the Corporation; and

(iii) in the event Additional Shares of Common Stock are issued together with other shares or securities or other assets of the Corporation for consideration which covers both, be the proportion of such consideration so received, computed as provided in clauses (i) and (ii) above, as determined in good faith by the Board of Directors of the Corporation.

(b) Options and Convertible Securities. The consideration per share received by the Corporation for Additional Shares of Common Stock deemed to have been issued pursuant to Subsection 4.4.3, relating to Options and Convertible Securities, shall be determined by dividing:

(i) The total amount, if any, received or receivable by the Corporation as consideration for the issue of such Options or Convertible Securities, plus the minimum aggregate amount of additional consideration (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such consideration) payable to the Corporation upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities, by

(ii) the maximum number of shares of Common Stock (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities.

4.4.6 Multiple Closing Dates. In the event the Corporation shall issue on more than one date Additional Shares of Common Stock that are a part of one transaction or a series of related transactions and that would result in an adjustment to the Applicable Conversion Price pursuant to the terms of Subsection 4.4.4, then, upon the final such issuance, the Applicable Conversion Price shall be readjusted to give effect to all such issuances as if they occurred on the date of the first such issuance (and without giving effect to any additional adjustments as a result of any such subsequent issuances within such period).

4.5 Adjustment for Stock Splits and Combinations. If the Corporation shall at any time or from time to time after the Series B Original Issue Date effect a subdivision of the outstanding Common Stock, the Applicable Conversion Price in effect immediately before that subdivision shall be proportionately decreased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be increased in proportion to such increase in the aggregate number of shares of Common Stock outstanding. If the Corporation shall at any time or from time to time after the Series B Original Issue Date combine the outstanding shares of Common Stock, the Applicable Conversion Price in effect immediately before the combination shall be proportionately increased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be decreased in proportion to such decrease in the aggregate number of shares of Common Stock outstanding. Any adjustment under this subsection shall become effective at the close of business on the date the subdivision or combination becomes effective.

4.6 Adjustment for Certain Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series B Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable on the Common Stock in additional shares of Common Stock, then and in each such event the Applicable Conversion Price in effect immediately before such event shall be decreased as of the time of such issuance or, in the event such a record date shall have been fixed, as of the close of business on such record date, by multiplying the Applicable Conversion Price then in effect by a fraction:

(1) the numerator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date, and

(2) the denominator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date plus the number of shares of Common Stock issuable in payment of such dividend or distribution.

Notwithstanding the foregoing (a) if such record date shall have been fixed and such dividend is not fully paid or if such distribution is not fully made on the date fixed therefor, the Applicable Conversion Price shall be recomputed accordingly as of the close of business on such record date and thereafter the Applicable Conversion Price shall be adjusted pursuant to this subsection as of the time of actual payment of such dividends or distributions; and (b) that no such adjustment shall be made if the holders of Preferred Stock simultaneously receive a dividend or other distribution of shares of Common Stock in a number equal to the number of shares of Common Stock as they would have received if all outstanding shares of Preferred Stock had been converted into Common Stock on the date of such event.

4.7 Adjustments for Other Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series B Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable in securities of the Corporation (other than a distribution of shares of Common Stock in respect of outstanding shares of Common Stock) or in other property and the provisions of Section 1 do not apply to such dividend or distribution, then and in each such event the holders of Preferred Stock shall receive, simultaneously with the distribution to the holders of Common Stock, a dividend or other distribution of such securities or other property in an amount equal to the amount of such securities or other property as they would have received if all outstanding shares of Preferred Stock had been converted into Common Stock on the date of such event.

4.8 Adjustment for Merger or Reorganization, etc. Subject to the provisions of Subsection 2.3, if there shall occur any reorganization, recapitalization, reclassification, consolidation or merger involving the Corporation in which the Common Stock (but not the Preferred Stock) is converted into or exchanged for securities, cash or other property (other than a transaction covered by Subsections 4.4, 4.6 or 4.7), then, following any such reorganization, recapitalization, reclassification, consolidation or merger, each share of Preferred Stock shall thereafter be convertible in lieu of the Common Stock into which it was convertible prior to such event into the kind and amount of securities, cash or other property which a holder of the number of shares of Common Stock of the Corporation issuable upon conversion of one share of Preferred Stock immediately prior to such reorganization, recapitalization, reclassification, consolidation or merger would have been entitled to receive pursuant to such transaction; and, in such case, appropriate adjustment (as determined in good faith by the Board of Directors of the Corporation) shall be made in the application of the provisions in this Section 4 with respect to the rights and interests thereafter of the holders of the Preferred Stock, to the end that the provisions set forth in this Section 4 (including provisions with respect to changes in and other adjustments of the Applicable Conversion Price) shall thereafter be applicable, as nearly as reasonably may be, in relation to any securities or other property thereafter deliverable upon the conversion of the Preferred Stock.

4.9 Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment of the Applicable Conversion Price pursuant to this Section 4, the Corporation at its expense shall, as promptly as reasonably practicable but in any event not later than ten (10) days thereafter, compute such adjustment or readjustment in accordance with the terms hereof and furnish to each holder of Preferred Stock a certificate setting forth such adjustment or readjustment (including the kind and amount of securities, cash or other property into which the Preferred Stock is convertible) and showing in detail the facts upon which such adjustment or readjustment is based. The Corporation shall, as promptly as reasonably practicable after the written request at any time of any holder of Preferred Stock (but in any event not later than ten (10) days thereafter), furnish or cause to be furnished to such holder a certificate setting forth (i) the Applicable Conversion Price then in effect, and (ii) the number of shares of Common Stock and the amount, if any, of other securities, cash or property which then would be received upon the conversion of Preferred Stock.

4.10 Notice of Record Date. In the event:

(a) the Corporation shall take a record of the holders of its Common Stock (or other capital stock or securities at the time issuable upon conversion of the Preferred Stock) for the purpose of entitling or enabling them to receive any dividend or other distribution, or to receive any right to subscribe for or purchase any shares of capital stock of any class or any other securities, or to receive any other security; or

(b) of any capital reorganization of the Corporation, any reclassification of the Common Stock of the Corporation, or any Deemed Liquidation Event; or

(c) of the voluntary or involuntary dissolution, liquidation orwinding-up of the Corporation,

then, and in each such case, the Corporation will send or cause to be sent to the holders of the Preferred Stock a notice specifying, as the case may be, (i) the record date for such dividend, distribution or right, and the amount and character of such dividend, distribution or right, or (ii) the effective date on which such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up is proposed to take place, and the time, if any is to be fixed, as of which the holders of record of Common Stock (or such other capital stock or securities at the time issuable upon the conversion of the Preferred Stock) shall be entitled to exchange their shares of Common Stock (or such other capital stock or securities) for securities or other property deliverable upon such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up, and the amount per share and character of such exchange applicable to the Preferred Stock and the Common Stock. Such notice shall be sent at least ten (10) days prior to the record date or effective date for the event specified in such notice.

5. Mandatory Conversion.

5.1 Trigger Events. Upon either (a) the closing of the sale of shares of Common Stock to the public at a price per share of at least $5.06 subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization , in a firm-commitment underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, resulting in at least $75,000,000 of gross proceeds to the Corporation (before deduction of underwriters commissions and expenses) and in connection with such offering the Common Stock is listed for trading on the Nasdaq Stock Market's Global Market, the New York Stock Exchange or another exchange or marketplace approved the Board of Directors (including in any event, at least one of the Preferred Directors) or (b) the date and time, or the occurrence of an event, specified by the Requisite Holders (the time of such closing or the date and time specified or the time of the event specified in such vote or written consent is referred to herein as the "**Mandatory Conversion Time**"), then (i) all outstanding shares of Preferred Stock shall automatically be converted into shares of Common Stock, at the then effective conversion rate as calculated pursuant to Subsection 4.1.1 and (ii) such shares may not be reissued by the Corporation.

5.2 Procedural Requirements. All holders of record of shares of Preferred Stock shall be sent written notice of the Mandatory Conversion Time and the place designated for mandatory conversion of all such shares of Preferred Stock pursuant to this Section 5. Such notice need not be sent in advance of the occurrence of the Mandatory Conversion Time. Upon receipt of such notice, each holder of shares of Preferred Stock in certificated form shall surrender his, her or its certificate or certificates for all such shares (or, if such holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may

be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation at the place designated in such notice. If so required by the Corporation, any certificates surrendered for conversion shall be endorsed or accompanied by written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or by his, her or its attorney duly authorized in writing. All rights with respect to the Preferred Stock converted pursuant to Subsection 5.1, including the rights, if any, to receive notices and vote (other than as a holder of Common Stock), will terminate at the Mandatory Conversion Time (notwithstanding the failure of the holder or holders thereof to surrender any certificates at or prior to such time), except only the rights of the holders thereof, upon surrender of any certificate or certificates of such holders (or lost certificate affidavit and agreement) therefor, to receive the items provided for in the next sentence of this Subsection 5.2. As soon as practicable after the Mandatory Conversion Time and, if applicable, the surrender of any certificate or certificates (or lost certificate affidavit and agreement) for Preferred Stock, the Corporation shall (a) if the Corporation issues share certificates, issue and deliver to such holder, or to his, her or its nominees, a certificate or certificates for the number of full shares of Common Stock issuable on such conversion in accordance with the provisions hereof and (b)pay cash as provided in Subsection 4.2 in lieu of any fraction of a share of Common Stock otherwise issuable upon such conversion and the payment of any declared but unpaid dividends on the shares of Preferred Stock converted. Such converted Preferred Stock shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Preferred Stock accordingly.

6. Redeemed or Otherwise Acquired Shares. Any shares of Preferred Stock that are redeemed or otherwise acquired by the Corporation or any of its subsidiaries shall be automatically and immediately cancelled and retired and shall not be reissued, sold or transferred. Neither the Corporation nor any of its subsidiaries may exercise any voting or other rights granted to the holders of Preferred Stock following redemption.

7. Waiver. Except as set forth herein, any of the rights, powers, preferences and other terms of the Preferred Stock set forth herein may be waived on behalf of all holders of Preferred Stock by the affirmative written consent or vote of the Requisite Holders.

8. Notices. Any notice required or permitted by the provisions of this Article Fourth to be given to a holder of shares of Preferred Stock shall be mailed, postage prepaid, to the post office address last shown on the records of the Corporation, or given by electronic communication in compliance with the provisions of the General Corporation Law, and shall be deemed sent upon such mailing or electronic transmission.

FIFTH: Subject to any additional vote required by this Amended and Restated Certificate of Incorporation or Bylaws, in furtherance and not in limitation of the powers conferred by statute, the Board of Directors is expressly authorized to make, repeal, alter, amend and rescind any or all of the Bylaws of the Corporation.

SIXTH: Subject to any additional vote required by this Amended and Restated Certificate of Incorporation, the number of directors of the Corporation shall be determined in the manner set forth in the Bylaws of the Corporation. Each director shall be entitled to one vote on each matter presented to the Board of Directors.

SEVENTH: Elections of directors need not be by written ballot unless the Bylaws of the Corporation shall so provide.

EIGHTH: Meetings of stockholders may be held within or without the State of Delaware, as the Bylaws of the Corporation may provide. The books of the Corporation may be kept outside the State of Delaware at such place or places as may be designated from time to time by the Board of Directors or in the Bylaws of the Corporation.

NINTH: To the fullest extent permitted by law, a director of the Corporation shall not be personally liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a director. If the General Corporation Law or any other law of the State of Delaware is amended after approval by the stockholders of this Article Ninth to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director of the Corporation shall be eliminated or limited to the fullest extent permitted by the General Corporation Law as so amended.

Any repeal or modification of the foregoing provisions of this Article Ninth by the stockholders of the Corporation shall not adversely affect any right or protection of a director of the Corporation existing at the time of, or increase the liability of any director of the Corporation with respect to any acts or omissions of such director occurring prior to, such repeal or modification.

TENTH: To the fullest extent permitted by applicable law, the Corporation is authorized to provide indemnification of (and advancement of expenses to) directors, officers and agents of the Corporation (and any other persons to which General Corporation Law permits the Corporation to provide indemnification) through Bylaw provisions, agreements with such agents or other persons, vote of stockholders or disinterested directors or otherwise, in excess of the indemnification and advancement otherwise permitted by Section 145 of the General Corporation Law.

Any amendment, repeal or modification of the foregoing provisions of this Article Tenth shall not (a) adversely affect any right or protection of any director, officer or other agent of the Corporation existing at the time of such amendment, repeal or modification or (b) increase the liability of any director of the Corporation with respect to any acts or omissions of such director, officer or agent occurring prior to, such amendment, repeal or modification.

ELEVENTH: The Corporation renounces, to the fullest extent permitted by law, any interest or expectancy of the Corporation in, or in being offered an opportunity to participate in, any Excluded Opportunity. An "**Excluded Opportunity**" is any matter, transaction or interest that is presented to, or acquired, created or developed by, or which otherwise comes into the possession of (i) any director of the Corporation who is not an employee of the Corporation or any of its subsidiaries, or (ii) any holder of Preferred Stock or any partner, member, director, stockholder, employee, affiliate or agent of any such holder, other than someone who is an employee of the Corporation or any of its subsidiaries (collectively, the persons referred to in clauses (i) and (ii) are "**Covered Persons**"), unless such matter, transaction or interest is presented to, or acquired, created or developed by, or otherwise comes into the possession of, a Covered Person expressly and solely in such Covered Person's capacity as a director of the Corporation while such Covered Person is performing services in such capacity. Any repeal or modification

of this Article Eleventh will only be prospective and will not affect the rights under this Article Eleventh in effect at the time of the occurrence of any actions or omissions to act giving rise to liability. Notwithstanding anything to the contrary contained elsewhere in this Amended and Restated Certificate of Incorporation, the affirmative vote of the Requisite Holders, will be required to amend or repeal, or to adopt any provisions inconsistent with this Article Eleventh.

TWELFTH: Unless the Corporation consents in writing to the selection of an alternative forum, the Court of Chancery in the State of Delaware shall be the sole and exclusive forum for any stockholder (including a beneficial owner) to bring (i) any derivative action or proceeding brought on behalf of the Corporation, (ii) any action asserting a claim of breach of fiduciary duty owed by any director, officer or other employee of the Corporation to the Corporation or the Corporation's stockholders, (iii) any action asserting a claim against the Corporation, its directors, officers or employees arising pursuant to any provision of the Delaware General Corporation Law or the Corporation's certificate of incorporation or bylaws or (iv) any action asserting a claim against the Corporation, its directors, officers or employees governed by the internal affairs doctrine, except for, as to each of (i) through (iv) above, any claim as to which the Court of Chancery determines that there is an indispensable party not subject to the jurisdiction of the Court of Chancery (and the indispensable party does not consent to the personal jurisdiction of the Court of Chancery within ten days following such determination), which is vested in the exclusive jurisdiction of a court or forum other than the Court of Chancery, or for which the Court of Chancery does not have subject matter jurisdiction. If any provision or provisions of this Article Twelfth shall be held to be invalid, illegal or unenforceable as applied to any person or entity or circumstance for any reason whatsoever, then, to the fullest extent permitted by law, the validity, legality and enforceability of such provisions in any other circumstance and of the remaining provisions of this Article Twelfth (including, without limitation, each portion of any sentence of this Article Twelfth containing any such provision held to be invalid, illegal or unenforceable that is not itself held to be invalid, illegal or unenforceable) and the application of such provision to other persons or entities and circumstances shall not in any way be affected or impaired thereby.

THIRTEENTH: For purposes of Section 500 of the California Corporations Code (to the extent applicable), in connection with any repurchase of shares of Common Stock permitted under this Amended and Restated Certificate of Incorporation from employees, officers, directors or consultants of the Corporation in connection with a termination of employment or services pursuant to agreements or arrangements approved by the Board of Directors (in addition to any other consent required under this Amended and Restated Certificate of Incorporation), such repurchase may be made without regard to any "preferential dividends arrears amount" or "preferential rights amount" (as those terms are defined in Section 500 of the California Corporations Code). Accordingly, for purposes of making any calculation under California Corporations Code Section 500 in connection with such repurchase, the amount of any "preferential dividends arrears amount" or "preferential rights amount" (as those terms are defined therein) shall be deemed to be zero (0).

* * *

3. That the foregoing amendment and restatement was approved by the holders of the requisite number of shares of this corporation in accordance with Section 228 of the General Corporation Law.

4. That this Amended and Restated Certificate of Incorporation, which restates and integrates and further amends the provisions of this Corporation's Certificate of Incorporation, has been duly adopted in accordance with Sections 242 and 245 of the General Corporation Law.

IN WITNESS WHEREOF, this Amended and Restated Certificate of Incorporation has been executed by a duly authorized officer of this corporation on this 10th day of March, 2021.

By: /s/ Josh Lehrer
Josh Lehrer, Chief Executive Officer

GRAPHITE BIO, INC.
(F/K/A INTEGRAL MEDICINES, INC.)

AMENDED AND RESTATED BYLAWS

ARTICLE I - STOCKHOLDERS

Section 1. Annual Meeting.

An annual meeting of the stockholders, for the election of directors to succeed those whose terms expire and for the transaction of such other business as may properly come before the meeting, shall be held at such place, on such date, and at such time as the Board of Directors (or its designee) shall each year fix, which date shall be within thirteen (13) months of the last annual meeting of stockholders or, if no such meeting has been held, the date of incorporation.

Section 2. Special Meetings.

Special meetings of the stockholders, for any purpose or purposes prescribed in the notice of the meeting, may be called by the Board of Directors (or its designee) or the Chief Executive Officer and shall be held at such place, on such date, and at such time as they or he or she shall fix.

Section 3. Notice of Meetings.

Notice of the place, if any, date, and time of all meetings of the stockholders, the means of remote communications, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at such meeting, and the record date for determining the stockholders entitled to vote at the meeting, if such date is different from the record date for determining stockholders entitled to notice of the meeting, shall be given, not less than ten (10) nor more than sixty (60) days before the date of the meeting, to each stockholder entitled to vote at such meeting as of the record date for determining the stockholders entitled to notice of the meeting, except as otherwise provided herein or required by law (meaning, here and hereinafter, as required from time to time by the Delaware General Corporation Law (the "DGCL") or the Certificate of Incorporation of the Corporation (as amended from time to time, the "Certificate of Incorporation").

When a meeting is adjourned to another time or place, notice need not be given of the adjourned meeting if the time, place, if any, thereof, and the means of remote communications, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at such adjourned meeting are announced at the meeting at which the adjournment is taken; provided, however, that if the adjournment is for more than thirty (30) days, a notice of the adjourned meeting shall be given to each stockholder of record entitled to vote at the meeting. If after the adjournment a new record date for stockholders entitled to vote is fixed for the adjourned meeting, the Board of Directors shall fix a new record date for notice of such

adjourned meeting, in accordance with Section 213 of the DGCL, and shall give notice of the adjourned meeting to each stockholder of record entitled to vote at such adjourned meeting as of the record date fixed for notice of such adjourned meeting. At any adjourned meeting, any business may be transacted which might have been transacted at the original meeting.

Section 4. Quorum.

At any meeting of the stockholders, the holders of a majority of the voting power of all of the shares of stock entitled to vote at the meeting, present in person or by proxy, shall constitute a quorum for all purposes, unless or except to the extent that the presence of a larger number is required by law. Where a separate vote by a class or classes or series is required, a majority of the voting power of the outstanding shares of such class or classes or series present in person or represented by proxy shall constitute a quorum entitled to take action with respect to that vote on that matter.

If a quorum shall fail to attend any meeting, the meeting may be adjourned to another place, if any, date or time by the chairman of the meeting or by the affirmative vote of the holders of a majority of the voting power of shares of stock entitled to vote who are present, in person or by proxy, at the meeting.

Section 5. Organization.

Such person as the Board of Directors may have designated or, in the absence of such a person, the Chief Executive Officer of the Corporation or, in his or her absence, such person as may be chosen by the affirmative vote of the holders of a majority of the voting power of shares of stock entitled to vote who are present, in person or by proxy, shall call to order any meeting of the stockholders and act as chairman of the meeting. In the absence of the Secretary of the Corporation, the secretary of the meeting shall be such person as the chairman of the meeting appoints.

Section 6. Conduct of Business.

The chairman of any meeting of stockholders shall determine the order of business and the procedure at the meeting, including such regulation of the manner of voting and the conduct of discussion as seem to him or her in order. The chairman shall have the power to adjourn the meeting to another place, if any, date and time.

Section 7. Proxies and Voting.

At any meeting of the stockholders, every stockholder entitled to vote may vote in person or by proxy authorized by an instrument in writing or by a transmission permitted by law filed in accordance with the procedure established for the meeting. Any copy, facsimile telecommunication or other reliable reproduction of the writing or transmission created pursuant to this paragraph may be substituted or used in lieu of the original writing or transmission for any and all purposes for which the original writing or transmission could be used, provided that such copy, facsimile telecommunication or other reproduction shall be a complete reproduction of the entire original writing or transmission.

The Corporation may, and to the extent required by law, shall, in advance of any meeting of stockholders, appoint one (1) or more inspectors to act at the meeting and make a written report thereof. The Corporation may designate one (1) or more alternate inspectors to replace any inspector who fails to act. If no inspector or alternate is able to act at a meeting of stockholders, the person presiding at the meeting may, and to the extent required by law, shall, appoint one (1) or more inspectors to act at the meeting. Each inspector, before entering upon the discharge of his or her duties, shall take and sign an oath faithfully to execute the duties of inspector with strict impartiality and according to the best of his or her ability.

All elections shall be determined by a plurality of the votes cast, and except as otherwise required by law, all other matters shall be determined by a majority of the votes cast affirmatively or negatively.

Section 8. Stock List.

The Corporation shall, at least ten (10) days before every meeting of stockholders, prepare and make a complete list of stockholders entitled to vote at any meeting of stockholders, provided, however, if the record date for determining the stockholders entitled to vote is less than ten (10) days before the meeting date, the list shall reflect the stockholders entitled to vote as of the tenth (10^{th}) day before the meeting date, arranged in alphabetical order and showing the address of each such stockholder and the number of shares registered in his or her name. Such list shall be open to the examination of any stockholder for any purpose germane to the meeting for a period of at least ten (10) days prior to the meeting in the manner provided by law. Such stock list shall also be open to the examination of any stockholder during the whole time of the meeting as provided by law.

Section 9. Consent of Stockholders in Lieu of Meeting.

Any action required to be taken at any annual or special meeting of stockholders of the Corporation, or any action which may be taken at any annual or special meeting of the stockholders, may be taken without a meeting, without prior notice and without a vote, if a consent or consents in writing, setting forth the action so taken, shall be signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted and shall be delivered to the Corporation by delivery to its registered office in Delaware, its principal place of business, or an officer or agent of the Corporation having custody of the book in which proceedings of meetings of stockholders are recorded. Delivery made to the Corporation's registered office shall be made by hand or by certified or registered mail, return receipt requested.

No written consent shall be effective to take the corporate action referred to therein unless written consents signed by a sufficient number of holders to take such action are delivered to the Corporation in the manner required by Section 228 of the DGCL within sixty (60) days of the first date on which a written consent is so delivered to the Corporation.

Any copy, facsimile or other reliable reproduction of a consent in writing may be substituted or used in lieu of the original writing for any and all purposes for which the original writing could be used, provided that such copy, facsimile or other reproduction shall be a complete reproduction of the entire original writing.

Any person executing a consent may provide, whether through instruction to an agent or otherwise, that such a consent will be effective at a future time (including a time determined upon the happening of an event), no later than sixty (60) days after such instruction is given or such provision is made, if evidence of such instruction or provision is provided to the Corporation. Unless otherwise provided, any such consent shall be revocable prior to its becoming effective.

ARTICLE II - BOARD OF DIRECTORS

Section 1. Number and Term of Office.

The initial number of directors who shall constitute the Whole Board shall be one (1), which, subject to any restrictions in the Certificate of Incorporation, may be changed thereafter by action of the Board of Directors or the stockholders. For purposes of these Bylaws, the term "Whole Board" shall mean the total number of authorized directors whether or not there exist any vacancies in previously authorized directorships. Each director shall be elected for a term of one (1) year and until his or her successor is elected and qualified, except as otherwise provided herein or required by law.

Whenever the authorized number of directors is increased between annual meetings of the stockholders, a majority of the directors then in office shall have the power to elect such new directors for the balance of a term and until their successors are elected and qualified. Any decrease in the authorized number of directors shall not become effective until the expiration of the term, or resignation or retirement, of the directors then in office unless, at the time of such decrease, there shall be vacancies on the Board of Directors which are being eliminated by the decrease.

Section 2. Vacancies.

If the office of any director becomes vacant by reason of death, resignation, disqualification, removal from office or other cause, a majority of the directors remaining in office, although less than a quorum, may elect a successor for the unexpired term and until his or her successor is elected and qualified.

Section 3. Regular Meetings.

Regular meetings of the Board of Directors shall be held at such place or places, if any, on such date or dates, and at such time or times as shall have been established by the Board of Directors and publicized among all directors. A notice of the time and place of each regular meeting shall be given to each director by telephone, email or other electronic transmission permitted by law not less than forty-eight (48) hours before the time of the meeting or by written notice not less than four (4) days before the date of the meeting, provided that the first meeting immediately following a meeting of stockholders at which directors are elected may be held without notice if a quorum is present. Meetings may be held without notice if the directors waive or are deemed to waive notice.

Section 4. Special Meetings.

Special meetings of the Board of Directors may be called byone-third (1/3) of the directors then in office (rounded up to the nearest whole number) or by the Chief Executive Officer and shall be held at such place, if any, on such date, and at such time as they or he or she shall fix. Notice of the place, if any, date, and time of each such special meeting shall be given to each Director by telephone, email or other electronic transmission permitted by law not less than twenty-four (24) hours before the time of the meeting or by written notice of the same not less than five (5) days before the meeting. Meetings may be held without notice if the directors waive or are deemed to waive notice. Unless otherwise indicated in the notice thereof, any and all business may be transacted at a special meeting.

Section 5. Quorum.

At any meeting of the Board of Directors, a majority of the Whole Board shall constitute a quorum for all purposes. If a quorum shall fail to attend any meeting, the directors may adjourn the meeting to another place, date, or time, without further notice or waiver thereof, by the affirmative vote of a majority of those present.

Section 6. Participation in Meetings By Conference Telephone.

Members of the Board of Directors, or of any committee thereof, may participate in a meeting of such Board of Directors or committee by means of conference telephone or other communications equipment by means of which all persons participating in the meeting can hear each other and such participation shall constitute presence in person at such meeting.

Section 7. Conduct of Business.

At any meeting of the Board of Directors, business shall be transacted in such order and manner as the Board of Directors may from time to time determine, and all matters shall be determined by the affirmative vote of a majority of the directors present, except as otherwise provided herein or required by law. Action may be taken by the Board of Directors without a meeting if all members thereof consent thereto in writing or by electronic transmission, and the writing or writings or electronic transmission or transmissions are filed with the minutes of proceedings of the Board of Directors. Such filing shall be in paper form if the minutes are maintained in paper form and shall be in electronic form if the minutes are maintained in electronic form. Any person (whether or not then a director) may provide,

whether through instruction to an agent or otherwise, that a consent to action will be effective at a future time (including a time determined upon the happening of an event), no later than sixty (60) days after such instruction is given or such provision is made and such consent shall be deemed to have been given for purposes of this Section 7 at such effective time so long as such person is then a director and did not revoke the consent prior to such time. Any such consent shall be revocable prior to its becoming effective.

Section 8. Compensation of Directors.

Directors, as such, may receive, pursuant to resolution of the Board of Directors, fixed fees and other compensation for their services as directors, including, without limitation, their services as members of committees of the Board of Directors.

ARTICLE III - COMMITTEES

Section 1. Committees of the Board of Directors.

The Board of Directors may from time to time designate committees of the Board of Directors, with such lawfully delegable powers and duties as it thereby confers, to serve at the pleasure of the Board of Directors and shall, for those committees and any others provided for herein, elect a director or directors to serve as the member or members, designating, if it desires, other directors as alternate members who may replace any absent or disqualified member at any meeting of the committee. In the absence or disqualification of any member of any committee and any alternate member in his or her place, the member or members of the committee present at the meeting and not disqualified from voting, whether or not he or she or they constitute a quorum, may by unanimous vote appoint another member of the Board of Directors to act at the meeting in the place of the absent or disqualified member.

Section 2. Conduct of Business.

Each committee may determine the procedural rules for meeting and conducting its business and shall act in accordance therewith, except as otherwise provided herein or required by law. Adequate provision shall be made for notice to members of all meetings; one-third (1/3) of the members shall constitute a quorum unless the committee shall consist of one (1) or two (2) members, in which event one (1) member shall constitute a quorum; and all matters shall be determined by the affirmative vote of a majority of the members present. Action may be taken by any committee without a meeting if all members thereof consent thereto in writing or by electronic transmission, and the writing or writings or electronic transmission or transmissions are filed with the minutes of the proceedings of such committee. Such filing shall be in paper form if the minutes are maintained in paper form and shall be in electronic form if the minutes are maintained in electronic form.

ARTICLE IV - OFFICERS

Section 1. Generally.

The directors may from time to time appoint a Chair of the Board, a President, one or more Vice-Presidents, a Secretary, a Treasurer and such other Officers as the Board of Directors may determine.

Section 2. Chair of the Board.

The Chair of the Board, if any, shall be appointed from among the directors and when present shall be chair of meetings of directors and stockholders and shall have such other powers and duties as the Board of Directors may determine.

Section 3. Chief Executive Officer and President.

Subject to the provisions of these Bylaws and to the direction of the Board of Directors, the Corporation shall have a Chief Executive Officer who shall have general supervision of its business and affairs and in the absence of a Chair of the Board shall be chair at meetings of directors and stockholders when present. The Chief Executive Officer may also be named President of the Corporation or the Board of Directors may appoint another person President, having such duties as the Board of Directors shall determine from time to time.

Section 4. Vice President.

A Vice President shall have such powers and duties as the Board of Directors or the Chief Executive Officer may determine.

Section 5. Chief Financial Officer and/or Treasurer.

The Chief Financial Officer and/or Treasurer shall keep proper accounting records, have supervision over the safekeeping of securities and the deposit and disbursement of funds of the Corporation, report as required on the financial position of the Corporation, and have such other powers and duties as the Board of Directors or the Chief Executive Officer may determine.

Section 6. Secretary.

The Secretary shall give required notices to stockholders, directors, auditors and members of committees, act as secretary of meetings of directors and stockholders when present, keep and enter minutes of such meetings, maintain the corporate records of the Corporation, have custody of the corporate seal, if any, and shall have such other powers and duties as the Board of Directors or the Chief Executive Officer may determine.

Section 7. Delegation of Authority.

The Board of Directors (or its designee) may from time to time delegate the powers or duties of any officer to any other officers or agents, notwithstanding any provision hereof.

Section 8. Assistants.

Any of the powers and duties of an Officer to whom an Assistant has been appointed may be exercised and performed by such Assistant unless the Board of Directors or the Chief Executive Officer otherwise direct.

Section 9. Variation of Duties.

The Board of Directors may, from time to time, vary, add to or limit the powers and duties of any officer.

Section 10. Term of Office.

Each officer shall hold office until the officer's successor is elected or appointed, provided that the Board of Directors may at any time remove any officer from office but such removal shall not affect the rights of such officer under any contract of employment with the Corporation.

Section 11. Action with Respect to Securities of Other Entities.

Unless otherwise directed by the Board of Directors, the Chief Executive Officer, or any officer of the Corporation authorized by the Chief Executive Officer, shall have power to vote and otherwise act on behalf of the Corporation, in person or by proxy, at any meeting of equity holders, or with respect to any action of equity holders, of any other entity in which this Corporation may hold securities and otherwise to exercise any and all rights and powers which this Corporation may possess by reason of its ownership of securities in such other entity.

ARTICLE V - STOCK

Section 1. Certificates of Stock.

The Corporation need not issue stock certificates if so determined by the Board of Directors. If any stock certificates are issued, each holder of stock represented by certificates shall be entitled to a certificate signed by, or in the name of, the Corporation by any two (2) authorized officers of the Corporation, certifying the number of shares owned by him or her. Any or all of the signatures on the certificate may be by facsimile. In case any officer who has signed or whose facsimile signature has been placed upon a certificate shall have ceased to be such officer before such certificate is issued, it may be issued by the Corporation with the same effect as if such person were such officer.

Section 2. Transfers of Stock.

No holder of common stock of the Corporation may sell, assign, transfer, pledge, encumber or in any manner dispose of any share of common stock of the Corporation, whether voluntarily or by operation of law, or by gift or otherwise, other than by the following means:

(i) any transfer by a stockholder of any or all of such stockholder's shares of common stock to the Corporation;

(ii) any transfer by a stockholder of any or all of such stockholder's shares of common stock to such stockholder's immediate family or a trust for the benefit of such stockholder or such stockholder's immediate family;

(iii) any transfer by a stockholder of any or all of such stockholder's shares of common stock effected pursuant to such stockholder's will or the laws of intestate succession;

(iv) if a stockholder is a partnership, limited liability company, or corporation, any transfer by such stockholder of any or all of such stockholder's shares of common stock to the partners, members, retired partners, retired members, stockholders, and/or affiliates of such stockholder; provided that no stockholder may transfer any of such stockholder's shares of common stock to a special purpose entity pursuant to this subsection (iv); and/or

(v) any transfer of shares of common stock approved by the Board of Directors.

If any provision(s) of any agreement(s) in effect by and between the Corporation and any stockholder conflicts with this Section 2 of these Bylaws, this Section 2 shall govern, and the remaining provision(s) of said agreements that do not conflict with this Section 2 shall continue in full force and effect; provided, however, that nothing herein shall limit or otherwise restrict the rights of the holders of the Corporation's preferred stock set forth in that certain Amended and Restated Right of First Refusal and Co-Sale Agreement, dated on or about March 11, 2021 or that certain Amended and Restated Investors' Rights Agreement, dated on or about March 11, 2021 (in each case, as the same may be amended, restated or otherwise modified from time to time).

Transfers of stock shall be made only upon the transfer books of the Corporation kept at an office of the Corporation or by transfer agents designated to transfer shares of the stock of the Corporation. Except where a certificate is issued in accordance with Section 4 of Article V of these Bylaws, an outstanding certificate, if one has been issued, for the number of shares involved shall be surrendered for cancellation before a new certificate, if any, is issued therefor.

Section 3. Record Date.

In order that the Corporation may determine the stockholders entitled to notice of any meeting of stockholders or any adjournment thereof, the Board of Directors may, except as otherwise required by law, fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date shall not be more than sixty (60) nor less than ten (10) days before the date of such meeting. If the Board of Directors so fixes a date, such date shall also be the record date for determining the stockholders entitled to vote at such meeting unless the Board of Directors determines, at the time it fixes such record date, that a later date on or before the date of the meeting shall be the date for making such determination. If no record date is fixed by the Board of Directors, the record date for determining stockholders entitled to notice of and to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is given or, if notice is waived, at the close of business on the day next preceding the day on which the meeting is held. A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; provided, however, that the Board of Directors may fix a new record date for determination of stockholders entitled to vote at the adjourned meeting, and in such case shall also fix as the record date for stockholders entitled to notice of such adjourned meeting the same or an earlier date as that fixed for determination of stockholders entitled to vote in accordance with the foregoing provisions of this Section 3 at the adjourned meeting.

In order that the Corporation may determine the stockholders entitled to receive payment of any dividend or other distribution or allotment of any rights or the stockholders entitled to exercise any rights in respect of any change, conversion or exchange of stock, or for the purpose of any other lawful action, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted, and which record date shall be not more than sixty (60) days prior to such action. If no record date is fixed, the record date for determining stockholders for any such purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating thereto.

In order that the Corporation may determine the stockholders entitled to consent to corporate action without a meeting, the Board of Directors may fix a record date, which shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date shall be not more than ten (10) days after the date upon which the resolution fixing the record date is adopted. If no record date has been fixed by the Board of Directors and no prior action by the Board of Directors is required by the DGCL, the record date shall be the first date on which a signed consent setting forth the action taken or proposed to be taken is delivered to the Corporation in the manner prescribed by Article I, Section 9 hereof. If no record date has been fixed by the Board of Directors and prior action by the Board of Directors is required by the DGCL with respect to the proposed action by consent of the stockholders without a meeting, the record date for determining stockholders entitled to consent to corporate action without a meeting shall be at the close of business on the day on which the Board of Directors adopts the resolution taking such prior action.

Section 4. Lost, Stolen or Destroyed Certificates.

In the event of the loss, theft or destruction of any certificate of stock, another may be issued in its place pursuant to such regulations as the Board of Directors (or its designee) may establish concerning proof of such loss, theft or destruction and concerning the giving of a satisfactory bond or bonds of indemnity.

Section 5. Regulations.

The issue, transfer, conversion and registration of certificates of stock shall be governed by such other regulations as the Board of Directors (or its designee) may establish.

ARTICLE VI - NOTICES

Section 1. Notices.

If mailed, notice to stockholders shall be deemed given when deposited in the United States mail, postage prepaid, directed to the stockholder at such stockholder's address as it appears on the records of the Corporation. Without limiting the manner by which notice otherwise may be given effectively to stockholders, any notice to stockholders may be given by electronic transmission in the manner provided in, and to the extent permitted by, Section 232 of the DGCL.

Section 2. Waivers.

Whenever notice is required to be given under the DGCL, the Certificate of Incorporation or these Bylaws, a written waiver, signed by the person entitled to notice, or a waiver by electronic transmission by the person entitled to notice, whether before or after the time stated therein, shall be deemed equivalent of notice. Neither the business nor the purpose of any meeting need be specified in such a waiver. Attendance of a person at a meeting shall constitute a waiver of notice of such meeting, except when the person attends a meeting for the express purpose of objecting at the beginning of the meeting to the transaction of any business because the meeting is not lawfully called or convened.

ARTICLE VII - MISCELLANEOUS

Section 1. Facsimile Signatures.

In addition to the provisions for use of facsimile signatures elsewhere specifically authorized in these Bylaws, facsimile signatures of any officer or officers of the Corporation may be used whenever and as authorized by the Board of Directors (or its designee).

Section 2. Corporate Seal.

The Board of Directors may provide a suitable seal, containing the name of the Corporation, which seal shall be in the charge of the Secretary. If and when so directed by the Board of Directors (or its designee), duplicates of the seal may be kept and used by any officer.

Section 3. Reliance upon Books, Reports and Records

Each director and each member of any committee designated by the Board of Directors shall, in the performance of his or her duties, be fully protected in relying in good faith upon the books of account or other records of the Corporation and upon such information, opinions, reports or statements presented to the Corporation by any of its officers or employees, or committees of the Board of Directors so designated, or by any other person as to matters which such director or committee member reasonably believes are within such other person's professional or expert competence and who has been selected with reasonable care by or on behalf of the Corporation.

Section 4. Fiscal Year.

The fiscal year of the Corporation shall be as fixed by the Board of Directors.

Section 5. Time Periods.

In applying any provision of these Bylaws which requires that an act be done or not be done a specified number of days prior to an event or that an act be done during a period of a specified number of days prior to an event, calendar days shall be used, the day of the doing of the act shall be excluded, and the day of the event shall be included.

ARTICLE VIII - INDEMNIFICATION OF DIRECTORS AND OFFICERS

Section 1. Right to Indemnification.

Each person who was or is a party or is threatened to be made a party to or is otherwise involved in any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (hereinafter a "proceeding"), by reason of the fact that he or she is or was a director or an officer of the Corporation or is or was serving at the request of the Corporation as a director, officer, or trustee of another corporation or of a partnership, joint venture, trust or other enterprise, including service with respect to an employee benefit plan (hereinafter an "indemnitee"), whether the basis of such proceeding is alleged action in an official capacity as a director, officer or trustee, or in any other capacity while serving as a director, officer or trustee, shall be indemnified and held harmless by the Corporation to the fullest extent permitted by Delaware law, as the same exists or may hereafter be amended (but, in the case of any such amendment, only to the extent that such amendment permits the Corporation to provide broader indemnification rights than such law

permitted the Corporation to provide prior to such amendment), against all expense, liability and loss (including attorneys' fees, judgments, fines, ERISA excise taxes or penalties and amounts paid in settlement) reasonably incurred or suffered by such indemnitee in connection therewith; provided, however, that, except as provided in Section 3 of this ARTICLE VIII with respect to proceedings to enforce rights to advancement or indemnification, the Corporation shall indemnify, and shall advance expenses to, any such indemnitee in connection with a proceeding (or part thereof) initiated by such indemnitee only if such proceeding (or part thereof) was authorized by the Board of Directors of the Corporation.

Section 2. Right to Advancement of Expenses.

In addition to indemnification pursuant to Section 1 of this ARTICLE VIII, the Corporation shall pay an indemnitee the expenses (including attorney's fees) incurred in defending any such proceeding in advance of its final disposition (hereinafter an "advancement of expenses"); provided, however, that, if the DGCL requires, an advancement of expenses incurred by an indemnitee in his or her capacity as a director or officer (and not in any other capacity in which service was or is rendered by such indemnitee, including, without limitation, service to an employee benefit plan) shall be made only upon receipt by the Corporation of an undertaking (hereinafter an "undertaking"), by or on behalf of such indemnitee, to repay all amounts so advanced if it shall ultimately be determined by final judicial decision from which there is no further right to appeal (hereinafter a "final adjudication") that such indemnitee is not entitled to be indemnified for such expenses under Section 1 of this Article VIII or otherwise.

Section 3. Right of Indemnitee to Bring Suit.

If a claim under Section 1 or 2 of this ARTICLE VIII is not paid in full by the Corporation within sixty (60) days after a written claim has been received by the Corporation, except in the case of a claim for an advancement of expenses, in which case the applicable period shall be twenty (20) days, the indemnitee may at any time thereafter bring suit against the Corporation to recover the unpaid amount of the claim. To the fullest extent permitted by law, if successful in whole or in part in any such suit, or in a suit brought by the Corporation to recover an advancement of expenses, the indemnitee shall be entitled to be paid also the expense of prosecuting or defending such suit. In (i) any suit brought by the indemnitee to enforce a right to indemnification hereunder (but not in a suit brought by the indemnitee to enforce a right to an advancement of expenses) it shall be a defense that, and (ii) in any suit brought by the Corporation to recover an advancement of expenses, the Corporation shall be entitled to recover such expenses upon a final adjudication that, the indemnitee has not met any applicable standard for indemnification set forth in the DGCL. Neither the failure of the Corporation (including its directors who are not parties to such action, a committee of such directors, independent legal counsel, or its stockholders) to have made a determination prior to the commencement of such suit that indemnification of the indemnitee is proper in the circumstances because the indemnitee has met the applicable standard of conduct set forth in the DGCL, nor an actual determination by the Corporation (including its directors who are not parties to such action, a committee of such directors, independent legal counsel, or its stockholders) that the indemnitee has not met such applicable standard of conduct, shall create

a presumption that the indemnitee has not met the applicable standard of conduct or, in the case of such a suit brought by the indemnitee, be a defense to such suit. In any suit brought by the indemnitee to enforce a right to indemnification or to an advancement of expenses hereunder, or brought by the Corporation to recover an advancement of expenses, the burden of proving that the indemnitee is not entitled to be indemnified, or to such advancement of expenses, under this ARTICLE VIII or otherwise shall be on the Corporation.

Section 4. Non-Exclusivity of Rights.

The rights to indemnification and to the advancement of expenses conferred in this ARTICLE VIII shall not be exclusive of any other right which any person may have or hereafter acquire under any statute, the Corporation's Certificate of Incorporation, Bylaws, agreement, vote of stockholders or disinterested directors or otherwise.

Section 5. Insurance.

The Corporation may purchase and maintain insurance, at its expense, to protect itself and any director, officer, employee or agent of the Corporation or any person serving at the request of the Corporation as a director, officer, employee or agent of another corporation, or of a partnership, joint venture, trust or other enterprise against any expense, liability or loss, whether or not the Corporation would have the power to indemnify such person against such expense, liability or loss under the DGCL.

Section 6. Indemnification of Employees and Agents of the Corporation.

The Corporation may, to the extent authorized from time to time by the Board of Directors, grant rights to indemnification and to the advancement of expenses to any employee or agent of the Corporation to the fullest extent of the provisions of this Article with respect to the indemnification and advancement of expenses of directors and officers of the Corporation.

Section 7. Nature of Rights.

The rights conferred upon indemnitees in this ARTICLE VIII shall be contract rights and such rights shall continue as to an indemnitee who has ceased to be a director, officer or trustee and shall inure to the benefit of the indemnitee's heirs, executors and administrators. Any amendment, alteration or repeal of this ARTICLE VIII that adversely affects any right of an indemnitee or its successors shall be prospective only and shall not limit or eliminate any such right with respect to any proceeding involving any occurrence or alleged occurrence of any action or omission to act that took place prior to such amendment, alteration or repeal.

ARTICLE IX - FORUM SELECTION

Unless the Corporation consents in writing to the selection of an alternative forum, to the fullest extent permitted by law, all Internal Corporate Claims shall be brought solely and exclusively in the Court of Chancery of the State of Delaware (or, if such court does not have jurisdiction, the United States District Court for the District of Delaware). "Internal Corporate Claims" means claims, including claims in the right of the Corporation, brought by a stockholder (including beneficial owner) (i) that are based upon a violation of a duty by a current or former director or officer or stockholder in such capacity or (ii) as to which the DGCL confers jurisdiction upon the Court of Chancery of the State of Delaware.

ARTICLE X - AMENDMENTS

These Bylaws may be amended or repealed by the Board of Directors at any meeting or by the stockholders at any meeting.

Exhibit 4.2

AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT

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AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT

THIS AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT (this "**Agreement**"), is made as of the 11th day of March, 2021, by and among Graphite Bio, Inc., a Delaware corporation (the "**Company**"), each of the investors listed on Schedule A hereto, each of which is referred to in this Agreement as an "**Investor**", and each of the stockholders listed on Schedule B hereto, each of whom is referred to herein as a "**Key Holder**".

RECITALS

WHEREAS, the Company and certain of the Investors previously entered into an Investors' Rights Agreement dated as of June 24, 2020 (the "**Prior Agreement**");

WHEREAS, the Company and certain of the Investors are parties to that certain Series B Preferred Stock Purchase Agreement of even date herewith (the "**Purchase Agreement**") and desire to amend and restate the Prior Agreement to provide the Investors with the rights and privileges as set forth herein; and

WHEREAS, in order to induce the Company to enter into the Purchase Agreement and to induce the Investors to invest funds in the Company pursuant to the Purchase Agreement, the Investors and the Company hereby agree that this Agreement shall govern the rights of the Investors to cause the Company to register shares of Common Stock issuable to the Investors, to receive certain information from the Company, and to participate in future equity offerings by the Company, and shall govern certain other matters as set forth in this Agreement.

NOW, THEREFORE, the Company and the Investors hereby agree to amend and restate the Prior Agreement in its entirety as set forth herein, and all of the parties hereto further agree as follows, effective as of the date of this Agreement:

1. Definitions. For purposes of this Agreement:

1.1 "**Affiliate**" means, with respect to any specified Person, any other Person who, directly or indirectly, controls, is controlled by, or is under common control with such Person, including without limitation (a) any general partner, managing member, officer, director or trustee of such Person, or any venture capital or other investment fund or registered investment company now or hereafter existing that is controlled by one or more general partners, managing members or investment adviser of, or shares the same management company or investment adviser with, such Person, (b) its other equityholders, partners (including partners and affiliated partnerships managed by the same management company or managing (general) partner or by any Person that is an Affiliate with such management company or managing (general) partner), members and any trust for the benefit of such other equityholders of such Person and (c) in the case of a Fidelity Investor, an investment company registered under the Investment Company Act advised or sub-advised by Fidelity or any affiliated investment advisor of Fidelity, one or more mutual fund, pension fund, pooled investment vehicle or institutional client advised or sub-advised by Fidelity or any affiliated investment advisor of Fidelity, in each case, registered under the Investment Advisers Act of 1940, as amended.

1.2 "**Board of Directors**" means the board of directors of the Company.

1.3 "**Certificate of Incorporation**" means the Company's Amended and Restated Certificate of Incorporation, as amended and/or restated from time to time.

1.4 "**Common Stock**" means shares of the Company's common stock, par value $0.00001 per share.

1.5 "**Competitor**" means a Person engaged, directly or indirectly (including through anypartnership, limited liability company, corporation, joint venture or similar arrangement (whether now existing or formed hereafter)), in gene-editing enabled therapeutics, but shall not include any financial investment firm or collective investment vehicle that, together with its Affiliates, holds less than twenty percent (20)% of the outstanding equity of any Competitor and does not, nor do any of its Affiliates, have a right to designate any members of the board of directors of any Competitor. Notwithstanding the foregoing, the Company hereby agrees and covenants that in no event shall any of Versant, Samsara, Deerfield, any of the Fidelity Investors, the Janus Investors, Perceptive, RA Capital, Rock Springs, Surveyor or Venrock (each as defined in this Agreement) be considered to be a "Competitor."

1.6 "**Damages**" means any loss, damage, claim or liability (joint or several) to which a party hereto may become subject under the Securities Act, the Exchange Act, or other federal or state law, insofar as such loss, damage, claim or liability (or any action in respect thereof) arises out of or is based upon: (i) any untrue statement or alleged untrue statement of a material fact contained in any registration statement of the Company, including any preliminary prospectus or final prospectus contained therein or any amendments or supplements thereto; (ii) an omission or alleged omission to state therein a material fact required to be stated therein, or necessary to make the statements therein not misleading; or (iii) any violation or alleged violation by the indemnifying party (or any of its agents or Affiliates)of the Securities Act, the Exchange Act, any state securities law, or any rule or regulation promulgated under the Securities Act, the Exchange Act, or any state securities law.

1.7 "**Deerfield**" means collectively, Deerfield Partners, L.P. and its Affiliates.

1.8 "**Derivative Securities**" means any securities or rights convertible into, or exercisable or exchangeable for (in each case, directly or indirectly)**,** Common Stock, including options and warrants.

1.9 "**Exchange Act**" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

1.10 "**Excluded Registration**" means (i) a registration relating to the sale or grant of securities to employees of the Company or a subsidiary pursuant to a stock option, stock purchase, equity incentive or similar plan; (ii) a registration relating to an SEC Rule 145 transaction; (iii) a registration on any form that does not include substantially the same information as would be required to be included in a registration statement covering the sale of the Registrable Securities; or (iv) a registration in which the only Common Stock being registered is Common Stock issuable upon conversion of debt securities that are also being registered.

1.11 "**Fidelity**" means Fidelity Management & Research Company.

1.12 "**Fidelity Investor**" means any Investor advised or sub-advised by Fidelity.

1.13 "**FOIA Party**" means a Person that, in the reasonable determination of the Board of Directors, may be subject to, and thereby required to disclose non-public information furnished by or relating to the Company under, the Freedom of Information Act, 5 U.S.C. 552 ("**FOIA**"), any state public records access law, any state or other jurisdiction's laws similar in intent or effect to FOIA, or any other similar statutory or regulatory requirement.

1.14 "**Form S-1**" means such form under the Securities Act as in effect on the date hereof or any successor registration form under the Securities Act subsequently adopted by the SEC.

1.15 "**Form S-3**" means such form under the Securities Act as in effect on the date hereof or any registration form under the Securities Act subsequently adopted by the SEC that permits forward incorporation of substantial information by reference to other documents filed by the Company with the SEC.

1.16 "**GAAP**" means generally accepted accounting principles in the United States as in effect from time to time.

1.17 "**Holder**" means any holder of Registrable Securities who is a party to this Agreement.

1.18 "**Immediate Family Member**" means a child, stepchild, grandchild, parent, stepparent, grandparent, spouse, sibling, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, including, adoptive relationships, of a natural person referred to herein.

1.19 "**Initiating Holders**" means, collectively, Holders who properly initiate a registration request under this Agreement.

1.20 "**IPO**" means the Company's first underwritten public offering of its Common Stock under the Securities Act.

1.21 "**Janus Investors**" means (i) Investors that are advisory or subadvisory clients of Janus Capital Management LLC, including, but not limited to, Janus Henderson Global Life Sciences Fund, Janus Henderson Capital Funds Plc-Janus Henderson Global Life Sciences Fund, Janus Henderson Horizon Fund-Biotechnology Fund, and Janus Henderson Biotech Innovation Master Fund Limited and (ii) permitted transferees of Common Stock (issued or issuable upon conversion of Preferred Stock) held by the persons or entities covered in clause (i).

1.22 "**Key Holder Registrable Securities**" means (i) the shares of Common Stock held by the Key Holders, and (ii) any Common Stock issued as (or issuable upon the conversion or exercise of any warrant, right, or other security that is issued as) a dividend or other distribution with respect to, or in exchange for or in replacement of such shares.

1.23 "**Major Investor**" means (i) any Investor that, individually or together with such Investor's Affiliates, holds at least 900,000 shares of Registrable Securities (as adjusted for any stock split, stock dividend, combination, or other recapitalization or reclassification effected after the date hereof) and (ii) Stanford, so long as it, individually or together with its Affiliates, holds any Registrable Securities.

1.24 "**New Securities**" means, collectively, equity securities of the Company, whether or not currently authorized, as well as rights, options, or warrants to purchase such equity securities, or securities of any type whatsoever that are, or may become, convertible or exchangeable into or exercisable for such equity securities.

1.25 "**OrbiMed**" means collectively, OrbiMed Genesis Master Fund, L.P., The Biotech Growth Trust PLC and their Affiliates.

1.26 "**Perceptive**" means collectively, Perceptive Life Sciences Master Fund, Ltd. and its Affiliates.

1.27 "**Person**" means any individual, corporation, partnership, trust, limited liability company, association or other entity.

1.28 "**Preferred Director**" means any director of the Company that Versant or Samsara is entitled to appoint pursuant to that certain Amended and Restated Voting Agreement, dated as of the date hereof, among the Company, the Investors and the other parties thereto (the "**Voting Agreement**").

1.29 "**Preferred Stock**" means collectively, all shares of Series A Preferred Stock and Series B Preferred Stock.

1.30 "**RA Capital**" means collectively, RA Capital Healthcare Fund, L.P. and RA Capital Nexus II Fund, L.P. and their Affiliates.

1.31 "**Registrable Securities**" means (i) the Common Stock issuable or issued upon conversion of the Preferred Stock, (ii) the Key Holder Registrable Securities, provided, however, that such Key Holder Registrable Securities shall not be deemed Registrable Securities and the Key Holders shall not be deemed Holders for the purposes of Subsections 2.1 (and any other applicable Section or Subsection with respect to registrations under Subsection 2.1), 2.10, 3.1, 3.2, 4.1 and 6.6; and (iii) any Common Stock issued as (or issuable upon the conversion or exercise of any warrant, right, or other security that is issued as) a dividend or other distribution with respect to, or in exchange for or in replacement of, the shares referenced in clauses (i) and (ii) above; excluding in all cases, however, any Registrable Securities sold by a Person in a transaction in which the applicable rights under this Agreement are not assigned pursuant to Subsection 6.1, and excluding for purposes of Section 2 any shares for which registration rights have terminated pursuant to Subsection 2.13 of this Agreement.

1.32 "**Registrable Securities then outstanding**" means the number of shares determined by adding the number of shares of outstanding Common Stock that are Registrable Securities and the number of shares of Common Stock issuable (directly or indirectly) pursuant to then exercisable and/or convertible securities that are Registrable Securities.

1.33 "**Restricted Securities**" means the securities of the Company required to be notated with the legend set forth in Subsection 2.12(b) hereof.

1.34 "**Rock Springs**" means collectively, Rock Springs Capital Master Fund LP, Four Pines Master Fund LP and their Affiliates.

1.35 "**SEC**" means the Securities and Exchange Commission.

1.36 "**SEC Rule 144**" means Rule 144 promulgated by the SEC under the Securities Act.

1.37 "**SEC Rule 145**" means Rule 145 promulgated by the SEC under the Securities Act.

1.38 "**Securities Act**" means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

1.39 "**Selling Expenses**" means all underwriting discounts, selling commissions, and stock transfer taxes applicable to the sale of Registrable Securities, and fees and disbursements of counsel for any Holder, except for the fees and disbursements of the Selling Holder Counsel and Major Investor IPO Counsel borne and paid by the Company as provided in Subsection 2.6.

1.40 "**Samsara**" means, collectively, Samsara BioCapital, L.P. and its Affiliates.

1.41 "**Series A Preferred Stock**" means shares of the Company's Series A Preferred Stock, par value $0.00001 per share.

1.42 "**Series B Preferred Stock**" means shares of the Company's Series B Preferred Stock, par value $0.00001 per share.

1.43 "**Stanford**" means, collectively, The Board of Trustees of the Leland Stanford Junior University PVF and its Affiliates.

1.44 "**Surveyor**" means, collectively, Citadel Multi-Strategy Equities Master Fund Ltd. and its Affiliates.

1.45 "**Venrock**" means, collectively, Venrock Healthcare Capital Partners EG, L.P. and its Affiliates.

1.46 "**Versant**" means, collectively, Versant Venture Capital VI, L.P. and its Affiliates.

2. Registration Rights. The Company covenants and agrees as follows:

2.1 Demand Registration.

(a) Form S-1 Demand. If at any time after the earlier of (i) five (5) years after the date of this Agreement or (ii) one hundred eighty (180) days after the effective date of the registration statement for the IPO, the Company receives a request from Holders of a majority of the Registrable Securities then outstanding that the Company file a Form S-1 registration statement with respect to at least twenty-five percent (25%) of the Registrable Securities then outstanding, then the Company shall (x) within ten (10) days after the date such request is given, give notice thereof (the "**Demand Notice**") to all Holders other than the Initiating Holders; and (y) as soon as commercially reasonable, and in any event within sixty (60) days after the date such request is given by the Initiating Holders, file a Form S-1 registration statement under the Securities Act covering all Registrable Securities that the Initiating Holders requested to be registered and any additional Registrable Securities requested to be included in such registration by any other Holders, as specified by notice given by each such Holder to the Company within twenty (20) days of the date the Demand Notice is given, and in each case, subject to the limitations of Subsections 2.1(c) and 2.3.

(b) Form S-3 Demand. If at any time when it is eligible to use a FormS-3 registration statement, the Company receives a request from Holders of the Registrable Securities then outstanding that the Company file a Form S-3 registration statement with respect to outstanding Registrable Securities of such Holders having an anticipated aggregate offering price, net of Selling Expenses, of at least $5,000,000, then the Company shall (i) within ten (10) days after the date such request is given, give a Demand Notice to all Holders other than the Initiating Holders; and (ii) as soon as commercially reasonably, and in any event within forty-five (45) days after the date such request is given by the Initiating Holders, file a Form S-3 registration statement under the Securities Act covering all Registrable Securities requested to be included in such registration by any other Holders, as specified by notice given by each such Holder to the Company within twenty (20) days of the date the Demand Notice is given, and in each case, subject to the limitations of Subsections 2.1(c) and 2.3.

(c) Notwithstanding the foregoing obligations, if the Company furnishes to Holders requesting a registration pursuant to this Subsection 2.1 a certificate signed by the Company's chief executive officer stating that in the good faith judgment of the Board of Directors it would be materially detrimental to the Company and its stockholders for such registration statement to either become effective or remain effective for as long as such registration statement otherwise would be required to remain effective, because such action would (i) materially interfere with a significant acquisition, corporate reorganization, or other similar transaction involving the Company; (ii) require premature disclosure of material information that the Company has a bona fide business purpose for preserving as confidential; or (iii) render the Company unable to comply with requirements under the Securities Act or Exchange Act, then the Company shall have the right to defer taking action with respect to such filing, and any time periods with respect to filing or effectiveness thereof shall be tolled correspondingly, for a period of not more than one hundred twenty (120) days after the request of the Initiating Holders is given; provided, however, that the Company may not invoke this right more than twice in any twelve (12) month period; andprovided further that the Company shall not register any securities for its own account or that of any other stockholder during such one hundred twenty (120) day period other than pursuant to a registration relating to the sale or grant of securities to employees of the Company or a subsidiary pursuant to a stock option, stock purchase, equity incentive or similar plan; a registration on any form that does not include substantially the same information as would be required to be included in a registration statement covering the sale of the Registrable Securities; or a registration in which the only Common Stock being registered is Common Stock issuable upon conversion of debt securities that are also being registered.

(d) The Company shall not be obligated to effect, or to take any action to effect, any registration pursuant to Subsection 2.1(a)(i) during the period that is ninety (90) days before the Company's good faith estimate of the date of filing of, and ending on a date that is one hundred eighty (180) days after the effective date of, a Company-initiated registration, provided that the Company is actively employing in good faith commercially reasonable efforts to cause such registration statement to become effective and delivers notice to the Initiating Holders within thirty (30) days of receiving the Demand Notice of such estimated Company-initiated registration occurring within ninety (90) days; (ii) after the Company has effected two registrations pursuant to Subsection 2.1(a); or (iii) if the Initiating Holders propose to dispose of shares of Registrable Securities that may be immediately registered on Form S-3 pursuant to a request made pursuant to Subsection 2.1(b). The Company shall not be obligated to effect, or to take any action to effect, any registration pursuant to Subsection 2.1(b) (i) during the period that is thirty (30) days before the Company's good faith estimate of the date of filing of, and ending on a date that is ninety (90) days after the effective date of, a Company-initiated registration, provided that the Company is actively employing in good faith commercially reasonable efforts to cause such registration statement to become effective; or (ii) if the Company has effected two registrations pursuant to Subsection 2.1(b) within the twelve (12) month period immediately preceding the date of such request. A registration shall not be counted as "effected" for purposes of this Subsection 2.1(d) until such time as the applicable registration statement has been declared effective by the SEC, unless the Initiating Holders withdraw their request for such registration, elect not to pay the registration expenses therefor, and forfeit their right to one demand registration statement pursuant to Subsection 2.6, in which case such withdrawn registration statement shall be counted as "effected" for purposes of this Subsection 2.1(d); provided, that if such withdrawal is during a period the Company has deferred taking action pursuant to Subsection 2.1(c), then the Initiating Holders may withdraw their request for registration and such registration will not be counted as "effected" for purposes of this Subsection 2.1(d).

2.2 Company Registration. If the Company proposes to register (including, for this purpose, a registration effected by the Company for stockholders other than the Holders) any of its securities under the Securities Act in connection with the public offering of such securities solely for cash (other than in an Excluded Registration), the Company shall, at such time, promptly give each Holder notice of such registration. Upon the request of each Holder given within twenty (20) days after such notice is given by the Company, the Company shall, subject to the provisions of Subsection 2.3, cause to be registered all of the Registrable Securities that each such Holder has requested to be included in such registration. The Company shall have the right to terminate or withdraw any registration initiated by it under this Subsection 2.2 before the effective date of such registration, whether or not any Holder has elected to include Registrable Securities in such registration. The expenses (other than Selling Expenses) of such withdrawn registration shall be borne by the Company in accordance with Subsection 2.6.

2.3 Underwriting Requirements.

(a) If, pursuant to Subsection 2.1, the Initiating Holders intend to distribute the Registrable Securities covered by their request by means of an underwriting, they shall so advise the Company as a part of their request made pursuant to Subsection 2.1, and the Company shall include such information in the Demand Notice. The underwriter(s) will be

selected by the Board of Directors and shall be reasonably acceptable to a majority in interest of the Initiating Holders. In such event, the right of any Holder to include such Holder's Registrable Securities in such registration shall be conditioned upon such Holder's participation in such underwriting and the inclusion of such Holder's Registrable Securities in the underwriting to the extent provided herein. All Holders proposing to distribute their securities through such underwriting shall (together with the Company as provided in Subsection 2.4(e)) enter into an underwriting agreement in customary form with the underwriter(s) selected for such underwriting. Notwithstanding any other provision of this Subsection 2.3, if the underwriter(s) advise(s) the Initiating Holders in writing that marketing factors require a limitation on the number of shares to be underwritten, then the Initiating Holders shall so advise all Holders of Registrable Securities that otherwise would be underwritten pursuant hereto, and the number of Registrable Securities that may be included in the underwriting shall be allocated among such Holders of Registrable Securities, including the Initiating Holders, in proportion (as nearly as practicable) to the number of Registrable Securities owned by each Holder or in such other proportion as shall mutually be agreed to by all such selling Holders; provided, however, that the number of Registrable Securities held by the Holders to be included in such underwriting shall not be reduced unless all other securities are first entirely excluded from the underwriting. To facilitate the allocation of shares in accordance with the above provisions, the Company or the underwriters may round the number of shares allocated to any Holder to the nearest one hundred (100) shares.

(b) In connection with any offering involving an underwriting of shares of the Company's capital stock pursuant toSubsection 2.2, the Company shall not be required to include any of the Holders' Registrable Securities in such underwriting unless the Holders accept the terms of the underwriting as agreed upon between the Company and its underwriters, and then only in such quantity as the underwriters in their sole discretion determine will not jeopardize the success of the offering by the Company. If the total number of securities, including Registrable Securities, requested by stockholders to be included in such offering exceeds the number of securities to be sold (other than by the Company) that the underwriters in their reasonable discretion determine is compatible with the success of the offering, then the Company shall be required to include in the offering only that number of such securities, including Registrable Securities, which the underwriters and the Company in their sole discretion determine will not jeopardize the success of the offering. If the underwriters determine that less than all of the Registrable Securities requested to be registered can be included in such offering, then the Registrable Securities that are included in such offering shall be allocated among the selling Holders in proportion (as nearly as practicable to) the number of Registrable Securities owned by each selling Holder or in such other proportions as shall mutually be agreed to by all such selling Holders. To facilitate the allocation of shares in accordance with the above provisions, the Company or the underwriters may round the number of shares allocated to any Holder to the nearest one hundred (100) shares. Notwithstanding the foregoing, in no event shall (i) the number of Registrable Securities included in the offering be reduced unless all other securities (other than securities to be sold by the Company) are first entirely excluded from the offering, (ii) the number of Registrable Securities included in the offering be reduced below thirty percent (30%) of the total number of securities included in such offering, unless such offering is the IPO, in which case the selling Holders may be excluded further if the underwriters make the determination described above and no other stockholder's securities are included in such offering or (iii) notwithstanding (ii) above, any Registrable Securities which are not Key Holder Registrable Securities be excluded from such underwriting unless all Key Holder Registrable Securities are first excluded from such

offering. For purposes of the provision in this Subsection 2.3(b) concerning apportionment, for any selling Holder that is a partnership, limited liability company, or corporation, the partners, members, retired partners, retired members, stockholders, and Affiliates of such Holder, or the estates and Immediate Family Members of any such partners, retired partners, members, and retired members and any trusts for the benefit of any of the foregoing Persons, shall be deemed to be a single "selling Holder," and any pro rata reduction with respect to such "selling Holder" shall be based upon the aggregate number of Registrable Securities owned by all Persons included in such "selling Holder," as defined in this sentence.

(c) For purposes of Subsection 2.1, a registration shall not be counted as "effected" if, as a result of an exercise of the underwriter's cutback provisions in Subsection 2.3(a), fewer than fifty percent (50%) of the total number of Registrable Securities that Holders have requested to be included in such registration statement are actually included.

2.4 Obligations of the Company. Whenever required under this Section 2 to effect the registration of any Registrable Securities, the Company shall, as expeditiously as reasonably possible:

(a) prepare and file with the SEC a registration statement with respect to such Registrable Securities and use its commercially reasonable efforts to cause such registration statement to become effective and, upon the request of the Holders of a majority of the Registrable Securities registered thereunder, keep such registration statement effective for a period of up to one hundred twenty (120) days or, if earlier, until the distribution contemplated in the registration statement has been completed; provided, however, that (i) such one hundred twenty (120) day period shall be extended for a period of time equal to the period the Holder refrains, at the request of an underwriter of Common Stock (or other securities) of the Company, from selling any securities included in such registration, and (ii) in the case of any registration of Registrable Securities on Form S-3 that are intended to be offered on a continuous or delayed basis, subject to compliance with applicable SEC rules, such one hundred twenty (120) day period shall be extended for up to one hundred twenty (120) days, if necessary, to keep the registration statement effective until all such Registrable Securities are sold;

(b) prepare and file with the SEC such amendments and supplements to such registration statement, and the prospectus used in connection with such registration statement, as may be necessary to comply with the Securities Act in order to enable the disposition of all securities covered by such registration statement;

(c) furnish to the selling Holders such numbers of copies of a prospectus, including a preliminary prospectus, as required by the Securities Act, and such other documents as the Holders may reasonably request in order to facilitate their disposition of their Registrable Securities;

(d) use its commercially reasonable efforts to register and qualify the securities covered by such registration statement under such other securities or blue-sky laws of such jurisdictions as shall be reasonably requested by the selling Holders; provided that the Company shall not be required to qualify to do business or to file a general consent to service of process in any such states or jurisdictions, unless the Company is already subject to service in such jurisdiction and except as may be required by the Securities Act;

(e) in the event of any underwritten public offering, enter into and perform its obligations under an underwriting agreement, in usual and customary form, with the underwriter(s) of such offering;

(f) use its commercially reasonable efforts to cause all such Registrable Securities covered by such registration statement to be listed on a national securities exchange or trading system and each securities exchange and trading system (if any) on which similar securities issued by the Company are then listed;

(g) provide a transfer agent and registrar for all Registrable Securities registered pursuant to this Agreement and provide a CUSIP number for all such Registrable Securities, in each case not later than the effective date of such registration;

(h) promptly make available for inspection by the selling Holders, any underwriter(s) participating in any disposition pursuant to such registration statement, and any attorney or accountant or other agent retained by any such underwriter or selected by the selling Holders, all financial and other records, pertinent corporate documents, and properties of the Company, and cause the Company's officers, directors, employees, and independent accountants to supply all information reasonably requested by any such seller, underwriter, attorney, accountant, or agent, in each case, as necessary or advisable to verify the accuracy of the information in such registration statement and to conduct appropriate due diligence in connection therewith;

(i) notify each selling Holder, promptly after the Company receives notice thereof, of the time when such registration statement has been declared effective or a supplement to any prospectus forming a part of such registration statement has been filed; and

(j) after such registration statement becomes effective, notify each selling Holder of any request by the SEC that the Company amend or supplement such registration statement or prospectus.

In addition, the Company shall ensure that, at all times after any registration statement covering a public offering of securities of the Company under the Securities Act shall have become effective, its insider trading policy shall provide that the Company's directors may implement a trading program under Rule 10b5-1 of the Exchange Act.

2.5 Furnish Information. It shall be a condition precedent to the obligations of the Company to take any action pursuant to this Section 2 with respect to the Registrable Securities of any selling Holder that such Holder shall furnish to the Company such information regarding itself, the Registrable Securities held by it, and the intended method of disposition of such securities as is reasonably required to effect the registration of such Holder's Registrable Securities.

2.6 Expenses of Registration. All expenses (other than Selling Expenses) incurred in connection with registrations, filings, or qualifications pursuant to Section 2, including all registration, filing, and qualification fees; printers' and accounting fees; fees and disbursements of counsel for the Company; and (i) the reasonable fees and disbursements, not to exceed $35,000, of one counsel for the selling Holders ("**Selling Holder Counsel**"), and (ii) the reasonable fees and disbursements, not to exceed $35,000, of one counsel for the Major Investors in connection with the IPO (the "**Major Investor IPO Counsel**"), shall be borne and paid by the Company; provided, however, that the Company shall not be required to pay for any expenses of any registration proceeding begun pursuant to Subsection 2.1 if the registration request is subsequently withdrawn at the request of the Holders of a majority of the Registrable Securities to be registered (in which case all selling Holders shall bear such expenses pro rata based upon the number of Registrable Securities that were to be included in the withdrawn registration), unless the Holders of a majority of the Registrable Securities agree to forfeit their right to one registration pursuant to Subsections 2.1(a) or 2.1(b), as the case may be; provided further that if, at the time of such withdrawal, the Holders shall have learned of a material adverse change in the condition, business, or prospects of the Company from that known to the Holders at the time of their request and have withdrawn the request with reasonable promptness after learning of such information then the Holders shall not be required to pay any of such expenses and shall not forfeit their right to one registration pursuant to Subsections 2.1(a) or 2.1(b). All Selling Expenses relating to Registrable Securities registered pursuant to this Section 2 shall be borne and paid by the Holders pro rata on the basis of the number of Registrable Securities registered on their behalf.

2.7 Delay of Registration. No Holder shall have any right to obtain or seek an injunction restraining or otherwise delaying any registration pursuant to this Agreement as the result of any controversy that might arise with respect to the interpretation or implementation of this Section 2.

2.8 Indemnification. If any Registrable Securities are included in a registration statement under this Section 2:

(a) To the extent permitted by law, the Company will indemnify and hold harmless each selling Holder, and the partners, members, officers, directors, and stockholders of each such Holder; legal counsel and accountants for each such Holder; any underwriter (as defined in the Securities Act) for each such Holder; and each Person, if any, who controls such Holder or underwriter within the meaning of the Securities Act or the Exchange Act, against any Damages, and the Company will pay to each such Holder, underwriter, controlling Person, or other aforementioned Person any legal or other expenses reasonably incurred thereby in connection with investigating or defending any claim or proceeding from which Damages may result, as such expenses are incurred; provided, however, that the indemnity agreement contained in this Subsection 2.8(a) shall not apply to amounts paid in settlement of any such claim or proceeding if such settlement is effected without the consent of the Company, which consent shall not be unreasonably withheld, nor shall the Company be liable for any Damages to the extent that they arise out of or are based upon actions or omissions made in reliance upon and in conformity with written information furnished by or on behalf of any such Holder, underwriter, controlling Person, or other aforementioned Person expressly for use in connection with such registration.

(b) To the extent permitted by law, each selling Holder, severally and not jointly, will indemnify and hold harmless the Company, and each of its directors, each of its officers who has signed the registration statement, each Person (if any), who controls the Company within the meaning of the Securities Act, legal counsel and accountants for the Company, any underwriter (as defined in the Securities Act), any other Holder selling securities in such registration statement, and any controlling Person of any such underwriter or other Holder, against any Damages, in each case only to the extent that such Damages arise out of or are based upon actions or omissions made in reliance upon and in conformity with written information furnished by or on behalf of such selling Holder expressly for use in connection with such registration; and each such selling Holder will pay to the Company and each other aforementioned Person any legal or other expenses reasonably incurred thereby in connection with investigating or defending any claim or proceeding from which Damages may result, as such expenses are incurred; provided, however, that the indemnity agreement contained in this Subsection 2.8(b) shall not apply to amounts paid in settlement of any such claim or proceeding if such settlement is effected without the consent of the Holder, which consent shall not be unreasonably withheld; and provided further that in no event shall the aggregate amounts payable by any Holder by way of indemnity or contribution under Subsections 2.8(b) and 2.8(d) exceed the proceeds from the offering received by such Holder (net of any Selling Expenses paid by such Holder), except in the case of fraud or willful misconduct by such Holder.

(c) Promptly after receipt by an indemnified party under this Subsection 2.8 of notice of the commencement of any action (including any governmental action) for which a party may be entitled to indemnification hereunder, such indemnified party will, if a claim in respect thereof is to be made against any indemnifying party under this Subsection 2.8, give the indemnifying party notice of the commencement thereof. The indemnifying party shall have the right to participate in such action and, to the extent the indemnifying party so desires, participate jointly with any other indemnifying party to which notice has been given, and to assume the defense thereof with counsel mutually satisfactory to the parties; provided, however, that an indemnified party (together with all other indemnified parties that may be represented without conflict by one counsel) shall have the right to retain one separate counsel, with the fees and expenses to be paid by the indemnifying party, if representation of such indemnified party by the counsel retained by the indemnifying party would be inappropriate due to actual or potential differing interests between such indemnified party and any other party represented by such counsel in such action. The failure to give notice to the indemnifying party within a reasonable time of the commencement of any such action shall relieve such indemnifying party of any liability to the indemnified party under this Subsection 2.8, to the extent that such failure materially prejudices the indemnifying party's ability to defend such action. The failure to give notice to the indemnifying party will not relieve it of any liability that it may have to any indemnified party otherwise than under this Subsection 2.8.

(d) To provide for just and equitable contribution to joint liability under the Securities Act in any case in which either: (i) any party otherwise entitled to indemnification hereunder makes a claim for indemnification pursuant to this Subsection 2.8 but it is judicially determined (by the entry of a final judgment or decree by a court of competent jurisdiction and the expiration of time to appeal or the denial of the last right of appeal) that such indemnification may not be enforced in such case, notwithstanding the fact that this Subsection 2.8 provides for indemnification in such case, or (ii) contribution under the Securities Act may be required on the

part of any party hereto for which indemnification is provided under this Subsection 2.8, then, and in each such case, such parties will contribute to the aggregate losses, claims, damages, liabilities, or expenses to which they may be subject (after contribution from others) in such proportion as is appropriate to reflect the relative fault of each of the indemnifying party and the indemnified party in connection with the statements, omissions, or other actions that resulted in such loss, claim, damage, liability, or expense, as well as to reflect any other relevant equitable considerations. The relative fault of the indemnifying party and of the indemnified party shall be determined by reference to, among other things, whether the untrue or allegedly untrue statement of a material fact, or the omission or alleged omission of a material fact, relates to information supplied by the indemnifying party or by the indemnified party and the parties' relative intent, knowledge, access to information, and opportunity to correct or prevent such statement or omission; provided, however, that, in any such case (x) no Holder will be required to contribute any amount in excess of the public offering price of all such Registrable Securities offered and sold by such Holder pursuant to such registration statement, and (y) no Person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) will be entitled to contribution from any Person who was not guilty of such fraudulent misrepresentation; and provided further that in no event shall a Holder's liability pursuant to thisSubsection 2.8(d), when combined with the amounts paid or payable by such Holder pursuant to Subsection 2.8(b), exceed the proceeds from the offering received by such Holder (net of any Selling Expenses paid by such Holder), except in the case of willful misconduct or fraud by such Holder.

(e) Notwithstanding the foregoing, to the extent that the provisions on indemnification and contribution contained in the underwriting agreement entered into in connection with the underwritten public offering are in conflict with the foregoing provisions, the provisions in the underwriting agreement shall control.

(f) Unless otherwise superseded by an underwriting agreement entered into in connection with the underwritten public offering, the obligations of the Company and Holders under this Subsection 2.8 shall survive the completion of any offering of Registrable Securities in a registration under this Section 2, and otherwise shall survive the termination of this Agreement.

2.9 Reports Under Exchange Act. With a view to making available to the Holders the benefits of SEC Rule 144 and any other rule or regulation of the SEC that may at any time permit a Holder to sell securities of the Company to the public without registration or pursuant to a registration on Form S-3, the Company shall:

(a) make and keep available adequate current public information, as those terms are understood and defined in SEC Rule 144, at all times after the effective date of the registration statement filed by the Company for the IPO;

(b) use commercially reasonable efforts to file with the SEC in a timely manner all reports and other documents required of the Company under the Securities Act and the Exchange Act (at any time after the Company has become subject to such reporting requirements); and

(c) furnish to any Holder, so long as the Holder owns any Registrable Securities, forthwith upon request (i) to the extent accurate, a written statement by the Company that it has complied with the reporting requirements of SEC Rule 144 (at any time after ninety (90) days after the effective date of the registration statement filed by the Company for the IPO), the Securities Act, and the Exchange Act (at any time after the Company has become subject to such reporting requirements), or that it qualifies as a registrant whose securities may be resold pursuant to Form S-3 (at any time after the Company so qualifies); (ii) a copy of the most recent annual or quarterly report of the Company and such other reports and documents so filed by the Company; and (iii) such other information as may be reasonably requested in availing any Holder of any rule or regulation of the SEC that permits the selling of any such securities without registration (at any time after the Company has become subject to the reporting requirements under the Exchange Act) or pursuant to Form S-3 (at any time after the Company so qualifies to use such form).

2.10 Limitations on Subsequent Registration Rights. From and after the date of this Agreement, the Company shall not, without the prior written consent of the Holders of a majority of the Registrable Securities then outstanding, enter into any agreement with any holder or prospective holder of any securities of the Company that would provide to such holder or prospective holder the right to include securities in any registration on other than either a pro rata basis with respect to the Registrable Securities or on a subordinate basis after all Holders have had the opportunity to include in the registration and offering all shares of Registrable Securities that they wish to so include; provided that this limitation shall not apply to Registrable Securities acquired by any additional Investor that becomes a party to this Agreement in accordance with Subsection 6.9.

2.11 "Market Stand-off" Agreement. Each Holder hereby agrees that it will not, without the prior written consent of the managing underwriter, during the period commencing on the date of the final prospectus relating to the registration by the Company for its own behalf of shares of its Common Stock or any other equity securities under the Securities Act on a registration statement on Form S-1 in connection with the IPO, and ending on the date specified by the Company and the managing underwriter (such period not to exceed one hundred eighty (180) days, (i) lend; offer; pledge; sell; contract to sell; sell any option or contract to purchase; purchase any option or contract to sell; grant any option, right, or warrant to purchase; or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock or any securities convertible into or exercisable or exchangeable (directly or indirectly) for Common Stock held immediately before the effective date of the registration statement for such offering or (ii) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of such securities, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of Common Stock or other securities, in cash, or otherwise. The foregoing provisions of this Subsection 2.11 shall only apply to the IPO, shall not apply to transactions (including, without limitation, any swap, hedge or similar agreement or arrangement) or announcements, in each case, relating to securities acquired in the IPO or securities acquired in open market or other transactions from and after the IPO or that otherwise that do not involve or relate to shares of Common Stock owned by a Holder prior to the IPO, shall not apply to the sale of any shares to an underwriter pursuant to an underwriting agreement, or the transfer of any shares to any trust for the direct or indirect benefit of the Holder or the immediate family of the Holder, provided that the trustee of the trust agrees to be bound in writing by the restrictions set forth herein, and provided further that any such transfer shall not

involve a disposition for value, and shall be applicable to the Holders only if all officers and directors and all stockholders individually, and together with their Affiliates, owning more than one percent (1%) of the Company's outstanding Common Stock (after giving effect to conversion into Common Stock of all outstanding Preferred Stock) are subject to the same restrictions. The underwriters in connection with such registration are intended third-party beneficiaries of this Subsection 2.11 and shall have the right, power and authority to enforce the provisions hereof as though they were a party hereto. Each Holder further agrees to execute such agreements as may be reasonably requested by the underwriters in connection with such registration that are consistent with this Subsection 2.11 or that are necessary to give further effect thereto. Any discretionary waiver or termination of the restrictions of any or all of such agreements by the Company or the underwriters shall apply pro rata to all Company stockholders that are subject to such agreements, based on the number of shares subject to such agreements.

2.12 Restrictions on Transfer.

(a) The Preferred Stock and the Registrable Securities shall not be sold, pledged, or otherwise transferred, and the Company shall not recognize and shall issue stop-transfer instructions to its transfer agent with respect to any such sale, pledge, or transfer, except upon the conditions specified in this Agreement, which conditions are intended to ensure compliance with the provisions of the Securities Act. A transferring Holder will cause any proposed purchaser, pledgee, or transferee of the Preferred Stock and the Registrable Securities held by such Holder to agree to take and hold such securities subject to the provisions and upon the conditions specified in this Agreement. Notwithstanding the foregoing, the Company shall not require any transferee of shares pursuant to an effective registration statement or, following the IPO, SEC Rule 144, in each case, to be bound by the terms of this Agreement.

(b) Each certificate, instrument, or book entry representing (i) the Preferred Stock, (ii) the Registrable Securities, and (iii) any other securities issued in respect of the securities referenced in clauses (i) and (ii), upon any stock split, stock dividend, recapitalization, merger, consolidation, or similar event, shall (unless otherwise permitted by the provisions of Subsection 2.12(c)) be notated with a legend substantially in the following form:

THE SECURITIES REPRESENTED HEREBY HAVE BEEN ACQUIRED FOR INVESTMENT AND HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933. SUCH SHARES MAY NOT BE SOLD, PLEDGED, OR TRANSFERRED IN THE ABSENCE OF SUCH REGISTRATION OR A VALID EXEMPTION FROM THE REGISTRATION AND PROSPECTUS DELIVERY REQUIREMENTS OF SAID ACT.

THE SECURITIES REPRESENTED HEREBY MAY BE TRANSFERRED ONLY IN ACCORDANCE WITH THE TERMS OF AN AGREEMENT BETWEEN THE COMPANY AND THE STOCKHOLDER, A COPY OF WHICH IS ON FILE WITH THE SECRETARY OF THE COMPANY.

The Holders consent to the Company making a notation in its records and giving instructions to any transfer agent of the Restricted Securities in order to implement the restrictions on transfer set forth in this Subsection 2.12.

(c) The holder of such Restricted Securities, by acceptance of ownership thereof, agrees to comply in all respects with the provisions of this Section 2. Before any proposed sale, pledge, or transfer of any Restricted Securities, unless there is in effect a registration statement under the Securities Act covering the proposed transaction or following the IPO, the transfer is made pursuant to SEC Rule 144, the Holder thereof shall give notice to the Company of such Holder's intention to effect such sale, pledge, or transfer, provided that no such notice shall be required if the intended sale, pledge or transfer complies with SEC Rule 144. Each such notice shall describe the manner and circumstances of the proposed sale, pledge, or transfer in sufficient detail and, if reasonably requested by the Company, shall be accompanied at such Holder's expense by either (i) a written opinion of legal counsel who shall, and whose legal opinion shall, be reasonably satisfactory to the Company, addressed to the Company, to the effect that the proposed transaction may be effected without registration under the Securities Act; (ii) a "no action" letter from the SEC to the effect that the proposed sale, pledge, or transfer of such Restricted Securities without registration will not result in a recommendation by the staff of the SEC that action be taken with respect thereto; or (iii) any other evidence reasonably satisfactory to counsel to the Company to the effect that the proposed sale, pledge, or transfer of the Restricted Securities may be effected without registration under the Securities Act, whereupon the Holder of such Restricted Securities shall be entitled to sell, pledge, or transfer such Restricted Securities in accordance with the terms of the notice given by the Holder to the Company. The Company will not require such a legal opinion or "no action" letter (A) in any transaction in compliance with SEC Rule 144; (B) in any transaction in which such Holder distributes Restricted Securities to an Affiliate of such Holder or to a Major Investor; (C) if such Holder is a limited liability company, to any member or former member of such Holder; or (D) if such Holder is a natural person, to any Immediate Family Member of such Holder or a trust for the benefit of such Holder or such Holder's Immediate Family Member, provided, in each case, that each transferee agrees in writing to be subject to the terms of this Subsection 2.12. Each certificate, instrument, or book entry representing the Restricted Securities transferred as above provided shall be notated with, except if such transfer is made pursuant to SEC Rule 144, the appropriate restrictive legend set forth in Subsection 2.12(b), except that such certificate instrument, or book entry shall not be notated with such restrictive legend if, in the opinion of counsel for such Holder and the Company, such legend is not required in order to establish compliance with any provisions of the Securities Act.

2.13 Termination of Registration Rights. The right of any Holder to request registration or inclusion of Registrable Securities in any registration pursuant to Subsections 2.1 or 2.2 shall terminate upon the earliest to occur of:

(a) the closing of a Deemed Liquidation Event, as such term is defined in the Certificate of Incorporation;

(b) such time after consummation of the IPO as (A) Rule 144 or another similar exemption under the Securities Act is available for the sale of all of such Holder's shares or (B) Holder holds 1% or less of the outstanding Common Stock and all Registrable Securities of such holder (together with any affiliate with which such holder aggregates sales under Rule 144) can be sold in any three (3) month period without registration pursuant to Rule 144 promulgated under the Securities Act; and

(c) the third (3rd) anniversary of the IPO if such IPO involves a total offering of not less than $75,000,000 (before deduction of underwriters commissions and expenses) and shares of Common Stock are listed on NASDAQ or the NYSE subsequent to such IPO (a "**Qualified IPO**").

3. Information and Observer Rights.

3.1 Delivery of Financial Statements. The Company shall deliver to each Major Investor, provided that the Board of Directors has not reasonably determined that such Major Investor is a Competitor of the Company:

(a) as soon as practicable, but in any event within one hundred twenty (120) days after the end of each fiscal year of the Company (i) a balance sheet as of the end of such year, (ii) statements of income and of cash flows for such year, (iii) a statement of stockholders' equity as of the end of such year, in each case prepared in accordance with GAAP and audited by an internationally recognized accounting firm, and (iv) if a Budget (as defined below) for such fiscal year was prepared and delivered to Major Investors, a comparison between such Budget and the financial statements described in the preceding subsections (i), (ii) and (iii); and

(b) as soon as practicable, but in any event within forty-five (45) days after the end of each of the first three (3) quarters of each fiscal year of the Company, unaudited statements of income and cash flows for such fiscal quarter, and an unaudited balance sheet and a statement of stockholders' equity as of the end of such fiscal quarter, all prepared in accordance with GAAP (except that such financial statements may (i) be subject to normal year-end audit adjustments; and (ii) not contain all notes thereto that may be required in accordance with GAAP);

(c) as soon as practicable, but in any event within forty-five (45) days after the end of each of the first three (3) quarters of each fiscal year of the Company, a statement showing the number of shares of each class and series of capital stock and securities convertible into or exercisable for shares of capital stock outstanding at the end of the period, the Common Stock issuable upon conversion or exercise of any outstanding securities convertible or exercisable for Common Stock and the exchange ratio or exercise price applicable thereto, and the number of shares of issued stock options and stock options not yet issued but reserved for issuance, if any, all in sufficient detail as to permit the Major Investors to calculate their respective percentage equity ownership in the Company, and certified by the chief financial officer or chief executive officer of the Company as being true, complete, and correct;

(d) as soon as practicable, but in any event within thirty (30) days of the end of each month, an unaudited income statement for such month, and an unaudited balance sheet as of the end of such month, all prepared in accordance with GAAP (except that such financial statements may (i) be subject to normal year-end audit adjustments and (ii) not contain all notes thereto that may be required in accordance with GAAP);

(e) as soon as practicable, but in any event thirty (30) days before the end of each fiscal year, a budget and business plan for the next fiscal year (collectively, the "**Budget**"), approved by the Board of Directors and prepared on a monthly basis, including balance sheets, income statements, and statements of cash flow for such months and, promptly after prepared, any other budgets or revised budgets prepared by the Company; and

(f) with reasonable promptness, such other information and data regarding the Company's financial condition, business or operations as such Investor may from time to time reasonably request; provided, however, that the Company shall not be obligated under this Subsection 3.1 to provide information (i) that the Company reasonably determines in good faith to be a trade secret or confidential information (unless covered by an enforceable confidentiality agreement, in a form acceptable to the Company); or (ii) the disclosure of which would adversely affect the attorney-client privilege between the Company and its counsel.

If, for any period, the Company has any subsidiary whose accounts are consolidated with those of the Company, then in respect of such period the financial statements delivered pursuant to the foregoing sections shall be the consolidated and consolidating financial statements of the Company and all such consolidated subsidiaries.

Notwithstanding anything else in this Subsection 3.1 to the contrary, the Company may cease providing the information set forth in this Subsection 3.1 during the period starting with the date thirty (30) days before the Company's good-faith estimate of the date of filing of a registration statement if it reasonably concludes it must do so to comply with the SEC rules applicable to such registration statement and related offering; provided that the Company's covenants under this Subsection 3.1 shall be reinstated at such time as the Company is no longer actively employing its commercially reasonable efforts to cause such registration statement to become effective.

3.2 Inspection. The Company shall permit each Major Investor (provided that the Board of Directors has not reasonably determined that such Major Investor is a Competitor of the Company), at such Major Investor's expense, to visit and inspect the Company's properties; examine its books of account and records; and discuss the Company's affairs, finances, and accounts with its officers, during normal business hours of the Company as may be reasonably requested by the Major Investor; provided, however, that the Company shall not be obligated pursuant to this Subsection 3.2 to provide access to any information that it reasonably and in good faith considers to be a trade secret or confidential information (unless covered by an enforceable confidentiality agreement, in form acceptable to the Company) or the disclosure of which would adversely affect the attorney-client privilege between the Company and its counsel.

3.3 Termination of Information Rights. The covenants set forth in Subsections 3.1 and 3.2 shall terminate and be of no further force or effect (i) immediately before the consummation of a Qualified IPO, (ii) when the Company first becomes subject to the periodic reporting requirements of Section 12(g) or 15(d) of the Exchange Act or (iii) upon the closing of a Deemed Liquidation Event, as such term is defined in the Certificate of Incorporation, whichever event occurs first.

3.4 Confidentiality. Each Investor and Key Holder agrees that such Investor or Key Holder, as the case may be, will keep confidential and will not disclose, divulge, or use for any purpose (other than to monitor its investment in the Company) any confidential information obtained from the Company pursuant to the terms of this Agreement, including in

connection with any board observer rights set forth in this Agreement (including notice of the Company's intention to file a registration statement), unless such confidential information (a) is known or becomes known to the public in general (other than as a result of a breach of this Subsection 3.4 by such Investor), (b) is or has been independently developed or conceived by such Investor without use of the Company's confidential information, or (c) is or has been made known or disclosed to such Investor by a third party without a breach of any obligation of confidentiality such third party may have to the Company; provided, however, that an Investor may disclose confidential information (i) to its attorneys, accountants, consultants, and other professionals to the extent necessary to obtain their services in connection with monitoring its investment in the Company; (ii) to any prospective purchaser of any Registrable Securities from such Investor, if such prospective purchaser agrees to be bound by the provisions of this Subsection 3.4; (iii) to any existing or prospective Affiliate, partner, member, stockholder, or wholly owned subsidiary of such Investor in the ordinary course of business, provided that such Investor informs such Person that such information is confidential and directs such Person to maintain the confidentiality of such information; (iv) to the extent required in connection with any routine or periodic examination or similar process by any regulatory or self-regulatory body or authority not specifically directed at the Company or the confidential information obtained from the Company pursuant to the terms of the Agreement, including, without limitation, quarterly or annual reports; or (v) as may otherwise be required by law, regulation, rule, court order or subpoena, provided that with respect to this clause (v), such Investor promptly notifies the Company of such disclosure and takes reasonable steps to minimize the extent of any such required disclosure.

4. Rights to Future Stock Issuances.

4.1 Right of First Offer. Subject to the terms and conditions of this Subsection 4.1 and applicable securities laws, if the Company proposes to offer or sell any New Securities, the Company shall first offer such New Securities to each Major Investor. A Major Investor shall be entitled to apportion the right of first offer hereby granted to it in such proportions as it deems appropriate, among (i) itself and (ii) its Affiliates.

(a) The Company shall give notice (the "**Offer Notice**") to each Major Investor, stating (i) its bona fide intention to offer such New Securities, (ii) the number of such New Securities to be offered, and (iii) the price and terms, if any, upon which it proposes to offer such New Securities.

(b) By notification to the Company within twenty (20) days after the Offer Notice is given, each Major Investor may elect to purchase or otherwise acquire, at the price and on the terms specified in the Offer Notice, up to that portion of such New Securities which equals the proportion that the Common Stock then held by such Major Investor (including all shares of Common Stock then issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of the Preferred Stock and any other Derivative Securities then held by such Major Investor) bears to the total Common Stock of the Company then outstanding (assuming full conversion and/or exercise, as applicable, of all Preferred Stock and any other Derivative Securities then outstanding). At the expiration of such twenty (20) day period, the Company shall promptly notify each Major Investor that elects to purchase or acquire all the shares available to it (each, a "**Fully Exercising Investor**") of any other Major Investor's failure to do likewise. During the ten (10) day period commencing after the Company has given such notice, each Fully

Exercising Investor may, by giving notice to the Company, elect to purchase or acquire, in addition to the number of shares specified above, up to that portion of the New Securities for which Major Investors were entitled to subscribe but that were not subscribed for by the Major Investors which is equal to the proportion that the Common Stock issued and held, or issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of Preferred Stock and any other Derivative Securities then held, by such Fully Exercising Investor bears to the Common Stock issued and held, or issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of the Preferred Stock and any other Derivative Securities then held, by all Fully Exercising Investors who wish to purchase such unsubscribed shares. The closing of any sale pursuant to this Subsection 4.1(b) shall occur within the later of ninety (90) days of the date that the Offer Notice is given and the date of initial sale of New Securities pursuant to Subsection 4.1(c).

(c) If all New Securities referred to in the Offer Notice are not elected to be purchased or acquired as provided in Subsection 4.1(b), the Company may, during the ninety (90) day period following the expiration of the periods provided in Subsection 4.1(b), offer and sell the remaining unsubscribed portion of such New Securities to any Person or Persons at a price not less than, and upon terms no more favorable to the offeree than, those specified in the Offer Notice. If the Company does not enter into an agreement for the sale of the New Securities within such period, or if such agreement is not consummated within thirty (30) days of the execution thereof, the right provided hereunder shall be deemed to be revived and such New Securities shall not be offered unless first reoffered to the Major Investors in accordance with this Subsection 4.1.

(d) The right of first offer in this Subsection 4.1 shall not be applicable to (i) Exempted Securities (as defined in the Certificate of Incorporation) or (ii) shares of Common Stock issued in an Qualified IPO.

4.2 Termination. The covenants set forth in Subsection 4.1 shall terminate and be of no further force or effect (i) immediately before the consummation of an Qualified IPO, or (iii) upon the closing of a Deemed Liquidation Event, as such term is defined in the Certificate of Incorporation, whichever event occurs first.

5. Additional Covenants.

5.1 Insurance. The Company shall maintain from financially sound and reputable insurers Directors and Officers liability insurance in an amount of at least $2,000,000 and on terms and conditions satisfactory to the Board of Directors, and will use commercially reasonable efforts to cause such insurance policies to be maintained until such time as the Board of Directors determines that such insurance should be discontinued.

5.2 Employee Agreements. The Company will cause each Person now or hereafter employed by it or by any subsidiary (or engaged by the Company or any subsidiary as a consultant/independent contractor) with access to confidential information and/or trade secrets to enter into its applicable nondisclosure and proprietary rights assignment agreement.

5.3 Matters Requiring Investor Director Approval. So long as either Versant or Samsara is entitled to designate a Preferred Director pursuant to the Voting Agreement, the Company hereby covenants and agrees with each of the Investors that it shall not, without approval of the Board of Directors (including, in any event, each Preferred Director):

(a) make any loan or advance to, or own any stock or other securities of, any subsidiary or other corporation, partnership, or other entity unless it is wholly owned by the Company;

(b) make any loan or advance to any person, including, any employee or director, except advances and similar expenditures in the ordinary course of business or under the terms of an employee stock or option plan approved by the Board of Directors;

(c) guarantee, any indebtedness except for trade accounts of the Company or any subsidiary arising in the ordinary course of business;

(d) implement (or change) a cash investment policy;

(e) incur any aggregate indebtedness or make any aggregate expenditures in excess of $1,000,000 that is not already included in a Budget approved by the Board of Directors, other than trade credit;

(f) hire, fire, or change the compensation of the executive officers, including approving any equity compensation;

(g) change the principal business of the Company, enter new lines of business, or exit the current line of business; or

(h) enter into any transaction that exclusively licenses, pledges or encumbers material technology or intellectual property of the Company.

5.4 Board Matters. Unless otherwise determined by the vote of a majority of the directors then in office, the Board of Directors shall meet at least quarterly in accordance with an agreed-upon schedule. The Company shall reimburse the nonemployee directors for all reasonable out-of-pocket travel expenses incurred (consistent with the Company's travel policy) in connection with attending meetings of the Board of Directors. Each non-employee director shall be entitled in such person's discretion to be a member of any committee of the Board of Directors.

5.5 Successor Indemnification. If the Company or any of its successors or assignees consolidates with or merges into any other Person and is not the continuing or surviving corporation or entity of such consolidation or merger, then to the extent necessary, proper provision shall be made so that the successors and assignees of the Company assume the obligations of the Company with respect to indemnification of members of the Board of Directors as in effect immediately before such transaction, whether such obligations are contained in the Company's Bylaws, the Certificate of Incorporation, or elsewhere, as the case may be.

5.6 Expenses of Counsel. In the event of a transaction which is a Sale of the Company (as defined in the Voting Agreement of even date herewith among the Investors and the Company), the reasonable fees and disbursements, not to exceed $50,000, of one counsel for the Major Investors ("**Investor Counsel**"), in their capacities as stockholders, shall be borne and paid

by the Company. At the outset of considering a transaction which, if consummated, would constitute a Sale of the Company, the Company shall obtain the ability to share with the Investor Counsel (and such counsel's clients) and shall share the confidential information (including, without limitation, the initial and all subsequent drafts of memoranda of understanding, letters of intent and other transaction documents and related noncompete, employment, consulting and other compensation agreements and plans) pertaining to and memorializing any of the transactions which, individually or when aggregated with others would constitute the Sale of the Company. The Company shall be provide (and cause the Company's counsel and investment bankers to provide) such materials when distributed to the Company's executives and/or any one (1) or more of the other parties to such transaction(s). In the event that Investor Counsel deems it appropriate, in its reasonable discretion, to enter into a joint defense agreement or other arrangement to enhance the ability of the parties to protect their communications and other reviewed materials under the attorney client privilege, then the Company shall, and shall direct its counsel to, execute and deliver to Investor Counsel and its clients such an agreement in form and substance reasonably acceptable to Investor Counsel. In the event that one (1) or more of the other party or parties to such transactions require the clients of Investor Counsel to enter into a confidentiality agreement and/or joint defense agreement in order to receive such information, then the Company shall share whatever information can be shared without entry into such agreement and shall, at the same time, in good faith work expeditiously to enable Investor Counsel and its clients to negotiate and enter into the appropriate agreement(s) without undue burden to the clients of Investor Counsel.

5.7 Indemnification Matters. The Company hereby acknowledges that one (1) or more of the directors nominated to serve on the Board of Directors by the Investors (each an "**Investor Director**") may have certain rights to indemnification, advancement of expenses and/or insurance provided by one or more of the Investors and certain of their Affiliates (collectively, the "**Investor Indemnitors**"). The Company hereby agrees (a) that it is the indemnitor of first resort (*i.e.*, its obligations to any such Investor Director are primary and any obligation of the Investor Indemnitors to advance expenses or to provide indemnification for the same expenses or liabilities incurred by such Investor Director are secondary), (b) that it shall be required to advance the full amount of expenses incurred by such Investor Director and shall be liable for the full amount of all expenses, judgments, penalties, fines and amounts paid in settlement by or on behalf of any such Investor Director to the extent legally permitted and as required by the Company's Certificate of Incorporation or Bylaws of the Company (or any agreement between the Company and such Investor Director), without regard to any rights such Investor Director may have against the Investor Indemnitors, and, (c) that it irrevocably waives, relinquishes and releases the Investor Indemnitors from any and all claims against the Investor Indemnitors for contribution, subrogation or any other recovery of any kind in respect thereof. The Company further agrees that no advancement or payment by the Investor Indemnitors on behalf of any such Investor Director with respect to any claim for which such Investor Director has sought indemnification from the Company shall affect the foregoing and the Investor Indemnitors shall have a right of contribution and/or be subrogated to the extent of such advancement or payment to all of the rights of recovery of such Investor Director against the Company. The Investor Directors and the Investor Indemnitors are intended third-party beneficiaries of this Subsection 5.9 and shall have the right, power and authority to enforce the provisions of this Subsection 5.7 as though they were a party to this Agreement.

5.8 Employee Stock Vesting. The Company hereby agrees that all awards issued to employees pursuant to the Company's 2020 Stock Option and Grant Plan shall be subject to vesting as follows (unless otherwise approved by the Board of Directors, including the approval of each of the Preferred Directors): 25% to vest following twelve (12) months of continued employment, with the remaining 75% to vest monthly over the next three years, in each case subject to such employee's continued service to the Company. If employees are permitted to exercise unvested options, the Company shall issue restricted stock to such employees, whereby upon termination of the employment of the stockholder, with or without cause, the Company or its assignee (to the extent permissible under applicable securities law qualification) will have the right to repurchase at the lesser of cost or the fair market value any unvested shares held by such stockholder.

5.9 Founder Board Observer. The Company shall invite a representative among and designated by the holders of a majority of the Common Stock held by Frank Lee, Matthew Porteus, Daniel Dever and Maria Grazia Roncarolo to attend all meetings of the Board of Directors in a nonvoting observer capacity and, in this respect, shall give such representative copies of all notices, minutes, consents, and other materials that it provides to its directors at the same time and in the same manner as provided to such directors; provided, however, that such representative shall agree to hold in confidence and trust and to act in a fiduciary manner with respect to all information so provided; and provided further, that the Company reserves the right to withhold any information and to exclude such representative from any meeting or portion thereof if access to such information or attendance at such meeting could adversely affect the attorney-client privilege between the Company and its counsel or result in disclosure of trade secrets or a conflict of interest, or if such Investor or its representative is a competitor of the Company.

5.10 Samsara Board Observer. As long as Samsara owns not less than fifty percent (50%) of the shares of the Series A Preferred Stock purchased by it under that certain Series A Preferred Stock Purchase Agreement, by and between the Company and the parties listed thereto, dated as of June 24, 2020 (or an equivalent amount of Common Stock issued upon conversion thereof), the Company shall invite a representative of Samsara to attend all meetings of the Board of Directors in a nonvoting observer capacity and, in this respect, shall give such representative copies of all notices, minutes, consents, and other materials that it provides to its directors at the same time and in the same manner as provided to such directors; provided, however, that such representative shall agree to hold in confidence and trust and to act in a fiduciary manner with respect to all information so provided; and provided further, that the Company reserves the right to withhold any information and to exclude such representative from any meeting or portion thereof if access to such information or attendance at such meeting could adversely affect the attorney-client privilege between the Company and its counsel or result in disclosure of trade secrets or a conflict of interest, or if such Investor or its representative is a competitor of the Company.

5.11 RA Capital Board Observer. As long as RA Capital owns not less than fifty percent (50%) of the shares of the Series B Preferred Stock it is purchasing under the Purchase Agreement (or an equivalent amount of Common Stock issued upon conversion thereof), the Company shall invite a representative of RA Capital to attend all meetings of the Board of Directors in a nonvoting observer capacity and, in this respect, shall give such representative

copies of all notices, minutes, consents, and other materials that it provides to its directors at the same time and in the same manner as provided to such directors; provided, however, that such representative shall agree to hold in confidence and trust with respect to all information so provided; and provided further, that the Company reserves the right to withhold any information and to exclude such representative from any meeting or portion thereof if access to such information or attendance at such meeting could adversely affect the attorney-client privilege between the Company and its counsel or result in disclosure of trade secrets or a conflict of interest, or if such Investor or its representative is a competitor of the Company.

5.12 Rock Springs Board Observer. As long as Rock Springs owns not less than fifty percent (50%) of the shares of the Series B Preferred Stock it is purchasing under the Purchase Agreement (or an equivalent amount of Common Stock issued upon conversion thereof), the Company shall invite a representative of Rock Springs to attend all meetings of the Board of Directors in a nonvoting observer capacity and, in this respect, shall give such representative copies of all notices, minutes, consents, and other materials that it provides to its directors at the same time and in the same manner as provided to such directors; provided, however, that such representative shall agree to hold in confidence and trust with respect to all information so provided; and provided further, that the Company reserves the right to withhold any information and to exclude such representative from any meeting or portion thereof if access to such information or attendance at such meeting could adversely affect the attorney-client privilege between the Company and its counsel or result in disclosure of trade secrets or a conflict of interest, or if such Investor or its representative is a competitor of the Company.

5.13 Right to Conduct Activities. The Company hereby agrees and acknowledges that each ofVersant, Samsara, Alexandria Venture Investments, LLC ("**Alexandria**"), Deerfield, Fidelity, the Fidelity Investors, the Janus Investors, OrbiMed, Perceptive, RA Capital, Rock Springs, Surveyor and Venrock (together with each of their respective Affiliates) is a professional investment organization, and as such reviews the business plans and related proprietary information of many enterprises, some of which may compete directly or indirectly with the Company's business (as currently conducted or as currently propose to be conducted). Nothing in this Agreement shall preclude, create an obligation or duty, or in any way restrict any of Versant, Samsara, Alexandria, Deerfield, Fidelity, the Fidelity Investors, the Janus Investors, OrbiMed, Perceptive, RA Capital, Rock Springs, Surveyor and Venrock (together with each of their respective Affiliates) from evaluating or purchasing securities, including publicly traded securities, of a particular enterprise, or investing or participating in any particular enterprise, whether or not such enterprise has products or services which compete with those of the Company. The Company hereby agrees that, to the extent permitted under applicable law, each of Versant, Samsara, Alexandria, Deerfield, Fidelity, the Fidelity Investors, the Janus Investors, OrbiMed, Perceptive, RA Capital, Rock Springs, Surveyor and Venrock (together with each of their respective Affiliates) shall not be liable to the Company for any claim arising out of, or based upon, (i) the investment by any of Versant, Samsara, Alexandria, Deerfield, Fidelity, the Fidelity Investors, the Janus Investors, OrbiMed, Perceptive, RA Capital, Rock Springs, Surveyor and Venrock (or any of their respective Affiliates) in any entity competitive with the Company, or (ii) actions taken by any partner, officer, employee or other representative of any of Versant, Samsara, Alexandria, Deerfield, Fidelity, the Fidelity Investors, the Janus Investors, OrbiMed, Perceptive, RA Capital, Rock Springs, Surveyor and Venrock (or any of their respective Affiliates) to assist any such competitive company, whether or not such action was taken as a member of the board of

directors of such competitive company or otherwise, and whether or not such action has a detrimental effect on the Company; provided, however, that the foregoing shall not relieve (x) any of the Investors from liability associated with the unauthorized disclosure of the Company's confidential information obtained pursuant to this Agreement, or (y) any director or officer of the Company from any liability associated with his or her fiduciary duties to the Company.

5.14 Termination of Covenants. The covenants set forth in this Section 5, except for Subsection 5.6, shall terminate and be of no further force or effect (i) immediately before the consummation of an IPO or (ii) upon the closing of a Deemed Liquidation Event, as such term is defined in the Certificate of Incorporation, whichever event occurs first; provided, that the covenants set forth in Subsections 5.8 through 5.11 (Board Observer Rights) shall terminate and be of no further force or effective upon the earliest to occur of any of the events described in clauses (i) or (ii) above or the when the Company first becomes subject to the periodic reporting requirements of Section 12(g) or 15(d) of the Exchange Act.

6. Miscellaneous.

6.1 Successors and Assigns. The rights under this Agreement may be assigned (but only with all related obligations) by a Holder to a transferee of Registrable Securities that (i) is an Affiliate of a Holder; (ii) is a Holder's Immediate Family Member or trust for the benefit of an individual Holder or one or more of such Holder's Immediate Family Members; or (iii) after such transfer, holds at least 900,000 shares of Registrable Securities (subject to appropriate adjustment for stock splits, stock dividends, combinations, and other recapitalizations) or a lesser amount of shares of Registrable Securities if such amount constitutes all of the remaining Registrable Securities held by the transferring Holder; provided, however, that (x) the Company is, within a reasonable time after such transfer, furnished with written notice of the name and address of such transferee and the Registrable Securities with respect to which such rights are being transferred; and (y) such transferee agrees in a written instrument delivered to the Company to be bound by and subject to the terms and conditions of this Agreement, including the provisions of Subsection 2.11. For the purposes of determining the number of shares of Registrable Securities held by a transferee, the holdings of a transferee (1) that is an Affiliate or stockholder of a Holder; (2) who is a Holder's Immediate Family Member; or (3) that is a trust for the benefit of an individual Holder or such Holder's Immediate Family Member shall be aggregated together and with those of the transferring Holder; provided further that all transferees who would not qualify individually for assignment of rights shall, as a condition to the applicable transfer, establish a single attorney-in-fact for the purpose of exercising any rights, receiving notices, or taking any action under this Agreement. The terms and conditions of this Agreement inure to the benefit of and are binding upon the respective successors and permitted assignees of the parties. Nothing in this Agreement, express or implied, is intended to confer upon any party other than the parties hereto or their respective successors and permitted assignees any rights, remedies, obligations or liabilities under or by reason of this Agreement, except as expressly provided herein.

6.2 Governing Law. This Agreement shall be governed by the internal law of the State of Delaware, without regard to conflict of law principles that would result in the application of any law other than the law of the State of Delaware.

6.3 Counterparts. This Agreement may be executed in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Counterparts may be delivered via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, *e.g.*, www.docusign.com) or other transmission method and any counterpart so delivered shall be deemed to have been duly and validly delivered and be valid and effective for all purposes**.**

6.4 Titles and Subtitles. The titles and subtitles used in this Agreement are for convenience only and are not to be considered in construing or interpreting this Agreement.

6.5 Notices.

(a) All notices and other communications given or made pursuant to this Agreement shall be in writing and shall be deemed effectively given upon the earlier of actual receipt or (i) personal delivery to the party to be notified; (ii) when sent, if sent by electronic mail or facsimile during the recipient's normal business hours, and if not sent during normal business hours, then on the recipient's next business day; (iii) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid; or (iv) one (1) business day after the business day of deposit with a nationally recognized overnight courier, freight prepaid, specifying next-day delivery, with written verification of receipt. All communications shall be sent to the respective parties at their addresses as set forth on Schedule A or Schedule B (as applicable) hereto, or to the principal office of the Company and to the attention of the Chief Executive Officer, in the case of the Company, or to such email address, facsimile number, or address as subsequently modified by written notice given in accordance with this Subsection 6.5. If notice is given to the Company, a copy shall also be sent to Goodwin Procter LLP, Three Embarcadero Center, 28th Floor, San Francisco, CA 94111, Attention: Maggie Wong ([***]); and if notice is given to the Investors, a copy shall also be given to 650 South Exeter Street, Suite 1070, Baltimore, MD 21202, Attention: General Counsel, Email: [***]; [***]; [***].

(b) Consent to Electronic Notice. Each Investor and Key Holder consents to the delivery of any stockholder notice pursuant to the Delaware General Corporation Law (the "**DGCL**"), as amended or superseded from time to time, by electronic transmission pursuant to Section 232 of the DGCL (or any successor thereto) at the electronic mail address set forth below such Investor's or Key Holder's name on the Schedules hereto, as updated from time to time by notice to the Company, or as on the books of the Company. To the extent that any notice given by means of electronic transmission is returned or undeliverable for any reason, the foregoing consent shall be deemed to have been revoked until a new or corrected electronic mail address has been provided, and such attempted electronic notice shall be ineffective and deemed to not have been given. Each Investor and Key Holder agrees to promptly notify the Company of any change in such stockholder's electronic mail address, and that failure to do so shall not affect the foregoing.

6.6 Amendments and Waivers. Any term of this Agreement may be amended, modified or terminated and the observance of any term of this Agreement may be waived (either generally or in a particular instance, and either retroactively or prospectively) only with the written consent of the Company and the holders of at least seventy-two percent (72%) of the

Registrable Securities then outstanding; provided that the Company may in its sole discretion waive compliance with Subsection 2.12(c) (and the Company's failure to object promptly in writing after notification of a proposed assignment allegedly in violation of Subsection 2.12(c) shall be deemed to be a waiver); and provided further that any provision hereof may be waived by any waiving party on such party's own behalf, without the consent of any other party. Notwithstanding the foregoing, (a) this Agreement may not be amended, modified or terminated and the observance of any term hereof may not be waived with respect to any Investor without the written consent of such Investor, unless such amendment, modification, termination, or waiver applies to all Investors in the same fashion (it being agreed that a waiver of the provisions of Section 4 with respect to a particular transaction shall be deemed to apply to all Investors in the same fashion if such waiver does so by its terms, notwithstanding the fact that certain Investors may nonetheless, by agreement with the Company, purchase securities in such transaction); provided, however, that if any Major Investor, individually or together with such Major Investor's Affiliates (a "**Participating Investor**"), is allowed to purchase any New Securities in a transaction notwithstanding a waiver of the provisions of Section 4, then each other Major Investor, individually or together with such Major Investor's Affiliates, will be offered the opportunity to purchase a portion of the New Securities equal to the product obtained by (A) such Major Investor's pro rata share calculated in accordance with Subsection 4.1 multiplied by (B) the quotient obtained by (x) the number of shares purchased by the Participating Investor divided by (y) the maximum number of shares that could have been purchased by such Participating Investor pursuant to its pro rata share calculated in accordance with Subsection 4.1; provided, for clarity, that if there is more than one Participating Investor, then the largest fraction obtained pursuant to (B) above shall apply, (b) Subsections 3.1 and 3.2, Section 4 and any other section of this Agreement applicable to the Major Investors (including this clause (b) of this Subsection 6.6) may not be amended, modified, terminated or waived without the written consent of the holders of at least a majority of the Registrable Securities then outstanding and held by the Major Investors, (c) the last sentence of Subsection 1.5, Section 5.13 and this clause (c) of this Subsection 6.6 may not be amended, modified, terminated or waived with respect to any of Versant, Samsara, Deerfield, the Janus Investors, OrbiMed, Perceptive, RA Capital, Rock Springs, Surveyor or Venrock without the written consent of Versant, Samsara, Deerfield, the Janus Investors, OrbiMed, Perceptive, RA Capital, Rock Springs, Surveyor or Venrock, as the case may be, (d) Section 5.11 may not be amended, modified, terminated or waived without the written consent of RA Capital, (e) Section 5.12 may not be amended, modified, terminated or waived without the written consent of Rock Springs, (f) Section 1.23 may not be amended, modified, terminated or waived with respect to Stanford so long as it, together with its Affiliates, holds any Registrable Securities and (g) Sections 1.46, 1.40, 1.7, 1.11, 1.12, 1.21, 1.25, 1.26, 1.30, 1.34, 1.43, 1.44 and 1.45 may not be amended, modified, terminated or waived with respect to any of Versant, Samsara, Deerfield, Fidelity, the Fidelity Investors, the Janus Investors, OrbiMed, Perceptive, RA Capital, Rock Springs, Stanford, Surveyor or Venrock, as applicable. Further, this Agreement may not be amended, modified or terminated, and no provision hereof may be waived, in each case, in any way which would adversely affect the rights of the Key Holders hereunder in a manner disproportionate to any adverse effect such amendment, modification, termination or waiver would have on the rights of the Investors hereunder, without also the written consent of the holders of at least a majority of the Registrable Securities held by the Key Holders. Notwithstanding the foregoing, Schedule A hereto may be amended by the Company from time to time to add transferees of any Registrable Securities in compliance with the terms of this Agreement without

the consent of the other parties; and Schedule A hereto may also be amended by the Company after the date of this Agreement without the consent of the other parties to add information regarding any additional Investor who becomes a party to this Agreement in accordance with Subsection 6.9. The Company shall give prompt notice of any amendment, modification or termination hereof or waiver hereunder to any party hereto that did not consent in writing to such amendment, modification, termination, or waiver. Any amendment, modification, termination, or waiver effected in accordance with this Subsection 6.6 shall be binding on all parties hereto, regardless of whether any such party has consented thereto. No waivers of or exceptions to any term, condition, or provision of this Agreement, in any one or more instances, shall be deemed to be or construed as a further or continuing waiver of any such term, condition, or provision.

6.7 Severability. In case any one or more of the provisions contained in this Agreement is for any reason held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision of this Agreement, and such invalid, illegal, or unenforceable provision shall be reformed and construed so that it will be valid, legal, and enforceable to the maximum extent permitted by law.

6.8 Aggregation of Stock. All shares of Registrable Securities held or acquired by Affiliates shall be aggregated together for the purpose of determining the availability of any rights under this Agreement and such Affiliated persons may apportion such rights as among themselves in any manner they deem appropriate.

6.9 Additional Investors. Notwithstanding anything to the contrary contained herein, if the Company issues additional shares of the Company's Preferred Stock after the date hereof, any purchaser of such shares of Preferred Stock may become a party to this Agreement by executing and delivering an additional counterpart signature page to this Agreement, and thereafter shall be deemed an "Investor" for all purposes hereunder. No action or consent by the Investors shall be required for such joinder to this Agreement by such additional Investor, so long as such additional Investor has agreed in writing to be bound by all of the obligations as an "Investor" hereunder.

6.10 Entire Agreement. This Agreement (including any Schedules and Exhibits hereto) constitutes the full and entire understanding and agreement among the parties with respect to the subject matter hereof, and any other written or oral agreement relating to the subject matter hereof existing between the parties is expressly canceled. Upon the effectiveness of this Agreement, the Prior Agreement shall be deemed amended and restated and superseded and replaced in its entirety by this Agreement, and shall be of no further force or effect

6.11 Dispute Resolution. The parties (a) hereby irrevocably and unconditionally submit to the jurisdiction of the state courts of Delaware and to the jurisdiction of the United States District Court for the District of Delaware for the purpose of any suit, action or other proceeding arising out of or based upon this Agreement, (b) agree not to commence any suit, action or other proceeding arising out of or based upon this Agreement except in the state courts of Delaware or the United States District Court for the District of Delaware, and (c) hereby waive, and agree not to assert, by way of motion, as a defense, or otherwise, in any such suit, action or proceeding, any claim that it is not subject personally to the jurisdiction of the above-named courts, that its property is exempt or immune from attachment or execution, that the suit, action or proceeding is brought in an inconvenient forum, that the venue of the suit, action or proceeding is improper or that this Agreement or the subject matter hereof may not be enforced in or by such court.

WAIVER OF JURY TRIAL: EACH PARTY HEREBY WAIVES ITS RIGHTS TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION BASED UPON OR ARISING OUT OF THIS AGREEMENT, THE OTHER TRANSACTION DOCUMENTS, THE SECURITIES OR THE SUBJECT MATTER HEREOF OR THEREOF. THE SCOPE OF THIS WAIVER IS INTENDED TO BE ALL-ENCOMPASSING OF ANY AND ALL DISPUTES THAT MAY BE FILED IN ANY COURT AND THAT RELATE TO THE SUBJECT MATTER OF THIS TRANSACTION, INCLUDING, WITHOUT LIMITATION, CONTRACT CLAIMS, TORT CLAIMS (INCLUDING NEGLIGENCE), BREACH OF DUTY CLAIMS, AND ALL OTHER COMMON LAW AND STATUTORY CLAIMS. THIS SECTION HAS BEEN FULLY DISCUSSED BY EACH OF THE PARTIES HERETO AND THESE PROVISIONS WILL NOT BE SUBJECT TO ANY EXCEPTIONS. EACH PARTY HERETO HEREBY FURTHER WARRANTS AND REPRESENTS THAT SUCH PARTY HAS REVIEWED THIS WAIVER WITH ITS LEGAL COUNSEL, AND THAT SUCH PARTY KNOWINGLY AND VOLUNTARILY WAIVES ITS JURY TRIAL RIGHTS FOLLOWING CONSULTATION WITH LEGAL COUNSEL.

6.12 Delays or Omissions. No delay or omission to exercise any right, power, or remedy accruing to any party under this Agreement, upon any breach or default of any other party under this Agreement, shall impair any such right, power, or remedy of such nonbreaching or nondefaulting party, nor shall it be construed to be a waiver of or acquiescence to any such breach or default, or to any similar breach or default thereafter occurring, nor shall any waiver of any single breach or default be deemed a waiver of any other breach or default theretofore or thereafter occurring. All remedies, whether under this Agreement or by law or otherwise afforded to any party, shall be cumulative and not alternative.

6.13 Massachusetts Business Trust. A copy of this Agreement and Declaration of Trust of each Investor affiliated with Fidelity, or any affiliate thereof, is on file with the Secretary of the Commonwealth of Massachusetts and notice is hereby given that this Agreement is executed on behalf of the trustees of such Investor or any affiliate thereof as trustees and not individually and that the obligations of this Agreement are not binding on any of the trustees, officers or stockholders of such Investor or any affiliate thereof individually but are binding only upon such Investor or any affiliate thereof and its assets and property.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

COMPANY:

GRAPHITE BIO, INC.

By: /s/ Josh Lehrer
Name: Josh Lehrer
Title: Chief Executive Officer

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

KEY HOLDER:

By: /s/ Josh Lehrer
Josh Lehrer

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

KEY HOLDER:

By: /s/ Matthew Porteus
Matthew Porteus

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

KEY HOLDER:

By: /s/ Maria Grazia Roncarolo
Maria Grazia Roncarolo

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

KEY HOLDER:

By: /s/ Daniel Dever
Daniel Dever

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

KEY HOLDER:

By: /s/ Frank Lee
Frank Lee

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTORS:

RA CAPITAL HEALTHCARE FUND, L.P.

By: RA Capital Healthcare Fund GP, LLC
Its: General Partner

By: /s/ Rajeev Shah
Name: Rajeev Shah
Title: Manager

Address: [***]

Email: [***]

RA CAPITAL NEXUS FUND II, L.P.

By: RA Capital Nexus Fund II GP, LLC
Its: General Partner

By: /s/ Rajeev Shah
Name: Rajeev Shah
Title: Manager

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTORS:

ROCK SPRINGS CAPITAL MASTER FUND LP
By: Rock Springs General Partner LLC, its General Partner

By: /s/ Kris Jenner
Name: Kris Jenner
Title: Member

Address: [***]

Email: [***]

FOUR PINES MASTER FUND LP
By: Four Pines General Partner LLC, its General Partner

By: /s/ Kris Jenner
Name: Kris Jenner
Title: Member

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTORS:

FIDELITY SELECT PORTFOLIOS: BIOTECHNOLOGY PORTFOLIO

By: /s/ Chris Maher
Name: Chris Maher
Title: Authorized Signatory

Address: [***]

Notice Address: [***]

FIDELITY ADVISOR SERIES VII: FIDELITY ADVISOR BIOTECHNOLOGY FUND

By: /s/ Chris Maher
Name: Chris Maher
Title: Authorized Signatory

Address: [***]

Notice Addres: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTORS:

VERSANT VENTURE CAPITAL VI, L.P.
By: Versant Ventures VI GP, L.P.
By: Versant Ventures VIGP-GP, LLC
Its: General Partner

By: /s/ Jerel C. Davis
Name: Jerel C. Davis
Title: Managing Director

Address: [***]

Email: [***]

VERSANT VANTAGE II, L.P.
By: Versant Vantage II GP, L.P.
By: Versant Vantage II GP-GP, LLC
Its: General Partner

By: /s/ Jerel C. Davis
Name: Jerel C. Davis
Title: Managing Director

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

SAMSARA BIOCAPITAL, L.P.
By: Samsara BioCapital GP, LLC
Its: General Partner

By: /s/ Srinivas Akkaraju
Name: Srinivas Akkaraju, MD, PhD
Title: Managing General Partner

Address: [***]

Email: [***]

436, L.P.
By: 436 GP, LLC
Its: General Partner

By: /s/ Srinivas Akkaraju
Name: Srinivas Akkaraju, MD, PhD
Title: Managing General Partner

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

VENROCK HEALTHCARE CAPITAL PARTNERS EG, L.P.

By: /s/ Nimish Shah
Name: Nimish Shah
Title: Partner

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

PERCEPTIVE LIFE SCIENCES MASTER FUND, LTD.
By: Perceptive Advisors, LLC

By: /s/ James H. Mannix
Name: James H. Mannix
Title: COO

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTORS:

JANUS HENDERSON CAPITAL FUNDS PLC ON BEHALF OF ITS SERIES JANUS HENDERSON GLOBAL LIFE SCIENCES FUND

By: Janus Capital Management LLC, its investment advisor

By: /s/ Andrew Acker
Name: Andrew Acker
Title: Authorized Signatory

Address: [***]

Email: [***]

JANUS HENDERSON GLOBAL LIFE SCIENCES FUND

By: Janus Capital Management LLC, its investment advisor

By: /s/ Andrew Acker
Name: Andrew Acker
Title: Authorized Signatory

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

ORBIMED GENESIS MASTER FUND, L.P.

By: OrbiMed Genesis GP LLC, its General Partner

By: OrbiMed Advisors LLC, its Managing Member

By: /s/ Geoffrey Hsu
Name: Geoffrey Hsu
Title: Member

Address: [***]

Email: [***]

THE BIOTECH GROWTH TRUST PLC
By: OrbiMed Capital LLC, solely in its capacity as Portfolio Manager

By: /s/ Geoffrey Hsu
Name: Geoffrey Hsu
Title: Member

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

DEERFIELD PARTNERS, L.P.

By: Deerfield Mgmt, L.P., General Partner
By: J.E. Flynn Capital, LLC, General Partner

By: /s/ David J. Clark
Name: David J. Clark
Title: Authorized Signatory

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

CITADEL MULTI-STRATEGY EQUITIES MASTER FUND LTD.
By: CITADEL ADVISORS LLC, ITS PORTFOLIO MANAGER

By: /s/ Shellane Mulcahy
Name: Shellane Mulcahy
Title: Authorized Signatory

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

FEDERATED HERMES KAUFMANN SMALL CAP FUND
By: Federated Global Investment Management Corp., as attorney-in-fact for Federated Hermes Kaufmann Small Cap Fund, a portfolio of Federated Hermes Equity Funds

By: /s/ Stephen Van Meter
Name: Stephen Van Meter
Title: Vice President and Chief Compliance Officer

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

LOGOS OPPORTUNITIES FUND II, L.P.
By: Logos Opportunities II GP, LLC
Its General Partner

By: /s/ Graham Walmsley
Name: Graham Walmsley
Title: Managing Member

Address: [***]

By: /s/ Arsani William
Name: Arsani William
Title: Managing Partner

Address: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTORS:

CORMORANT PRIVATE HEALTHCARE FUND III, LP
By: Cormorant Private Healthcare GP, LLC

By: /s/ Bihua Chen
Name: Bihua Chen
Title: Managing Member

Address: [***]

Email: [***]

CORMORANT GLOBAL HEALTHCARE MASTER FUND, LP
By: Cormorant Global Healthcare GP, LLC

By: /s/ Bihua Chen
Name: Bihua Chen
Title: Managing Member

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

CRMA SPV, LP
By: Cormorant Asset Management, LP
Its: Attorney-In-Fact

By: /s/ Bihua Chen
Name: Bihua Chen
Title: Managing Member

Address: [***]

Notice Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

OSAGE UNIVERSITY PARTNERS III, LP
By: Osage University GP III, LLC, its General Partner

By: /s/ William Harrington
Name: William Harrington
Title: Managing Member

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

THE BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY (PVF)

By: /s/ Randall S. Livingston
Name: Randall S. Livingston
Title: Authorized Signatory

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

ALEXANDRIA VENTURE INVESTMENTS, LLC,
a Delaware limited liability company

By: ALEXANDRIA REAL ESTATE EQUITIES, INC.,
a Maryland corporation, managing member

By: /s/ Aaron Jacobson
Name: Aaron Jacobson
Title: SVP - Venture Counsel

Address: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

PERRY KARSEN

By: /s/ Perry Karsen

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

JOE JIMENEZ

By: /s/ Joe Jimenez

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

JOSH LEHRER

By: /s/ Josh Lehrer

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

PHILIP GUTRY

By: /s/ Philip Gutry

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

JERRY CACIA

By: /s/ Jerry Cacia

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

JULIA TRAN

By: /s/ Julia Tran

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

DAISY LEUNG

By: /s/ Daisy Leung

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

MAX ZEIBERG

By: /s/ Max Zeiberg

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

KATHERINE STULTZ

By: /s/ Katherine Stultz

Address: [***]

Email: [***]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date first written above.

INVESTOR:

JOHN FARRIS

By: /s/ John Farris

Address: [***]

Email: [***]

SCHEDULE A

INVESTORS

Versant Venture Capital VI, L.P.
[***]
[***]

Versant Vantage II, L.P.
[***]
[***]

Samsara BioCapital, L.P.
[***]
[***]

436, L.P.
[***]
[***]

RA Capital Healthcare Fund, L.P.
[***]
Attn: [***]
[***]

RA Capital Nexus Fund II, L.P.
[***]
Attn: [***]
[***]

Rock Springs Capital Master Fund LP
[***]
Attn: [***]
Email: [***]

Four Pines Master Fund LP
[***]
Attn: [***]
Email: [***]

Fidelity Select Portfolios: Biotechnology Portfolio
[***]
Notice Address: [***]
Attn: [***]
[***]
Email: [***]

Fidelity Advisor Series VII: Fidelity Advisor Biotechnology Fund
[***]
Notice Address: [***]
Attn: [***]
Email: [***]
Fax number: [***]

Venrock Healthcare Capital Partners EG, L.P.
[***]
[***]

Perceptive Life Sciences Master Fund, Ltd.
[***]
[***]

JANUS HENDERSON GLOBAL LIFE SCIENCES FUND
c/o Janus Capital Management LLC
[***]
Attn: [***]
Email: [***]

JANUS HENDERSON CAPITAL FUNDS PLC - JANUS HENDERSON GLOBAL LIFE SCIENCES FUND
c/o Janus Capital Management LLC
[***]
Attn: [***]
Email: [***]

OrbiMed Genesis Master Fund, L.P.
[***]
Email: [***]
Attention: [***]

The Biotech Growth Trust PLC
[***]
Email: [***]
Attention: [***]

Deerfield Partners, L.P.
[***]
[***]

Citadel Multi-Strategy Equities Master Fund Ltd.
c/o Citadel Advisors LLC
[***]
Attention: [***]
[***]
[***]

with copies to:

[***]
Attention: [***]
[***]
[***]

and

[***]
Attention: [***]
[***]

Federated Hermes Kaufmann Small Cap Fund
[***]
Attn: [***]
[***]

Logos Opportunities Fund II, L.P.
[***]
Attn: [***]
[***]

Cormorant Private Healthcare Fund III, LP
[***]
Attn: [***]

Cormorant Global Healthcare Master Fund, LP
[***]
Attn: [***]

CRMA SPV, LP
[***]

The Board of Trustees of the Leland Stanford Junior University (PVF)
[***]
[***]

Osage University Partners III, LP
[***]
[***]

Alexandria Venture Investments, LLC
[***]
[***]

Perry Karsen
[***]
[***]

Joe Jimenez
[***]
[***]

Josh Lehrer
[***]
[***]

Katherine Stultz
[***]
[***]

Philip Gutry
[***]
[***]

Jerry Cacia
[***]
[***]

Julia Tran
[***]
[***]

John Farris
[***]
[***]

Daisy Leung
[***]
[***]

Max Zeiberg
[***]
[***]

SCHEDULE B

KEY HOLDERS

Matthew Porteus

Maria Grazia Roncarolo

Daniel Dever

Frank Lee

Josh Lehrer

Exhibit 10.1

GRAPHITE BIO, INC.

2020 STOCK OPTION AND GRANT PLAN

ADOPTED BY THE BOARD OF DIRECTORS: March 24, 2020
APPROVED BY THE STOCKHOLDERS: March 24, 2020
AMENDED BY BOARD: June 23, 2020
AMENDED BY STOCKHOLDERS: June 23, 2020
AMENDED BY BOARD: March 10, 2021
AMENDED BY STOCKHOLDERS: March 10, 2021

SECTION 1. GENERAL PURPOSE OF THE PLAN; DEFINITIONS

The name of the plan is the Graphite Bio, Inc. 2020 Stock Option and Grant Plan (the "Plan"). The purpose of the Plan is to encourage and enable the officers, employees, directors, Consultants and other key persons of Graphite Bio, Inc. (formerly known as Integral Medicines, Inc.), a Delaware corporation (including any successor entity, the "Company") and its Subsidiaries, upon whose judgment, initiative and efforts the Company largely depends for the successful conduct of its business, to acquire a proprietary interest in the Company.

The following terms shall be defined as set forth below:

"*Affiliate*" of any Person means a Person that directly or indirectly, through one or more intermediaries, controls, is controlled by or is under common control with the first mentioned Person. A Person shall be deemed to control another Person if such first Person possesses directly or indirectly the power to direct, or cause the direction of, the management and policies of the second Person, whether through the ownership of voting securities, by contract or otherwise.

"*Award*" or "*Awards,*" except where referring to a particular category of grant under the Plan, shall include Incentive Stock Options,Non-Qualified Stock Options, Restricted Stock Awards, Unrestricted Stock Awards, Restricted Stock Units or any combination of the foregoing.

"Award Agreement" means a written or electronic agreement setting forth the terms and provisions applicable to an Award granted under the Plan. Each Award Agreement may contain terms and conditions in addition to those set forth in the Plan;*provided, however,* in the event of any conflict in the terms of the Plan and the Award Agreement, the terms of the Plan shall govern**.**

"*Board*" means the Board of Directors of the Company.

"*Cause*" shall have the meaning as set forth in the Award Agreement(s). In the case that any Award Agreement does not contain a definition of "Cause," it shall mean (i) the grantee's dishonest statements or acts with respect to the Company or any Affiliate of the Company, or any current or prospective customers, suppliers vendors or other third parties with which such entity does business; (ii) the grantee's commission of (A) a felony or (B) any misdemeanor involving moral turpitude, deceit, dishonesty or fraud; (iii) the grantee's failure to perform his assigned duties and responsibilities to the reasonable satisfaction of the Company which failure continues, in the reasonable judgment of the Company, after written notice given to the grantee by the Company; (iv) the grantee's gross negligence, willful misconduct or insubordination with respect to the Company or any Affiliate of the Company; or (v) the grantee's material violation of any provision of any agreement(s) between the grantee and the Company relating to noncompetition, nonsolicitation, nondisclosure and/or assignment of inventions.

"Chief Executive Officer" means the Chief Executive Officer of the Company or, if there is no Chief Executive Officer, then the President of the Company.

"*Code*" means the Internal Revenue Code of 1986, as amended, and any successor Code, and related rules, regulations and interpretations.

"*Committee*" means the Committee of the Board referred to in Section 2.

"Consultant" means any natural person that provides bona fide services to the Company (including a Subsidiary), and such services are not in connection with the offer or sale of securities in a capital-raising transaction and do not directly or indirectly promote or maintain a market for the Company's securities.

"*Disability*" means "disability" as defined in Section 422(c) of the Code.

"*Effective Date*" means the date on which the Plan is adopted as set forth on the final page of the Plan.

"*Exchange Act*" means the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder.

"*Fair Market Value*" of the Stock on any given date means the fair market value of the Stock determined in good faith by the Committee based on the reasonable application of a reasonable valuation method not inconsistent with Section 409A of the Code. If the Stock is admitted to trade on a national securities exchange, the determination shall be made by reference to the closing price reported on such exchange. If there is no closing price for such date, the determination shall be made by reference to the last date preceding such date for which there is a closing price. If the date for which Fair Market Value is determined is the first day when trading prices for the Stock are reported on a national securities exchange, the Fair Market Value shall be the "Price to the Public" (or equivalent) set forth on the cover page for the final prospectus relating to the Company's Initial Public Offering.

"Good Reason" shall have the meaning as set forth in the Award Agreement(s). In the case that any Award Agreement does not contain a definition of "Good Reason," it shall mean (i) a material diminution in the grantee's base salary except for across-the-board salary reductions similarly affecting all or substantially all similarly situated employees of the Company or (ii) a change of more than 50 miles in the geographic location at which the grantee provides services to the Company, so long as the grantee provides at least 90 days notice to the Company following the initial occurrence of any such event and the Company fails to cure such event within 30 days thereafter.

"*Grant Date"* means the date that the Committee designates in its approval of an Award in accordance with applicable law as the date on which the Award is granted, which date may not precede the date of such Committee approval.

"Holder" means, with respect to an Award or any Shares, the Person holding such Award or Shares, including the initial recipient of the Award or any Permitted Transferee.

"*Incentive Stock Option*" means any Stock Option designated and qualified as an "incentive stock option" as defined in Section 422 of the Code.

"*Initial Public Offering*" means the consummation of the first public offering pursuant to an effective registration statement under the Securities Act covering the offer and sale by the Company of its equity securities, as a result of or following which the Stock shall be publicly held.

"*Non-Qualified Stock Option*" means any Stock Option that is not an Incentive Stock Option.

"*Option*" or "*Stock Option*" means any option to purchase shares of Stock granted pursuant to Section 5.

"*Permitted Transferees*" shall mean any of the following to whom a Holder may transfer Shares hereunder (as set forth in Section 9(a)(ii)(A)): the Holder's child, stepchild, grandchild, parent, stepparent, grandparent, spouse, former spouse, sibling, niece, nephew, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, including adoptive relationships, any person sharing the Holder's household (other than a tenant or employee), a trust in which these persons have more than fifty percent of the beneficial interest, a foundation in which these persons control the management of assets, and any other entity in which these persons own more than fifty percent of the voting interests*; provided, however,* that any such trust does not require or permit distribution of any Shares during the term of the Award Agreement unless subject to its terms. Upon the death of the Holder, the term Permitted Transferees shall also include such deceased Holder's estate, executors, administrators, personal representatives, heirs, legatees and distributees, as the case may be.

"*Person*" shall mean any individual, corporation, partnership (limited or general), limited liability company, limited liability partnership, association, trust, joint venture, unincorporated organization or any similar entity.

"Restricted Stock Award" means Awards granted pursuant to Section 6 and *"Restricted Stock"* means Shares issued pursuant to such Awards.

"Restricted Stock Unit" means an Award of phantom stock units to a grantee, which may be settled in cash or Shares as determined by the Committee, pursuant to Section 8.

"*Sale Event"* means the consummation of (i) the dissolution or liquidation of the Company, (ii) the sale of all or substantially all of the assets of the Company on a consolidated basis to an unrelated person or entity, (iii) a merger, reorganization or consolidation pursuant to which the holders of the Company's outstanding voting power immediately prior to such transaction do not own a majority of the outstanding voting power of the surviving or resulting entity (or its ultimate parent, if applicable), (iv) the acquisition of all or a majority of the outstanding voting stock of the Company in a single transaction or a series of related transactions by a Person or group of Persons, or (v) any other acquisition of the business of the Company, as determined by the Board; *provided, however,* that the Company's Initial Public Offering, any subsequent public offering or another capital raising event, or a merger effected solely to change the Company's domicile shall not constitute a "Sale Event."

"Section 409A" means Section 409A of the Code and the regulations and other guidance promulgated thereunder.

"*Securities Act*" means the Securities Act of 1933, as amended, and the rules and regulations thereunder.

"Service Relationship" means any relationship as a full-time employee, part-time employee, director or other key person (including Consultants) of the Company or any Subsidiary or any successor entity (e.g., a Service Relationship shall be deemed to continue without interruption in the event an individual's status changes from full-time employee to part-time employee or Consultant).

"Shares" means shares of Stock.

"*Stock*" means the Common Stock, par value $0.00001 per share, of the Company.

"*Subsidiary*" means any corporation or other entity (other than the Company) in which the Company has more than a 50 percent interest, either directly or indirectly.

"Ten Percent Owner" means an employee who owns or is deemed to own (by reason of the attribution rules of Section 424(d) of the Code) more than 10 percent of the combined voting power of all classes of stock of the Company or any parent of the Company or any Subsidiary.

"Termination Event" means the termination of the Award recipient's Service Relationship with the Company and its Subsidiaries for any reason whatsoever, regardless of the circumstances thereof, and including, without limitation, upon death, disability, retirement, discharge or resignation for any reason, whether voluntarily or involuntarily. The following shall not constitute a Termination Event: (i) a transfer to the service of the Company from a Subsidiary or from the Company to a Subsidiary, or from one Subsidiary to another Subsidiary or (ii) an approved leave of absence for military service or sickness, or for any other purpose approved by the Committee, if the individual's right to re-employment is guaranteed either by a statute or by contract or under the policy pursuant to which the leave of absence was granted or if the Committee otherwise so provides in writing.

"*Unrestricted Stock Award"* means any Award granted pursuant to Section 7 and *"Unrestricted Stock"* means Shares issued pursuant to such Awards.

SECTION 2. ADMINISTRATION OF PLAN; COMMITTEE AUTHORITY TO SELECT GRANTEES AND DETERMINE AWARDS

(a) Administration of Plan. The Plan shall be administered by the Board, or at the discretion of the Board, by a committee of the Board, comprised of not less than two directors. All references herein to the "Committee" shall be deemed to refer to the group then responsible for administration of the Plan at the relevant time (i.e., either the Board or a committee or committees of the Board, as applicable).

(b) Powers of Committee. The Committee shall have the power and authority to grant Awards consistent with the terms of the Plan, including the power and authority:

(i) to select the individuals to whom Awards may from time to time be granted;

(ii) to determine the time or times of grant, and the amount, if any, of Incentive Stock Options,Non-Qualified Stock Options, Restricted Stock Awards, Unrestricted Stock Awards, Restricted Stock Units, or any combination of the foregoing, granted to any one or more grantees;

(iii) to determine the number of Shares to be covered by any Award and, subject to the provisions of the Plan, the price, exercise price, conversion ratio or other price relating thereto;

(iv) to determine and, subject to Section 12, to modify from time to time the terms and conditions, including restrictions, not inconsistent with the terms of the Plan, of any Award, which terms and conditions may differ among individual Awards and grantees, and to approve the form of Award Agreements;

(v) to accelerate at any time the exercisability or vesting of all or any portion of any Award;

(vi) to impose any limitations on Awards, including limitations on transfers, repurchase provisions and the like, and to exercise repurchase rights or obligations;

(vii) subject to Section 5(a)(ii) and any restrictions imposed by Section 409A, to extend at any time the period in which Stock Options may be exercised; and

(viii) at any time to adopt, alter and repeal such rules, guidelines and practices for administration of the Plan and for its own acts and proceedings as it shall deem advisable; to interpret the terms and provisions of the Plan and any Award (including Award Agreements); to make all determinations it deems advisable for the administration of the Plan; to decide all disputes arising in connection with the Plan; and to otherwise supervise the administration of the Plan.

All decisions and interpretations of the Committee shall be binding on all persons, including the Company and all Holders.

(c) Award Agreement. Awards under the Plan shall be evidenced by Award Agreements that set forth the terms, conditions and limitations for each Award.

(d) Indemnification. Neither the Board nor the Committee, nor any member of either or any delegate thereof, shall be liable for any act, omission, interpretation, construction or determination made in good faith in connection with the Plan, and the members of the Board and the Committee (and any delegate thereof) shall be entitled in all cases to indemnification and reimbursement by the Company in respect of any claim, loss, damage or expense (including, without limitation, reasonable attorneys' fees) arising or resulting therefrom to the fullest extent permitted by law and/or under the Company's governing documents, including its certificate of incorporation or bylaws (each, as may be amended and/or restated from time to time), or any directors' and officers' liability insurance coverage which may be in effect from time to time and/or any indemnification agreement between such individual and the Company.

(e) Foreign Award Recipients. Notwithstanding any provision of the Plan to the contrary, in order to comply with the laws in other countries in which the Company and any Subsidiary operate or have employees or other individuals eligible for Awards, the Committee, in its sole discretion, shall have the power and authority to: (i) determine which Subsidiaries, if any, shall be covered by the Plan; (ii) determine which individuals, if any, outside the United States are eligible to participate in the Plan; (iii) modify the terms and conditions of any Award granted to individuals outside the United States to comply with applicable foreign laws; (iv) establish subplans and modify exercise procedures and other terms and procedures, to the extent the Committee determines such actions to be necessary or advisable (and such subplans and/or modifications shall be attached to the Plan as appendices); provided, however, that no such subplans and/or modifications shall increase the share limitation contained in Section 3(a) hereof; and (v) take any action, before or after an Award is made, that the Committee determines to be necessary or advisable to obtain approval or comply with any local governmental regulatory exemptions or approvals.

SECTION 3. STOCK ISSUABLE UNDER THE PLAN; MERGERS AND OTHER TRANSACTIONS; SUBSTITUTION

(a) Stock Issuable. The maximum number of Shares reserved and available for issuance under the Plan shall be 18,181,727 Shares, subject to adjustment as provided in Section 3(b). For purposes of this limitation, the Shares underlying any Awards that are forfeited, canceled, reacquired by the Company prior to vesting, satisfied without the issuance of Stock or otherwise terminated (other than by exercise) and Shares that are withheld upon exercise of an Option or settlement of an Award to cover the exercise price or tax withholding shall be added back to the Shares available for issuance under the Plan. Subject to such overall limitations, Shares may be issued up to such maximum number pursuant to any type or types of Award, and no more than 99,749,590 Shares may be issued pursuant to Incentive Stock Options. The Shares available for issuance under the Plan may be authorized but unissued Shares or Shares reacquired by the Company.

(b) Changes in Stock. Subject to Section 3(c) hereof, if, as a result of any reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split or other similar change in the Company's capital stock, the outstanding Shares are increased or decreased or are exchanged for a different number or kind of shares or other securities of the Company, or additional Shares or new or different shares or other securities of the Company or other non-cash assets are distributed with respect to such Shares or other securities, in each case, without the receipt of consideration by the Company, or, if, as a result of any merger or consolidation, or sale of all or substantially all of the assets of the Company, the outstanding Shares are converted into or exchanged for other securities of the Company or any successor entity (or a parent or subsidiary thereof), the Committee shall make an appropriate and proportionate adjustment in (i) the maximum number of Shares reserved for issuance under the Plan, (ii) the number and kind of Shares or other securities subject to any then outstanding Awards under the Plan, (iii) the repurchase price, if any, per Share subject to each outstanding Award, and (iv) the exercise price for each Share subject to any then outstanding Stock Options under the Plan, without changing the aggregate exercise price (i.e., the per share exercise price multiplied by the number of Shares underlying such Stock Options) as to which such Stock Options remain exercisable. The Committee shall in any event make such adjustments as may be required by Section 25102(o) of the California Corporation Code and the rules and regulations promulgated thereunder. The adjustment by the Committee shall be final, binding and conclusive. No fractional Shares shall be issued under the Plan resulting from any such adjustment, but the Committee in its discretion may make a cash payment in lieu of fractional shares.

(c) Sale Events.

(i) Options.

(A) In the case of and subject to the consummation of a Sale Event, the Plan and all outstanding Options issued hereunder shall terminate upon the effective time of any such Sale Event unless assumed or continued by the successor entity, or new stock options or other awards of the successor entity or parent thereof are substituted therefor, with an equitable or proportionate adjustment as to the number and kind of shares and, if appropriate, the per share exercise prices, as such parties shall agree (after taking into account any acceleration hereunder and/or pursuant to the terms of any Award Agreement).

(B) In the event of the termination of the Plan and all outstanding Options issued hereunder pursuant to Section 3(c), each Holder of Options shall be permitted, within a period of time prior to the consummation of the Sale Event as specified by the Committee, to exercise all such Options which are then exercisable or will become exercisable as of the effective time of the Sale Event; *provided, however*, that the exercise of Options not exercisable prior to the Sale Event shall be subject to the consummation of the Sale Event.

(C) Notwithstanding anything to the contrary in Section 3(c)(i)(A), in the event of a Sale Event, the Company shall have the right, but not the obligation, to make or provide for a cash payment to the Holders of Options, without any consent of the Holders, in exchange for the cancellation thereof, in an amount equal to the difference between (A) the value as determined by the Committee of the consideration payable per share of Stock pursuant to the Sale Event (the "Sale Price") times the number of Shares subject to outstanding Options being cancelled (to the extent then vested and exercisable, including by reason of acceleration in connection with such Sale Event, at prices not in excess of the Sale Price) and (B) the aggregate exercise price of all such outstanding vested and exercisable Options.

(ii) Restricted Stock and Restricted Stock Unit Awards.

(A) In the case of and subject to the consummation of a Sale Event, all unvested Restricted Stock and unvested Restricted Stock Unit Awards (other than those becoming vested as a result of the Sale Event) issued hereunder shall be forfeited immediately prior to the effective time of any such Sale Event unless assumed or continued by the successor entity, or awards of the successor entity or parent thereof are substituted therefor, with an equitable or proportionate adjustment as to the number and kind of shares subject to such awards as such parties shall agree (after taking into account any acceleration hereunder and/or pursuant to the terms of any Award Agreement).

(B) In the event of the forfeiture of Restricted Stock pursuant to Section 3(c)(ii)(A), such Restricted Stock shall be repurchased from the Holder thereof at a price per share equal to the lower of the original per share purchase price paid by the Holder (subject to adjustment as provided in Section 3(b)) or the current Fair Market Value of such Shares, determined immediately prior to the effective time of the Sale Event.

(C) Notwithstanding anything to the contrary in Section 3(c)(ii)(A), in the event of a Sale Event, the Company shall have the right, but not the obligation, to make or provide for a cash payment to the Holders of Restricted Stock or Restricted Stock Unit Awards, without consent of the Holders, in exchange for the cancellation thereof, in an amount equal to the Sale Price times the number of Shares subject to such Awards, to be paid at the time of such Sale Event or upon the later vesting of such Awards.

SECTION 4. ELIGIBILITY

Grantees under the Plan will be such full or part-time officers and other employees, directors, Consultants and key persons of the Company and any Subsidiary who are selected from time to time by the Committee in its sole discretion; provided, however, that Awards shall be granted only to those individuals described in Rule 701(c) of the Securities Act.

SECTION 5. STOCK OPTIONS

Upon the grant of a Stock Option, the Company and the grantee shall enter into an Award Agreement. The terms and conditions of each such Award Agreement shall be determined by the Committee, and such terms and conditions may differ among individual Awards and grantees.

Stock Options granted under the Plan may be either Incentive Stock Options orNon-Qualified Stock Options. Incentive Stock Options may be granted only to employees of the Company or any Subsidiary that is a “subsidiary corporation” within the meaning of Section 424(f) of the Code. To the extent that any Option does not qualify as an Incentive Stock Option, it shall be deemed a Non-Qualified Stock Option.

(a) Terms of Stock Options. The Committee in its discretion may grant Stock Options to those individuals who meet the eligibility requirements of Section 4. Stock Options shall be subject to the following terms and conditions and shall contain such additional terms and conditions, not inconsistent with the terms of the Plan, as the Committee shall deem desirable.

(i) Exercise Price. The exercise price per share for the Shares covered by a Stock Option shall be determined by the Committee at the time of grant but shall not be less than 100 percent of the Fair Market Value on the Grant Date. In the case of an Incentive Stock Option that is granted to a Ten Percent Owner, the exercise price per share for the Shares covered by such Incentive Stock Option shall not be less than 110 percent of the Fair Market Value on the Grant Date.

(ii) Option Term. The term of each Stock Option shall be fixed by the Committee, but no Stock Option shall be exercisable more than ten years from the Grant Date. In the case of an Incentive Stock Option that is granted to a Ten Percent Owner, the term of such Stock Option shall be no more than five years from the Grant Date.

(iii) Exercisability; Rights of a Stockholder. Stock Options shall become exercisable and/or vested at such time or times, whether or not in installments, as shall be determined by the Committee at or after the Grant Date. The Award Agreement may permit a grantee to exercise all or a portion of a Stock Option immediately at grant; provided that the Shares issued upon such exercise shall be subject to restrictions and a vesting schedule identical to the vesting schedule of the related Stock Option, such Shares shall be deemed to be Restricted Stock for purposes of the Plan, and the optionee may be required to enter into an additional or new Award Agreement as a condition to exercise of such Stock Option. An optionee shall have the rights of a stockholder only as to Shares acquired upon the exercise of a Stock Option and not as to unexercised Stock Options. An optionee shall not be deemed to have acquired any Shares unless and until a Stock Option shall have been exercised pursuant to the terms of the Award Agreement and this Plan and the optionee's name has been entered on the books of the Company as a stockholder.

(iv) Method of Exercise. Stock Options may be exercised by an optionee in whole or in part, by the optionee giving written or electronic notice of exercise to the Company, specifying the number of Shares to be purchased. Payment of the purchase price may be made by one or more of the following methods (or any combination thereof) to the extent provided in the Award Agreement:

(A) In cash, by certified or bank check, by wire transfer of immediately available funds, or other instrument acceptable to the Committee;

(B) If permitted by the Committee, by the optionee delivering to the Company a promissory note, if the Board has expressly authorized the loan of funds to the optionee for the purpose of enabling or assisting the optionee to effect the exercise of his or her Stock Option; provided, that at least so much of the exercise price as represents the par value of the Stock shall be paid in cash if required by state law;

(C) If permitted by the Committee and the Initial Public Offering has occurred (or the Stock otherwise becomes publicly-traded), through the delivery (or attestation to the ownership) of Shares that have been purchased by the optionee on the open market or that are beneficially owned by the optionee and are not then subject to restrictions under any Company plan. To the extent required to avoid variable accounting treatment under ASC 718 or other applicable accounting rules, such surrendered Shares if originally purchased from the Company shall have been owned by the optionee for at least six months. Such surrendered Shares shall be valued at Fair Market Value on the exercise date;

(D) If permitted by the Committee and the Initial Public Offering has occurred (or the Stock otherwise becomes publicly-traded), by the optionee delivering to the Company a properly executed exercise notice together with irrevocable instructions to a broker to promptly deliver to the Company cash or a check payable and acceptable to the Company for the purchase price; provided that in the event the optionee chooses to pay the purchase price as so provided, the optionee and the broker shall comply with such procedures and enter into such agreements of indemnity and other agreements as the Committee shall prescribe as a condition of such payment procedure; or

(E) If permitted by the Committee, and only with respect to Stock Options that are not Incentive Stock Options, by a "net exercise" arrangement pursuant to which the Company will reduce the number of Shares issuable upon exercise by the largest whole number of Shares with a Fair Market Value that does not exceed the aggregate exercise price.

Payment instruments will be received subject to collection. No certificates for Shares so purchased will be issued to the optionee or, with respect to uncertificated Stock, no transfer to the optionee on the records of the Company will take place, until the Company has completed all steps it has deemed necessary to satisfy legal requirements relating to the issuance and sale of the Shares, which steps may include, without limitation, (i) receipt of a representation from the optionee at the time of exercise of the Option that the optionee is purchasing the Shares for the optionee's own account and not with a view to any sale or distribution of the Shares or other representations relating to compliance with applicable law governing the issuance of securities, (ii) the legending of the certificate (or notation on any book entry) representing the Shares to evidence the foregoing restrictions, (iii) obtaining from optionee payment or provision for all withholding taxes due as a result of the exercise of the Option and (iv) if required by the Company, the optionee's execution and delivery of any stockholders' agreements or other agreements with the Company and/or certain other stockholders of the Company relating to shares of the Stock. The delivery of certificates representing the shares of Stock (or the transfer to the optionee on the records of the Company with respect to uncertificated Stock) to be purchased pursuant to the exercise of a Stock Option will be contingent upon (A) receipt from the optionee (or a purchaser acting in his or her stead in accordance with the provisions of the Stock Option) by the Company of the full purchase price for such Shares and the fulfillment of any other requirements contained in the Award Agreement or applicable provisions of laws and

(B) if required by the Company, the optionee shall have entered into any stockholders agreements or other agreements with the Company and/or certain other of the Company's stockholders relating to the Stock. In the event an optionee chooses to pay the purchase price by previously-owned Shares through the attestation method, the number of Shares transferred to the optionee upon the exercise of the Stock Option shall be net of the number of Shares attested to.

(b) Annual Limit on Incentive Stock Options. To the extent required for "incentive stock option" treatment under Section 422 of the Code, the aggregate Fair Market Value (determined as of the Grant Date) of the Shares with respect to which Incentive Stock Options granted under the Plan and any other plan of the Company or its parent and any Subsidiary that become exercisable for the first time by an optionee during any calendar year shall not exceed $100,000 or such other limit as may be in effect from time to time under Section 422 of the Code. To the extent that any Stock Option exceeds this limit, it shall constitute a Non-Qualified Stock Option.

(c) Termination. Any portion of a Stock Option that is not vested and exercisable on the date of termination of an optionee's Service Relationship shall immediately expire and be null and void. Once any portion of the Stock Option becomes vested and exercisable, the optionee's right to exercise such portion of the Stock Option (or the optionee's representatives and legatees as applicable) in the event of a termination of the optionee's Service Relationship shall continue until the earliest of: (i) the date which is: (A) 12 months following the date on which the optionee's Service Relationship terminates due to death or Disability (or such longer period of time as determined by the Committee and set forth in the applicable Award Agreement), or (B) three months following the date on which the optionee's Service Relationship terminates if the termination is due to any reason other than death or Disability (or such longer period of time as determined by the Committee and set forth in the applicable Award Agreement), or (ii) the Expiration Date set forth in the Award Agreement; provided that notwithstanding the foregoing, an Award Agreement may provide that if the optionee's Service Relationship is terminated for Cause, the Stock Option shall terminate immediately and be null and void upon the date of the optionee's termination and shall not thereafter be exercisable.

SECTION 6. RESTRICTED STOCK AWARDS

(a) Nature of Restricted Stock Awards. The Committee may, in its sole discretion, grant (or sell at par value or such other purchase price determined by the Committee) to an eligible individual under Section 4 hereof a Restricted Stock Award under the Plan. The Committee shall determine the restrictions and conditions applicable to each Restricted Stock Award at the time of grant. Conditions may be based on continuing employment (or other Service Relationship), achievement of pre-established performance goals and objectives and/or such other criteria as the Committee may determine. Upon the grant of a Restricted Stock Award, the Company and the grantee shall enter into an Award Agreement. The terms and conditions of each such Award Agreement shall be determined by the Committee, and such terms and conditions may differ among individual Awards and grantees.

(b) Rights as a Stockholder. Upon the grant of the Restricted Stock Award and payment of any applicable purchase price, a grantee of Restricted Stock shall be considered the record owner of and shall be entitled to vote the Restricted Stock if, and to the extent, such Shares are entitled to voting rights, subject to such conditions contained in the Award Agreement. The grantee shall be entitled to receive all dividends and any other distributions declared on the Shares; provided, however, that the Company is under no duty to declare any such dividends or to make any such distribution. Unless the Committee shall otherwise determine, certificates evidencing the Restricted Stock shall remain in the possession of the Company until such Restricted Stock is vested as provided in subsection (d) below of this Section, and the grantee shall be required, as a condition of the grant, to deliver to the Company a stock power endorsed in blank and such other instruments of transfer as the Committee may prescribe.

(c) Restrictions. Restricted Stock may not be sold, assigned, transferred, pledged or otherwise encumbered or disposed of except as specifically provided herein or in the Award Agreement. Except as may otherwise be provided by the Committee either in the Award Agreement or, subject to Section 12 below, in writing after the Award Agreement is issued, if a grantee's Service Relationship with the Company and any Subsidiary terminates, the Company or its assigns shall have the right, as may be specified in the relevant instrument, to repurchase some or all of the Shares subject to the Award at such purchase price as is set forth in the Award Agreement.

(d) Vesting of Restricted Stock. The Committee at the time of grant shall specify in the Award Agreement the date or dates and/or the attainment of pre-established performance goals, objectives and other conditions on which the substantial risk of forfeiture imposed shall lapse and the Restricted Stock shall become vested, subject to such further rights of the Company or its assigns as may be specified in the Award Agreement.

SECTION 7. UNRESTRICTED STOCK AWARDS

The Committee may, in its sole discretion, grant (or sell at par value or such other purchase price determined by the Committee) to an eligible person under Section 4 hereof an Unrestricted Stock Award under the Plan. Unrestricted Stock Awards may be granted in respect of past services or other valid consideration, or in lieu of cash compensation due to such grantee.

SECTION 8. RESTRICTED STOCK UNITS

(a) Nature of Restricted Stock Units. The Committee may, in its sole discretion, grant to an eligible person under Section 4 hereof Restricted Stock Units under the Plan. The Committee shall determine the restrictions and conditions applicable to each Restricted Stock Unit at the time of grant. Vesting conditions may be based on continuing employment (or other Service Relationship), achievement of pre-established performance goals and objectives and/or other such criteria as the Committee may determine. Upon the grant of Restricted Stock Units, the grantee and the Company shall enter into an Award Agreement. The terms and conditions of each such Award Agreement shall be determined by the Committee and may differ among individual Awards and grantees. On or promptly following the vesting date or dates applicable to any Restricted Stock Unit, but in no event later than March 15 of the year following the year in which such vesting occurs, such Restricted Stock Unit(s) shall be settled in the form of cash or shares of Stock, as specified in the Award Agreement. Restricted Stock Units may not be sold, assigned, transferred, pledged, or otherwise encumbered or disposed of.

(b) Rights as a Stockholder. A grantee shall have the rights of a stockholder only as to Shares, if any, acquired upon settlement of Restricted Stock Units. A grantee shall not be deemed to have acquired any such Shares unless and until the Restricted Stock Units shall have been settled in Shares pursuant to the terms of the Plan and the Award Agreement, the Company shall have issued and delivered a certificate representing the Shares to the grantee (or transferred on the records of the Company with respect to uncertificated stock), and the grantee's name has been entered in the books of the Company as a stockholder.

(c) Termination. Except as may otherwise be provided by the Committee either in the Award Agreement or in writing after the Award Agreement is issued, a grantee's right in all Restricted Stock Units that have not vested shall automatically terminate upon the grantee's cessation of Service Relationship with the Company and any Subsidiary for any reason.

SECTION 9. TRANSFER RESTRICTIONS; COMPANY RIGHT OF FIRST REFUSAL; COMPANY REPURCHASE RIGHTS

(a) Restrictions on Transfer.

(i) Non-Transferability of Stock Options. Stock Options and, prior to exercise, the Shares issuable upon exercise of such Stock Option, shall not be transferable by the optionee otherwise than by will, or by the laws of descent and distribution, and all Stock Options shall be exercisable, during the optionee's lifetime, only by the optionee, or by the optionee's legal representative or guardian in the event of the optionee's incapacity. Notwithstanding the foregoing, the Committee, in its sole discretion, may provide in the Award Agreement regarding a given Stock Option that the optionee may transfer by gift, without consideration for the transfer, his or her Non-Qualified Stock Options to his or her family members (as defined in Rule 701 of the Securities Act), to trusts for the benefit of such family members, or to partnerships in which such family members are the only partners (to the extent such trusts or partnerships are considered "family members" for purposes of Rule 701 of the Securities Act), provided that the transferee agrees in writing with the Company to be bound by all of the terms and conditions of this Plan and the applicable Award Agreement, including the execution of a stock power upon the issuance of Shares. Stock Options, and the Shares issuable upon exercise of such Stock Options, shall be restricted as to any pledge, hypothecation, or other transfer, including any short position, any "put equivalent position" (as defined in the Exchange Act) or any "call equivalent position" (as defined in the Exchange Act) prior to exercise.

(ii) Shares. No Shares shall be sold, assigned, transferred, pledged, hypothecated, given away or in any other manner disposed of or encumbered, whether voluntarily or by operation of law, unless (i) the transfer is in compliance with the terms of the applicable Award Agreement, all applicable securities laws (including, without limitation, the Securities Act), and with the terms and conditions of this Section 9, (ii) the transfer does not cause the Company to become subject to the reporting requirements of the Exchange Act, and (iii) the transferee consents in writing to be bound by the provisions of the Plan and the Award Agreement, including this Section 9. In connection with any proposed transfer, the Committee may require the transferor to provide at the transferor's own expense an opinion of counsel to the transferor, satisfactory to the Committee, that such transfer is in compliance with all foreign, federal and state securities laws (including, without limitation, the Securities Act). Any

attempted transfer of Shares not in accordance with the terms and conditions of this Section 9 shall be null and void, and the Company shall not reflect on its records any change in record ownership of any Shares as a result of any such transfer, shall otherwise refuse to recognize any such transfer and shall not in any way give effect to any such transfer of Shares. The Company shall be entitled to seek protective orders, injunctive relief and other remedies available at law or in equity including, without limitation, seeking specific performance or the rescission of any transfer not made in strict compliance with the provisions of this Section 9. Subject to the foregoing general provisions, and unless otherwise provided in the applicable Award Agreement, Shares may be transferred pursuant to the following specific terms and conditions (provided that with respect to any transfer of Restricted Stock, all vesting and forfeiture provisions shall continue to apply with respect to the original recipient):

(A) Transfers to Permitted Transferees. The Holder may transfer any or all of the Shares to one or more Permitted Transferees;*provided, however*, that following such transfer, such Shares shall continue to be subject to the terms of this Plan (including this Section 9) and such Permitted Transferee(s) shall, as a condition to any such transfer, deliver a written acknowledgment to that effect to the Company and shall deliver a stock power to the Company with respect to the Shares. Notwithstanding the foregoing, the Holder may not transfer any of the Shares to a Person whom the Company reasonably determines is a direct competitor or a potential competitor of the Company or any of its Subsidiaries.

(B) Transfers Upon Death. Upon the death of the Holder, any Shares then held by the Holder at the time of such death and any Shares acquired after the Holder's death by the Holder's legal representative shall be subject to the provisions of this Plan, and the Holder's estate, executors, administrators, personal representatives, heirs, legatees and distributees shall be obligated to convey such Shares to the Company or its assigns under the terms contemplated by the Plan and the Award Agreement.

(b) Right of First Refusal. In the event that a Holder desires at any time to sell or otherwise transfer all or any part of his or her Shares (other than shares of Restricted Stock which by their terms are not transferrable), the Holder first shall give written notice to the Company of the Holder's intention to make such transfer. Such notice shall state the number of Shares that the Holder proposes to sell (the "Offered Shares"), the price and the terms at which the proposed sale is to be made and the name and address of the proposed transferee. At any time within 30 days after the receipt of such notice by the Company, the Company or its assigns may elect to purchase all or any portion of the Offered Shares at the price and on the terms offered by the proposed transferee and specified in the notice. The Company or its assigns shall exercise this right by mailing or delivering written notice to the Holder within the foregoing 30-day period. If the Company or its assigns elect to exercise its purchase rights under this Section 9(b), the closing for such purchase shall, in any event, take place within 45 days after the receipt by the Company of the initial notice from the Holder. In the event that the Company or its assigns do not elect to exercise such purchase right, or in the event that the Company or its assigns do not pay the full purchase price within such 45-day period, the Holder may, within 60 days thereafter, sell the Offered Shares to the proposed transferee and at the same price and on the same terms as specified in the Holder's notice. Any Shares not sold to the proposed transferee shall remain subject to the Plan. If the Holder is a party to any stockholders

agreements or other agreements with the Company and/or certain other of the Company's stockholders relating to the Shares, (i) the transferring Holder shall comply with the requirements of such stockholders agreements or other agreements relating to any proposed transfer of the Offered Shares, and (ii) any proposed transferee that purchases Offered Shares shall enter into such stockholders agreements or other agreements with the Company and/or certain of the Company's stockholders relating to the Offered Shares on the same terms and in the same capacity as the transferring Holder.

(c) Company's Right of Repurchase.

(i) Right of Repurchase for Unvested Shares Issued Upon the Exercise of an Option. Upon a Termination Event, the Company or its assigns shall have the right and option to repurchase from a Holder of Shares acquired upon exercise of a Stock Option which are still subject to a risk of forfeiture as of the Termination Event. Such repurchase rights may be exercised by the Company within the later of (A) six months following the date of such Termination Event or (B) seven months after the acquisition of Shares upon exercise of a Stock Option. The repurchase price shall be equal to the lower of the original per share price paid by the Holder, subject to adjustment as provided in Section 3(b) of the Plan, or the current Fair Market Value of such Shares as of the date the Company elects to exercise its repurchase rights.

(ii) Right of Repurchase With Respect to Restricted Stock. Upon a Termination Event, the Company or its assigns shall have the right and option to repurchase from a Holder of Shares received pursuant to a Restricted Stock Award any Shares that are still subject to a risk of forfeiture as of the Termination Event. Such repurchase right may be exercised by the Company within six months following the date of such Termination Event. The repurchase price shall be the lower of the original per share purchase price paid by the Holder, subject to adjustment as provided in Section 3(b) of the Plan, or the current Fair Market Value of such Shares as of the date the Company elects to exercise its repurchase rights.

(iii) Procedure. Any repurchase right of the Company shall be exercised by the Company or its assigns by giving the Holder written notice on or before the last day of the repurchase period of its intention to exercise such repurchase right. Upon such notification, the Holder shall promptly surrender to the Company, free and clear of any liens or encumbrances, any certificates representing the Shares being purchased, together with a duly executed stock power for the transfer of such Shares to the Company or the Company's assignee or assignees. Upon the Company's or its assignee's receipt of the certificates from the Holder, the Company or its assignee or assignees shall deliver to him, her or them a check for the applicable repurchase price; *provided, however*, that the Company may pay the repurchase price by offsetting and canceling any indebtedness then owed by the Holder to the Company.

(d) Reserved.

(e) Escrow Arrangement.

(i) Escrow. In order to carry out the provisions of this Section 9 of this Plan more effectively, the Company shall hold any Shares issued pursuant to Awards granted under the Plan in escrow together with separate stock powers executed by the Holder in blank for transfer. The Company shall not dispose of the Shares except as otherwise provided in this Plan. In the event of any repurchase by the Company (or any of its assigns), the Company is hereby authorized by the Holder, as the Holder's attorney-in-fact, to date and complete the stock powers necessary for the transfer of the Shares being purchased and to transfer such Shares in accordance with the terms hereof. At such time as any Shares are no longer subject to the Company's repurchase and first refusal rights, the Company shall, at the written request of the Holder, deliver to the Holder a certificate representing such Shares with the balance of the Shares to be held in escrow pursuant to this Section.

(ii) Remedy. Without limitation of any other provision of this Plan or other rights, in the event that a Holder or any other Person is required to sell a Holder's Shares pursuant to the provisions of Sections 9(b) or (c) hereof and in the further event that he or she refuses or for any reason fails to deliver to the Company or its designated purchaser of such Shares the certificate or certificates evidencing such Shares together with a related stock power, the Company or such designated purchaser may deposit the applicable purchase price for such Shares with a bank designated by the Company, or with the Company's independent public accounting firm, as agent or trustee, or in escrow, for such Holder or other Person, to be held by such bank or accounting firm for the benefit of and for delivery to him, her, them or it, and/or, in its discretion, pay such purchase price by offsetting any indebtedness then owed by such Holder as provided above. Upon any such deposit and/or offset by the Company or its designated purchaser of such amount and upon notice to the Person who was required to sell the Shares to be sold pursuant to the provisions of Sections 9(b) or (c), such Shares shall at such time be deemed to have been sold, assigned, transferred and conveyed to such purchaser, such Holder shall have no further rights thereto (other than the right to withdraw the payment thereof held in escrow, if applicable), and the Company shall record such transfer in its stock transfer book or in any appropriate manner.

(f) Lockup Provision. If requested by the Company, a Holder shall not sell or otherwise transfer or dispose of any Shares (including, without limitation, pursuant to Rule 144 under the Securities Act) held by him or her for such period following consummation of, or the effective date of a registration statement pertaining to, a public offering by the Company of Shares as the Company shall specify reasonably and in good faith. If requested by the underwriter engaged by the Company, each Holder shall execute a separate letter confirming his or her agreement to comply with this Section.

(g) Adjustments for Changes in Capital Structure. If, as a result of any reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split or other similar change in the Common Stock, the outstanding Shares are increased or decreased or are exchanged for a different number or kind of securities of the Company, the restrictions contained in this Section 9 shall apply with equal force to additional and/or substitute securities, if any, received by Holder in exchange for, or by virtue of his or her ownership of, Shares.

(h) Termination. The terms and provisions of Section 9(b) and Section 9(c) (except for the Company's right to repurchase Shares still subject to a risk of forfeiture upon a Termination Event) shall terminate upon the closing of the Company's Initial Public Offering or upon consummation of any Sale Event, in either case as a result of which Shares are registered under Section 12 of the Exchange Act and publicly-traded on any national security exchange.

SECTION 10. TAX WITHHOLDING

(a) Payment by Grantee. Each grantee shall, no later than the date as of which the value of an Award or of any Shares or other amounts received thereunder first becomes includable in the gross income of the grantee for income tax purposes, pay to the Company, or make arrangements satisfactory to the Committee regarding payment of, any Federal, state, or local taxes of any kind required by law to be withheld by the Company with respect to such income. The Company and any Subsidiary shall, to the extent permitted by law, have the right to deduct any such taxes from any payment of any kind otherwise due to the grantee. The Company's obligation to deliver stock certificates (or evidence of book entry) to any grantee is subject to and conditioned on any such tax withholding obligations being satisfied by the grantee.

(b) Payment in Stock. The Company's required tax withholding obligation may be satisfied, in whole or in part, by the Company (i) withholding from Shares to be issued pursuant to an Award a number of Shares having an aggregate Fair Market Value (as of the date the withholding is effected) that would satisfy the withholding amount due or (ii) causing its transfer agent to sell a number of Shares with an aggregate Fair Market Value (as of the date the withholding is effected) that would satisfy the withholding amount due and remitting the proceeds from such sale to the Company.

SECTION 11. SECTION 409A AWARDS

To the extent that any Award is determined to constitute "nonqualified deferred compensation" within the meaning of Section 409A (a "409A Award"), the Award shall be subject to such additional rules and requirements as may be specified by the Committee from time to time. In this regard, if any amount under a 409A Award is payable upon a "separation from service" (within the meaning of Section 409A) to a grantee who is considered a "specified employee" (within the meaning of Section 409A), then no such payment shall be made prior to the date that is the earlier of (i) six months and one day after the grantee's separation from service, or (ii) the grantee's death, but only to the extent such delay is necessary to prevent such payment from being subject to interest, penalties and/or additional tax imposed pursuant to Section 409A. The Company makes no representation or warranty and shall have no liability to any grantee under the Plan or any other Person with respect to any penalties or taxes under Section 409A that are, or may be, imposed with respect to any Award.

SECTION 12. AMENDMENTS AND TERMINATION

The Board may, at any time, amend or discontinue the Plan and the Committee may, at any time, amend or cancel any outstanding Award for the purpose of satisfying changes in law or for any other lawful purpose, but no such action shall adversely affect rights under any outstanding Award without the consent of the holder of the Award. The Committee may exercise its discretion to reduce the exercise price of outstanding Stock Options or effect repricing through cancellation of outstanding Stock Options and by granting such holders new Awards in replacement of the cancelled Stock Options. To the extent determined by the Committee to be required either by the Code to ensure that Incentive Stock Options granted under the Plan are qualified under Section 422 of the Code or otherwise, Plan amendments shall be subject to approval by the Company stockholders entitled to vote at a meeting of stockholders. Nothing in this Section 12 shall limit the Board's or Committee's authority to take any action permitted pursuant to Section 3(c). The Board reserves the right to amend the Plan and/or the terms of any outstanding Stock Options to the extent reasonably necessary to comply with the requirements of the exemption pursuant to paragraph (f)(4) of Rule 12h-1 of the Exchange Act.

SECTION 13. STATUS OF PLAN

With respect to the portion of any Award that has not been exercised and any payments in cash, Stock or other consideration not received by a grantee, a grantee shall have no rights greater than those of a general creditor of the Company unless the Committee shall otherwise expressly so determine in connection with any Award.

SECTION 14. GENERAL PROVISIONS

(a) No Distribution; Compliance with Legal Requirements. The Committee may require each person acquiring Shares pursuant to an Award to represent to and agree with the Company in writing that such person is acquiring the Shares without a view to distribution thereof. No Shares shall be issued pursuant to an Award until all applicable securities law and other legal and stock exchange or similar requirements have been satisfied. The Committee may require the placing of such stop-orders and restrictive legends on certificates for Stock and Awards as it deems appropriate.

(b) Delivery of Stock Certificates. Stock certificates to grantees under the Plan shall be deemed delivered for all purposes when the Company or a stock transfer agent of the Company shall have mailed such certificates in the United States mail, addressed to the grantee, at the grantee's last known address on file with the Company; provided that stock certificates to be held in escrow pursuant to Section 9 of the Plan shall be deemed delivered when the Company shall have recorded the issuance in its records. Uncertificated Stock shall be deemed delivered for all purposes when the Company or a stock transfer agent of the Company shall have given to the grantee by electronic mail (with proof of receipt) or by United States mail, addressed to the grantee, at the grantee's last known address on file with the Company, notice of issuance and recorded the issuance in its records (which may include electronic "book entry" records).

(c) No Employment Rights**.** The adoption of the Plan and the grant of Awards do not confer upon any Person any right to continued employment or Service Relationship with the Company or any Subsidiary.

(d) Trading Policy Restrictions. Option exercises and other Awards under the Plan shall be subject to the Company's insider trading policy-related restrictions, terms and conditions as may be established by the Committee, or in accordance with policies set by the Committee, from time to time.

(e) Designation of Beneficiary. Each grantee to whom an Award has been made under the Plan may designate a beneficiary or beneficiaries to exercise any Award on or after the grantee's death or receive any payment under any Award payable on or after the grantee's death. Any such designation shall be on a form provided for that purpose by the Committee and shall not be effective until received by the Committee. If no beneficiary has been designated by a deceased grantee, or if the designated beneficiaries have predeceased the grantee, the beneficiary shall be the grantee's estate.

(f) Legend. Any certificate(s) representing the Shares shall carry substantially the following legend (and with respect to uncertificated Stock, the book entries evidencing such shares shall contain the following notation):

> The transferability of this certificate and the shares of stock represented hereby are subject to the restrictions, terms and conditions (including repurchase and restrictions against transfers) contained in the Graphite Bio, Inc. 2020 Stock Option and Grant Plan and any agreements entered into thereunder by and between the company and the holder of this certificate (a copy of which is available at the offices of the company for examination).

(g) Information to Holders of Options. In the event the Company is relying on the exemption from the registration requirements of Section 12(g) of the Exchange Act contained in paragraph (f)(1) of Rule 12h-1 of the Exchange Act, the Company shall provide the information described in Rule 701(e)(3), (4) and (5) of the Securities Act to all holders of Options in accordance with the requirements thereunder. The foregoing notwithstanding, the Company shall not be required to provide such information unless the optionholder has agreed in writing, on a form prescribed by the Company, to keep such information confidential.

SECTION 15. EFFECTIVE DATE OF PLAN

The Plan shall become effective upon adoption by the Board and shall be approved by stockholders in accordance with applicable state law and the Company's certificate of incorporation and bylaws within 12 months thereafter. If the stockholders fail to approve the Plan within 12 months after its adoption by the Board of Directors, then any Awards granted or sold under the Plan shall be rescinded and no additional grants or sales shall thereafter be made under the Plan. Subject to such approval by stockholders and to the requirement that no Shares may be issued hereunder prior to such approval, Stock Options and other Awards may be granted hereunder on and after adoption of the Plan by the Board. No grants of Stock Options and other Awards may be made hereunder after the tenth anniversary of the date the Plan is adopted by the Board or the date the Plan is approved by the Company's stockholders, whichever is earlier.

SECTION 16. GOVERNING LAW

This Plan, all Awards and any controversy arising out of or relating to this Plan and all Awards shall be governed by and construed in accordance with the General Corporation Law of the State of Delaware as to matters within the scope thereof, and as to all other matters shall be governed by and construed in accordance with the internal laws of the State of California, without regard to conflict of law principles that would result in the application of any law other than the law of the State of California.

DATE ADOPTED BY THE BOARD OF DIRECTORS: March 24, 2020

DATE APPROVED BY THE STOCKHOLDERS: March 24, 2020

INCENTIVE STOCK OPTION GRANT NOTICE
UNDER THE GRAPHITE BIO, INC.
2020 STOCK OPTION AND GRANT PLAN

Pursuant to the Graphite Bio, Inc. 2020 Stock Option and Grant Plan (the "Plan"), Graphite Bio, Inc. (formerly known as Integral Medicines, Inc.), a Delaware corporation (together with any successor thereto, the "Company"), has granted to the individual named below, an option (the "Stock Option") to purchase on or prior to the Expiration Date, or such earlier date as is specified herein, all or any part of the number of shares of Common Stock, par value $0.00001 per share ("Common Stock"), of the Company indicated below (the "Shares"), at the Option Exercise Price per share, subject to the terms and conditions set forth in this Incentive Stock Option Grant Notice (the "Grant Notice"), the attached Incentive Stock Option Agreement (the "Agreement") and the Plan. This Stock Option is intended to qualify as an "incentive stock option" as defined in Section 422(b) of the Internal Revenue Code of 1986, as amended from time to time (the "Code"). To the extent that any portion of the Stock Option does not so qualify, it shall be deemed a non-qualified stock option.

Name of Optionee:	_____ (the "Optionee")
No. of Shares:	_____ Shares of Common Stock
Grant Date:	_____
Vesting Commencement Date:	_____ (the "Vesting Commencement Date")
Expiration Date:	_____ (the "Expiration Date")
Option Exercise Price/Share:	$_____ (the "Option Exercise Price")
Vesting Schedule:	[25% of the Shares shall vest and become exercisable on the first anniversary of the Vesting Commencement Date, provided that the Optionee continues to have a Service Relationship with the Company at such time. Thereafter, the remaining 75% of the Shares shall vest and become exercisable in 36 equal monthly installments following the first anniversary of the Vesting Commencement Date, provided the Optionee continues to have a Service Relationship with the Company on each vesting date.] Notwithstanding anything in the Agreement to the contrary, in the case of a Sale Event, this Stock Option and the Shares shall be treated as provided in Section 3(c) of the Plan.

Attachments: Incentive Stock Option Agreement, 2020 Stock Option and Grant Plan

INCENTIVE STOCK OPTION AGREEMENT
UNDER THE GRAPHITE BIO, INC.
2020 STOCK OPTION AND GRANT PLAN

All capitalized terms used herein and not otherwise defined shall have the respective meanings set forth in the Grant Notice and the Plan.

1. Vesting, Exercisability and Termination.

(a) No portion of this Stock Option may be exercised until such portion shall have vested and become exercisable.

(b) Except as set forth below, and subject to the determination of the Committee in its sole discretion to accelerate the vesting schedule hereunder, this Stock Option shall be vested and exercisable on the respective dates indicated below:

(i) This Stock Option shall initially be unvested and unexercisable.

(ii) This Stock Option shall vest and become exercisable in accordance with the Vesting Schedule set forth in the Grant Notice.

(c) Termination. Except as may otherwise be provided by the Committee, if the Optionee's Service Relationship is terminated, the period within which to exercise this Stock Option will be subject to earlier termination as set forth below (and if not exercised within such period, shall thereafter terminate subject, in each case, to Section 3(c) of the Plan):

(i) Termination Due to Death or Disability. If the Optionee's Service Relationship terminates by reason of such Optionee's death or Disability, this Stock Option may be exercised, to the extent exercisable on the date of such termination, by the Optionee, the Optionee's legal representative or legatee for a period of 12 months from the date of death or Disability or until the Expiration Date, if earlier.

(ii) Other Termination. If the Optionee's Service Relationship terminates for any reason other than death or Disability, and unless otherwise determined by the Committee, this Stock Option may be exercised, to the extent exercisable on the date of termination, for a period of three (3) months from the date of termination or until the Expiration Date, if earlier; provided however, if the Optionee's Service Relationship is terminated for Cause, this Stock Option shall terminate immediately upon the date of such termination.

For purposes hereof, the Committee's determination of the reason for termination of the Optionee's Service Relationship shall be conclusive and binding on the Optionee and his or her representatives or legatees. Any portion of this Stock Option that is not vested and exercisable on the date of termination of the Service Relationship shall terminate immediately and be null and void.

(d) It is understood and intended that this Stock Option is intended to qualify as an "incentive stock option" as defined in Section 422 of the Code to the extent permitted under applicable law. Accordingly, the Optionee understands that in order to obtain the benefits of an incentive stock option under Section 422 of the Code, no sale or other disposition may be made of Shares for which incentive stock option treatment is desired within the one-year period beginning on the day after the day of the transfer of such Shares to him or her, nor within thetwo-year period beginning on the day after Grant Date of this Stock Option and further that this Stock Option must be exercised within three months after termination of employment as an employee (or 12 months in the case of death or disability) to qualify as an incentive stock option. If the Optionee disposes (whether by sale, gift, transfer or otherwise) of any such Shares within either of these periods, he or she will notify the Company within 30 days after such disposition. The Optionee also agrees to provide the Company with any information concerning any such dispositions required by the Company for tax purposes. Further, to the extent this Stock Option and any other incentive stock options of the Optionee having an aggregate Fair Market Value in excess of $100,000 (determined as of the Grant Date) first become exercisable in any year, such options will not qualify as incentive stock options.

2. Exercise of Stock Option.

(a) The Optionee may exercise this Stock Option only in the following manner: Prior to the Expiration Date, the Optionee may deliver a Stock Option exercise notice (an "Exercise Notice") in the form of Appendix A hereto indicating his or her election to purchase some or all of the Shares with respect to which this Stock Option is then exercisable. Such notice shall specify the number of Shares to be purchased. Payment of the purchase price may be made by one or more of the methods described in Section 5 of the Plan, subject to the limitations contained in such Section of the Plan, including the requirement that the Committee specifically approve in advance certain payment methods.

(b) Notwithstanding any other provision hereof or of the Plan, no portion of this Stock Option shall be exercisable after the Expiration Date.

3. Incorporation of Plan. Notwithstanding anything herein to the contrary, this Stock Option shall be subject to and governed by all the terms and conditions of the Plan.

4. Transferability of Stock Option. This Stock Option is personal to the Optionee and is not transferable by the Optionee in any manner other than by will or by the laws of descent and distribution. The Stock Option may be exercised during the Optionee's lifetime only by the Optionee (or by the Optionee's guardian or personal representative in the event of the Optionee's incapacity). The Optionee may elect to designate a beneficiary by providing written notice of the name of such beneficiary to the Company, and may revoke or change such designation at any time by filing written notice of revocation or change with the Company; such beneficiary may exercise the Optionee's Stock Option in the event of the Optionee's death to the extent provided herein. If the Optionee does not designate a beneficiary, or if the designated beneficiary predeceases the Optionee, the legal representative of the Optionee may exercise this Stock Option to the extent provided herein in the event of the Optionee's death.

5. Restrictions on Transfer of Shares. The Shares acquired upon exercise of the Stock Option shall be subject to certain transfer restrictions and other limitations including, without limitation, the provisions contained in Section 9 of the Plan.

6. Miscellaneous Provisions.

(a) Equitable Relief. The parties hereto agree and declare that legal remedies may be inadequate to enforce the provisions of this Agreement and that equitable relief, including specific performance and injunctive relief, may be used to enforce the provisions of this Agreement.

(b) Adjustments for Changes in Capital Structure. If, as a result of any reorganization, recapitalization, reincorporation, reclassification, stock dividend, stock split, reverse stock split or other similar change in the Common Stock, the outstanding shares of Common Stock are increased or decreased or are exchanged for a different number or kind of securities of the Company, the restrictions contained in this Agreement shall apply with equal force to additional and/or substitute securities, if any, received by the Optionee in exchange for, or by virtue of his or her ownership of, this Stock Option or Shares acquired pursuant thereto.

(c) Change and Modifications. This Agreement may not be orally changed, modified or terminated, nor shall any oral waiver of any of its terms be effective. This Agreement may be changed, modified or terminated only by an agreement in writing signed by the Company and the Optionee.

(d) Governing Law. This Agreement shall be governed by and construed in accordance with the General Corporation Law of the State of Delaware as to matters within the scope thereof, and as to all other matters shall be governed by and construed in accordance with the internal laws of California, without regard to conflict of law principles that would result in the application of any law other than the law of the State of California.

(e) Headings. The headings are intended only for convenience in finding the subject matter and do not constitute part of the text of this Agreement and shall not be considered in the interpretation of this Agreement.

(f) Saving Clause. If any provision(s) of this Agreement shall be determined to be illegal or unenforceable, such determination shall in no manner affect the legality or enforceability of any other provision hereof.

(g) Notices. All notices, requests, consents and other communications shall be in writing and be deemed given when delivered personally, by telex or facsimile transmission or when received if mailed by first class registered or certified mail, postage prepaid. Notices to the Company or the Optionee shall be addressed as set forth underneath their signatures below, or to such other address or addresses as may have been furnished by such party in writing to the other.

(h) Benefit and Binding Effect. This Agreement shall be binding upon and shall inure to the benefit of the parties hereto, their respective successors, assigns, and legal representatives. The Company has the right to assign this Agreement, and such assignee shall become entitled to all the rights of the Company hereunder to the extent of such assignment.

(i) Counterparts. For the convenience of the parties and to facilitate execution, this Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same document.

(j) Integration. This Agreement constitutes the entire agreement between the parties with respect to this Stock Option and supersedes all prior agreements and discussions between the parties concerning such subject matter.

7. Dispute Resolution.

(a) Except as provided below, any dispute arising out of or relating to the Plan or this Stock Option, this Agreement, or the breach, termination or validity of the Plan, this Stock Option or this Agreement, shall be finally settled by binding arbitration conducted expeditiously in accordance with the J.A.M.S./Endispute Comprehensive Arbitration Rules and Procedures (the "J.A.M.S. Rules"). The arbitration shall be governed by the United States Arbitration Act, 9 U.S.C. Sections 1-16, and judgment upon the award rendered by the arbitrators may be entered by any court having jurisdiction thereof. The place of arbitration shall be San Mateo County, California.

(b) The arbitration shall commence within 60 days of the date on which a written demand for arbitration is filed by any party hereto. In connection with the arbitration proceeding, the arbitrator shall have the power to order the production of documents by each party and any third-party witnesses. In addition, each party may take up to three depositions as of right, and the arbitrator may in his or her discretion allow additional depositions upon good cause shown by the moving party. However, the arbitrator shall not have the power to order the answering of interrogatories or the response to requests for admission. In connection with any arbitration, each party to the arbitration shall provide to the other, no later than seven business days before the date of the arbitration, the identity of all persons that may testify at the arbitration and a copy of all documents that may be introduced at the arbitration or considered or used by a party's witness or expert. The arbitrator's decision and award shall be made and delivered within six months of the selection of the arbitrator. The arbitrator's decision shall set forth a reasoned basis for any award of damages or finding of liability. The arbitrator shall not have power to award damages in excess of actual compensatory damages and shall not multiply actual damages or award punitive damages, and each party hereby irrevocably waives any claim to such damages.

(c) The Company, the Optionee, each party to the Agreement and any other holder of Shares issued pursuant to this Agreement (each, a "Party") covenants and agrees that such party will participate in the arbitration in good faith. This Section 7 applies equally to requests for temporary, preliminary or permanent injunctive relief, except that in the case of temporary or preliminary injunctive relief any party may proceed in court without prior arbitration for the limited purpose of avoiding immediate and irreparable harm.

(d) Each Party (i) hereby irrevocably submits to the jurisdiction of any United States District Court of competent jurisdiction for the purpose of enforcing the award or decision in any such proceeding, (ii) hereby waives, and agrees not to assert, by way of motion, as a defense, or otherwise, in any such suit, action or proceeding, any claim that it is not subject personally to the jurisdiction of the above named courts, that its property is exempt or immune from attachment or execution (except as protected by applicable law), that the suit, action or proceeding is brought in an inconvenient forum, that the venue of the suit, action or proceeding is improper or that this Agreement or the subject matter hereof may not be enforced in or by such court, and (iii) hereby waives and agrees not to seek any review by any court of any other jurisdiction which may be called upon to grant an enforcement of the judgment of any such court. Each Party hereby consents to service of process by registered mail at the address to which notices are to be given. Each Party agrees that its, his or her submission to jurisdiction and its, his or her consent to service of process by mail is made for the express benefit of each other Party. Final judgment against any Party in any such action, suit or proceeding may be enforced in other jurisdictions by suit, action or proceeding on the judgment, or in any other manner provided by or pursuant to the laws of such other jurisdiction.

8. Waiver of Statutory Information Rights. The Optionee understands and agrees that, but for the waiver made herein, the Optionee would be entitled, upon written demand under oath stating the purpose thereof, to inspect for any proper purpose, and to make copies and extracts from, the Company's stock ledger, a list of its stockholders, and its other books and records, and the books and records of subsidiaries of the Company, if any, under the circumstances and in the manner provided in Section 220 of the General Corporation Law of Delaware (any and all such rights, and any and all such other rights of the Optionee as may be provided for in Section 220, the "Inspection Rights"). In light of the foregoing, until the first sale of Stock of the Company to the general public pursuant to a registration statement filed with and declared effective by the Securities and Exchange Commission under the Securities Act, the Optionee hereby unconditionally and irrevocably waives the Inspection Rights, whether such Inspection Rights would be exercised or pursued directly or indirectly pursuant to Section 220 or otherwise, and covenants and agrees never to directly or indirectly commence, voluntarily aid in any way, prosecute, assign, transfer, or cause to be commenced any claim, action, cause of action, or other proceeding to pursue or exercise the Inspection Rights. The foregoing waiver shall not affect any rights of a director, in his or her capacity as such, under Section 220. The foregoing waiver shall not apply to any contractual inspection rights of the Optionee under any other written agreement between the Optionee and the Company.

[SIGNATURE PAGE FOLLOWS]

The foregoing Agreement is hereby accepted and the terms and conditions thereof hereby agreed to by the undersigned as of the date first above written.

Graphite Bio, Inc.

By: _____

Name:
Title:

Address:

_____

_____

The undersigned hereby acknowledges receiving and reviewing a copy of the Plan, including, without limitation, Section 9 thereof, and understands that this Stock Option is subject to the terms of the Plan and of this Agreement. This Agreement is hereby accepted, and the terms and conditions of the Plan, the Grant Notice and this Agreement, SPECIFICALLY INCLUDING THE ARBITRATION PROVISIONS SET FORTH IN SECTION 7 AND THE WAIVER OF STATUTORY INFORMATION RIGHTS SET FORTH IN SECTION 8 OF THIS AGREEMENT, are hereby agreed to, by the undersigned as of the date first above written.

OPTIONEE:

_____

Name:

Address:

_____

_____

SPOUSE'S CONSENT

I acknowledge that I have read the
foregoing Incentive Stock Option Agreement
and understand the contents thereof.

_____

DESIGNATED BENEFICIARY:

_____

Beneficiary's Address:

_____

_____

_____

Appendix A

STOCK OPTION EXERCISE NOTICE

Graphite Bio, Inc.
Attention: President

_____
_____

Pursuant to the terms of the grant notice and stock option agreement between the undersigned and Graphite Bio, Inc. (the "Company") dated _____ (the "Agreement") under the Graphite Bio, Inc. 2020 Stock Option and Grant Plan (the "Plan"), I, [Insert Name] _____, hereby [Circle One] partially/fully exercise such option by including herein payment in the amount of $_____ representing the purchase price for [Fill in number of Shares] _____ Shares. I have chosen the following form(s) of payment:

[ ] 1. Cash
[ ] 2. Certified or bank check payable to Graphite Bio, Inc.
[ ] 3. Other (as referenced in the Agreement and described in the Plan (please describe))
_____.

In connection with my exercise of the option as set forth above, I hereby represent and warrant to the Company as follows:

(i) I am purchasing the Shares for my own account for investment only, and not for resale or with a view to the distribution thereof.

(ii) I have had such an opportunity as I have deemed adequate to obtain from the Company such information as is necessary to permit me to evaluate the merits and risks of my investment in the Company and have consulted with my own advisers with respect to my investment in the Company.

(iii) I have sufficient experience in business, financial and investment matters to be able to evaluate the risks involved in the purchase of the Shares and to make an informed investment decision with respect to such purchase.

(iv) I can afford a complete loss of the value of the Shares and am able to bear the economic risk of holding such Shares for an indefinite period of time.

(v) I understand that the Shares may not be registered under the Securities Act of 1933 (it being understood that the Shares are being issued and sold in reliance on the exemption provided in Rule 701 thereunder) or any applicable state securities or "blue sky" laws and may not be sold or otherwise transferred or disposed of in the absence of an effective registration statement under the Securities Act of 1933 and

under any applicable state securities or "blue sky" laws (or exemptions from the registration requirement thereof). I further acknowledge that certificates representing Shares will bear restrictive legends reflecting the foregoing and/or that book entries for uncertificated Shares will include similar restrictive notations.

(vi) I have read and understand the Plan and acknowledge and agree that the Shares are subject to all of the relevant terms of the Plan, including without limitation, the transfer restrictions set forth in Section 9 of the Plan.

(vii) I understand and agree that the Company has a right of first refusal with respect to the Shares pursuant to Section 9(b) of the Plan.

(viii) I understand and agree that the Company has certain repurchase rights with respect to the Shares pursuant to Section 9(c) of the Plan.

(ix) I understand and agree that I may not sell or otherwise transfer or dispose of the Shares for a period of time following the effective date of a public offering by the Company as described in Section 9(f) of the Plan.

(x) I understand and agree to the waiver of statutory information rights as set forth in Section 8 of the Agreement.

Sincerely yours,

_____

Name:

Address:

_____

_____

_____

Date: _____

NON-QUALIFIED STOCK OPTION GRANT NOTICE
UNDER THE GRAPHITE BIO, INC.
2020 STOCK OPTION AND GRANT PLAN

Pursuant to the Graphite Bio, Inc. 2020 Stock Option and Grant Plan (the "Plan"), Graphite Bio, Inc. (formerly known as Integral Medicines, Inc.), a Delaware corporation (together with any successor, the "Company"), has granted to the individual named below, an option (the "Stock Option") to purchase on or prior to the Expiration Date, or such earlier date as is specified herein, all or any part of the number of shares of Common Stock, par value $0.00001 per share ("Common Stock"), of the Company indicated below (the "Shares"), at the Option Exercise Price per share, subject to the terms and conditions set forth in this Non-Qualified Stock Option Grant Notice (the "Grant Notice"), the attached Non-Qualified Stock Option Agreement (the "Agreement") and the Plan. This Stock Option is not intended to qualify as an "incentive stock option" as defined in Section 422(b) of the Internal Revenue Code of 1986, as amended from time to time (the "Code").

Name of Optionee:	_____ (the "Optionee")
No. of Shares:	_____ Shares of Common Stock
Grant Date:	_____
Vesting Commencement Date:	_____ (the "Vesting Commencement Date")
Expiration Date:	_____ (the "Expiration Date")
Option Exercise Price/Share:	$_____ (the "Option Exercise Price")
Vesting Schedule:	[25% of the Shares shall vest and become exercisable on the first anniversary of the Vesting Commencement Date, provided that the Optionee continues to have a Service Relationship with the Company at such time. Thereafter, the remaining 75% of the Shares shall vest and become exercisable in 36 equal monthly installments following the first anniversary of the Vesting Commencement Date, provided the Optionee continues to have a Service Relationship with the Company on each vesting date.] Notwithstanding anything in the Agreement to the contrary, in the case of a Sale Event, this Stock Option and the Shares shall be treated as provided in Section 3(c) of the Plan.

Attachments: Non-Qualified Stock Option Agreement, 2020 Stock Option and Grant Plan

NON-QUALIFIED STOCK OPTION AGREEMENT
UNDER THE GRAPHITE BIO, INC.
2020 STOCK OPTION AND GRANT PLAN

All capitalized terms used herein and not otherwise defined shall have the respective meanings set forth in the Grant Notice and the Plan.

1. Vesting, Exercisability and Termination.

(a) No portion of this Stock Option may be exercised until such portion shall have vested and become exercisable.

(b) Except as set forth below, and subject to the determination of the Committee in its sole discretion to accelerate the vesting schedule hereunder, this Stock Option shall be vested and exercisable on the respective dates indicated below:

(i) This Stock Option shall initially be unvested and unexercisable.

(ii) This Stock Option shall vest and become exercisable in accordance with the Vesting Schedule set forth in the Grant Notice.

(c) Termination. Except as may otherwise be provided by the Committee, if the Optionee's Service Relationship is terminated, the period within which to exercise this Stock Option will be subject to earlier termination as set forth below (and if not exercised within such period, shall thereafter terminate subject, in each case, to Section 3(c) of the Plan):

(i) Termination Due to Death or Disability. If the Optionee's Service Relationship terminates by reason of such Optionee's death or Disability, this Stock Option may be exercised, to the extent exercisable on the date of such termination, by the Optionee, the Optionee's legal representative or legatee for a period of 12 months from the date of death or Disability or until the Expiration Date, if earlier.

(ii) Other Termination. If the Optionee's Service Relationship terminates for any reason other than death or Disability, and unless otherwise determined by the Committee, this Stock Option may be exercised, to the extent exercisable on the date of termination, for a period of three (3) months from the date of termination or until the Expiration Date, if earlier; provided however, if the Optionee's Service Relationship is terminated for Cause, this Stock Option shall terminate immediately upon the date of such termination.

For purposes hereof, the Committee's determination of the reason for termination of the Optionee's Service Relationship shall be conclusive and binding on the Optionee and his or her representatives or legatees and any Permitted Transferee. Any portion of this Stock Option that is not vested and exercisable on the date of termination of the Service Relationship shall terminate immediately and be null and void.

2. Exercise of Stock Option.

(a) The Optionee may exercise this Stock Option only in the following manner: Prior to the Expiration Date, the Optionee may deliver a Stock Option exercise notice (an "Exercise Notice") in the form of Appendix A hereto indicating his or her election to purchase some or all of the Shares with respect to which this Stock Option is then exercisable. Such notice shall specify the number of Shares to be purchased. Payment of the purchase price may be made by one or more of the methods described in Section 5 of the Plan, subject to the limitations contained in such Section of the Plan, including the requirement that the Committee specifically approve in advance certain payment methods.

(b) Notwithstanding any other provision hereof or of the Plan, no portion of this Stock Option shall be exercisable after the Expiration Date.

3. Incorporation of Plan. Notwithstanding anything herein to the contrary, this Stock Option shall be subject to and governed by all the terms and conditions of the Plan.

4. Transferability of Stock Option. This Stock Option is personal to the Optionee and is not transferable by the Optionee in any manner other than by will or by the laws of descent and distribution. The Stock Option may be exercised during the Optionee's lifetime only by the Optionee (or by the Optionee's guardian or personal representative in the event of the Optionee's incapacity). The Optionee may elect to designate a beneficiary by providing written notice of the name of such beneficiary to the Company, and may revoke or change such designation at any time by filing written notice of revocation or change with the Company; such beneficiary may exercise the Optionee's Stock Option in the event of the Optionee's death to the extent provided herein. If the Optionee does not designate a beneficiary, or if the designated beneficiary predeceases the Optionee, the legal representative of the Optionee may exercise this Stock Option to the extent provided herein in the event of the Optionee's death.

5. Restrictions on Transfer of Shares. The Shares acquired upon exercise of the Stock Option shall be subject to certain transfer restrictions and other limitations including, without limitation, the provisions contained in Section 9 of the Plan.

6. Miscellaneous Provisions.

(a) Equitable Relief. The parties hereto agree and declare that legal remedies may be inadequate to enforce the provisions of this Agreement and that equitable relief, including specific performance and injunctive relief, may be used to enforce the provisions of this Agreement.

(b) Adjustments for Changes in Capital Structure. If, as a result of any reorganization, recapitalization, reincorporation, reclassification, stock dividend, stock split, reverse stock split or other similar change in the Common Stock, the outstanding shares of Common Stock are increased or decreased or are exchanged for a different number or kind of securities of the Company, the restrictions contained in this Agreement shall apply with equal force to additional and/or substitute securities, if any, received by the Optionee in exchange for, or by virtue of his or her ownership of, this Stock Option or Shares acquired pursuant thereto.

(c) Change and Modifications. This Agreement may not be orally changed, modified or terminated, nor shall any oral waiver of any of its terms be effective. This Agreement may be changed, modified or terminated only by an agreement in writing signed by the Company and the Optionee.

(d) Governing Law. This Agreement shall be governed by and construed in accordance with the General Corporation Law of the State of Delaware as to matters within the scope thereof, and as to all other matters shall be governed by and construed in accordance with the internal laws of California, without regard to conflict of law principles that would result in the application of any law other than the law of the State of California.

(e) Headings. The headings are intended only for convenience in finding the subject matter and do not constitute part of the text of this Agreement and shall not be considered in the interpretation of this Agreement.

(f) Saving Clause. If any provision(s) of this Agreement shall be determined to be illegal or unenforceable, such determination shall in no manner affect the legality or enforceability of any other provision hereof.

(g) Notices. All notices, requests, consents and other communications shall be in writing and be deemed given when delivered personally, by telex or facsimile transmission or when received if mailed by first class registered or certified mail, postage prepaid. Notices to the Company or the Optionee shall be addressed as set forth underneath their signatures below, or to such other address or addresses as may have been furnished by such party in writing to the other.

(h) Benefit and Binding Effect. This Agreement shall be binding upon and shall inure to the benefit of the parties hereto, their respective successors, assigns, and legal representatives. The Company has the right to assign this Agreement, and such assignee shall become entitled to all the rights of the Company hereunder to the extent of such assignment.

(i) Counterparts. For the convenience of the parties and to facilitate execution, this Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same document.

(j) Integration. This Agreement constitutes the entire agreement between the parties with respect to this Stock Option and supersedes all prior agreements and discussions between the parties concerning such subject matter.

7. Dispute Resolution.

(a) Except as provided below, any dispute arising out of or relating to the Plan or this Stock Option, this Agreement, or the breach, termination or validity of the Plan, this Stock Option or this Agreement, shall be finally settled by binding arbitration conducted expeditiously in accordance with the J.A.M.S./Endispute Comprehensive Arbitration Rules and Procedures (the "J.A.M.S. Rules"). The arbitration shall be governed by the United States Arbitration Act, 9 U.S.C. Sections 1-16, and judgment upon the award rendered by the arbitrators may be entered by any court having jurisdiction thereof. The place of arbitration shall be San Mateo County, California.

(b) The arbitration shall commence within 60 days of the date on which a written demand for arbitration is filed by any party hereto. In connection with the arbitration proceeding, the arbitrator shall have the power to order the production of documents by each party and any third-party witnesses. In addition, each party may take up to three depositions as of right, and the arbitrator may in his or her discretion allow additional depositions upon good cause shown by the moving party. However, the arbitrator shall not have the power to order the answering of interrogatories or the response to requests for admission. In connection with any arbitration, each party to the arbitration shall provide to the other, no later than seven business days before the date of the arbitration, the identity of all persons that may testify at the arbitration and a copy of all documents that may be introduced at the arbitration or considered or used by a party's witness or expert. The arbitrator's decision and award shall be made and delivered within six months of the selection of the arbitrator. The arbitrator's decision shall set forth a reasoned basis for any award of damages or finding of liability. The arbitrator shall not have power to award damages in excess of actual compensatory damages and shall not multiply actual damages or award punitive damages, and each party hereby irrevocably waives any claim to such damages.

(c) The Company, the Optionee, each party to the Agreement and any other holder of Shares issued pursuant to this Agreement (each, a "Party") covenants and agrees that such party will participate in the arbitration in good faith. This Section 7 applies equally to requests for temporary, preliminary or permanent injunctive relief, except that in the case of temporary or preliminary injunctive relief any party may proceed in court without prior arbitration for the limited purpose of avoiding immediate and irreparable harm.

(d) Each Party (i) hereby irrevocably submits to the jurisdiction of any United States District Court of competent jurisdiction for the purpose of enforcing the award or decision in any such proceeding, (ii) hereby waives, and agrees not to assert, by way of motion, as a defense, or otherwise, in any such suit, action or proceeding, any claim that it is not subject personally to the jurisdiction of the above named courts, that its property is exempt or immune from attachment or execution (except as protected by applicable law), that the suit, action or proceeding is brought in an inconvenient forum, that the venue of the suit, action or proceeding is improper or that this Agreement or the subject matter hereof may not be enforced in or by such court, and (iii) hereby waives and agrees not to seek any review by any court of any other jurisdiction which may be called upon to grant an enforcement of the judgment of any such court. Each Party hereby consents to service of process by registered mail at the address to which notices are to be given. Each Party agrees that its, his or her submission to jurisdiction and its, his or her consent to service of process by mail is made for the express benefit of each other Party. Final judgment against any Party in any such action, suit or proceeding may be enforced in other jurisdictions by suit, action or proceeding on the judgment, or in any other manner provided by or pursuant to the laws of such other jurisdiction.

8. Waiver of Statutory Information Rights. The Optionee understands and agrees that, but for the waiver made herein, the Optionee would be entitled, upon written demand under oath stating the purpose thereof, to inspect for any proper purpose, and to make copies and extracts from, the Company's stock ledger, a list of its stockholders, and its other books and records, and the books and records of subsidiaries of the Company, if any, under the circumstances and in the manner provided in Section 220 of the General Corporation Law of Delaware (any and all such rights, and any and all such other rights of the Optionee as may be provided for in Section 220, the "Inspection Rights"). In light of the foregoing, until the first sale of Stock of the Company to the general public pursuant to a registration statement filed with and declared effective by the Securities and Exchange Commission under the Securities Act, the Optionee hereby unconditionally and irrevocably waives the Inspection Rights, whether such Inspection Rights would be exercised or pursued directly or indirectly pursuant to Section 220 or otherwise, and covenants and agrees never to directly or indirectly commence, voluntarily aid in any way, prosecute, assign, transfer, or cause to be commenced any claim, action, cause of action, or other proceeding to pursue or exercise the Inspection Rights. The foregoing waiver shall not affect any rights of a director, in his or her capacity as such, under Section 220. The foregoing waiver shall not apply to any contractual inspection rights of the Optionee under any other written agreement between the Optionee and the Company.

[SIGNATURE PAGE FOLLOWS]

The foregoing Agreement is hereby accepted and the terms and conditions thereof hereby agreed to by the undersigned as of the date first above written.

Graphite Bio, Inc.

By: _____
Name:
Title:

Address:

_____

_____

The undersigned hereby acknowledges receiving and reviewing a copy of the Plan, including, without limitation, Section 9 thereof, and understands that this Stock Option is subject to the terms of the Plan and of this Agreement. This Agreement is hereby accepted, and the terms and conditions of the Plan, the Grant Notice and this Agreement, SPECIFICALLY INCLUDING THE ARBITRATION PROVISIONS SET FORTH IN SECTION 7 AND THE WAIVER OF STATUTORY INFORMATION RIGHTS SET FORTH IN SECTION 8 OF THIS AGREEMENT, are hereby agreed to, by the undersigned as of the date first above written.

OPTIONEE:

_____
Name:

Address:

_____

_____

_____

SPOUSE'S CONSENT

I acknowledge that I have read the foregoing Non-Qualified Stock Option Agreement and understand the contents thereof.

_____

DESIGNATED BENEFICIARY:

_____

Beneficiary's Address:

_____

_____

_____

Appendix A

STOCK OPTION EXERCISE NOTICE

Graphite Bio, Inc.
Attention: President

_____

_____

Pursuant to the terms of the grant notice and stock option agreement between the undersigned and Graphite Bio, Inc. (the "Company") dated _____ (the "Agreement") under the Graphite Bio, Inc. 2020 Stock Option and Grant Plan (the "Plan"), I, [Insert Name] _____, hereby [Circle One] partially/fully exercise such option by including herein payment in the amount of $_____ representing the purchase price for [Fill in number of Shares] _____ Shares. I have chosen the following form(s) of payment:

[ ] 1. Cash
[ ] 2. Certified or bank check payable to Graphite Bio, Inc.
[ ] 3. Other (as referenced in the Agreement and described in the Plan (please describe))
_____.

In connection with my exercise of the option as set forth above, I hereby represent and warrant to the Company as follows:

(i) I am purchasing the Shares for my own account for investment only, and not for resale or with a view to the distribution thereof.

(ii) I have had such an opportunity as I have deemed adequate to obtain from the Company such information as is necessary to permit me to evaluate the merits and risks of my investment in the Company and have consulted with my own advisers with respect to my investment in the Company.

(iii) I have sufficient experience in business, financial and investment matters to be able to evaluate the risks involved in the purchase of the Shares and to make an informed investment decision with respect to such purchase.

(iv) I can afford a complete loss of the value of the Shares and am able to bear the economic risk of holding such Shares for an indefinite period of time.

(v) I understand that the Shares may not be registered under the Securities Act of 1933 (it being understood that the Shares are being issued and sold in reliance on the exemption provided in Rule 701 thereunder) or any applicable state securities or "blue sky" laws and may not be sold or otherwise transferred or disposed of in the absence of an effective registration statement under the Securities Act of 1933 and

under any applicable state securities or "blue sky" laws (or exemptions from the registration requirement thereof). I further acknowledge that certificates representing Shares will bear restrictive legends reflecting the foregoing and/or that book entries for uncertificated Shares will include similar restrictive notations.

(vi) I have read and understand the Plan and acknowledge and agree that the Shares are subject to all of the relevant terms of the Plan, including without limitation, the transfer restrictions set forth in Section 9 of the Plan.

(vii) I understand and agree that the Company has a right of first refusal with respect to the Shares pursuant to Section 9(b) of the Plan.

(viii) I understand and agree that the Company has certain repurchase rights with respect to the Shares pursuant to Section 9(c) of the Plan.

(ix) I understand and agree that I may not sell or otherwise transfer or dispose of the Shares for a period of time following the effective date of a public offering by the Company as described in Section 9(f) of the Plan.

(x) I understand and agree to the waiver of statutory information rights as set forth in Section 8 of the Agreement.

Sincerely yours,

_____

Name:

Address:

_____

_____

_____

Date: _____

EARLY EXERCISE
NON-QUALIFIED STOCK OPTION GRANT NOTICE
UNDER THE GRAPHITE BIO, INC.
2020 STOCK OPTION AND GRANT PLAN

Pursuant to the Graphite Bio, Inc. 2020 Stock Option and Grant Plan (the "Plan"), Graphite Bio, Inc. (formerly known as Integral Medicines, Inc.), a Delaware corporation (together with any successor thereto, the "Company"), has granted to the individual named below, an option (the "Stock Option") to purchase on or prior to the Expiration Date, or such earlier date as is specified herein, all or any part of the number of shares of Common Stock, par value $0.00001 per share ("Common Stock"), of the Company indicated below (the "Shares"), at the Option Exercise Price per share, subject to the terms and conditions set forth in this Early Exercise Non-Qualified Stock Option Grant Notice (the "Grant Notice"), the attached Early ExerciseNon-Qualified Stock Option Agreement (the "Agreement") and the Plan. This Stock Option is not intended to qualify as an "incentive stock option" as defined in Section 422(b) of the Internal Revenue Code of 1986, as amended from time to time (the "Code").

Name of Optionee:	_____ (the "Optionee")
No. of Shares:	_____ Shares of Common Stock
Grant Date:	_____
Vesting Commencement Date:	_____ (the "Vesting Commencement Date")
Expiration Date:	_____ (the "Expiration Date")
Option Exercise Price/Share:	$_____ (the "Option Exercise Price")
Vesting Schedule:	[25% of the Shares shall vest on the first anniversary of the Vesting Commencement Date; provided that the Optionee continues to have a Service Relationship with the Company at such time. Thereafter, the remaining 75% of the Shares shall vest in 36 equal monthly installments following the first anniversary of the Vesting Commencement Date, provided the Optionee continues to have a Service Relationship with the Company on each vesting date.] Notwithstanding anything in the Agreement to the contrary, in the case of a Sale Event, this Stock Option and the Shares shall be treated as provided in Section 3(c) of the Plan.

Attachments: Early Exercise Non-Qualified Stock Option Agreement, Restricted Stock Agreement, 2020 Stock Option and Grant Plan

EARLY EXERCISE

NON-QUALIFIED STOCK OPTION AGREEMENT
UNDER THE GRAPHITE BIO, INC.
2020 STOCK OPTION AND GRANT PLAN

All capitalized terms used herein and not otherwise defined shall have the respective meanings set forth in the Grant Notice and the Plan.

1. Vesting, Exercisability and Termination.

(a) This Stock Option shall be immediately exercisable, regardless of whether the Shares are vested.

(b) Except as set forth below, and subject to the determination of the Committee in its sole discretion to accelerate the vesting schedule hereunder, the Shares shall be vested on the respective dates indicated below:

(i) All Shares shall initially be unvested.

(ii) The Shares shall vest in accordance with the Vesting Schedule set forth in the Grant Notice.

(c) Termination. Except as may otherwise be provided by the Committee, if the Optionee's Service Relationship is terminated, the period within which to exercise this Stock Option will be subject to earlier termination as set forth below (and if not exercised within such period, shall thereafter terminate subject, in each case, to Section 3(c) of the Plan):

(i) Termination Due to Death or Disability. If the Optionee's Service Relationship terminates by reason of such Optionee's death or Disability, this Stock Option may continue to be exercised, to the extent the Shares are vested on the date of termination, by the Optionee, the Optionee's legal representative or legatee for a period of 12 months from the date of death or Disability or until the Expiration Date, if earlier.

(ii) Other Termination. If the Optionee's Service Relationship terminates for any reason other than death or Disability, and unless otherwise determined by the Committee, this Stock Option may continue to be exercised, to the extent the Shares are vested on the date of termination, for a period of three (3) months from the date of termination or until the Expiration Date, if earlier; provided however, if the Optionee's Service Relationship is terminated for Cause, this Stock Option shall terminate immediately upon the date of such termination.

For purposes hereof, the Committee's determination of the reason for termination of the Optionee's Service Relationship shall be conclusive and binding on the Optionee and his or her representatives or legatees and any Permitted Transferee. Any portion of this Stock Option with respect to Shares that are not vested and exercisable on the date of termination of the Service Relationship shall terminate immediately and be null and void.

2. Exercise of Stock Option.

(a) The Optionee may exercise this Stock Option only in the following manner: Prior to the Expiration Date, the Optionee may deliver a Stock Option exercise notice (an "Exercise Notice") in the form of Appendix A hereto indicating his or her election to purchase some or all of the Shares. Such notice shall specify the number of Shares to be purchased. To the extent this Stock Option is only partially exercised, such exercise shall first be with respect to the Shares, if any, that have previously vested, and then with respect to the Shares that will next vest, with the Shares that vest at the latest date being exercised last. Payment of the purchase price may be made by one or more of the methods described in Section 5 of the Plan, subject to the limitations contained in such Section of the Plan, including the requirement that the Committee specifically approve in advance certain payment methods.

(b) In the event the Optionee exercises a portion of this Stock Option with respect to Shares that have not vested, the Optionee shall also deliver a Restricted Stock Agreement covering such unvested Shares in the form of Appendix B hereto (the "Restricted Stock Agreement") with the same vesting schedule for such Shares as set forth for such Shares herein.

(c) Notwithstanding any other provision hereof or of the Plan, no portion of this Stock Option shall be exercisable after the Expiration Date.

3. Incorporation of Plan. Notwithstanding anything herein to the contrary, this Stock Option shall be subject to and governed by all the terms and conditions of the Plan.

4. Transferability of Stock Option. This Stock Option is personal to the Optionee and is not transferable by the Optionee in any manner other than by will or by the laws of descent and distribution. The Stock Option may be exercised during the Optionee's lifetime only by the Optionee (or by the Optionee's guardian or personal representative in the event of the Optionee's incapacity). The Optionee may elect to designate a beneficiary by providing written notice of the name of such beneficiary to the Company, and may revoke or change such designation at any time by filing written notice of revocation or change with the Company; such beneficiary may exercise the Optionee's Stock Option in the event of the Optionee's death to the extent provided herein. If the Optionee does not designate a beneficiary, or if the designated beneficiary predeceases the Optionee, the legal representative of the Optionee may exercise this Stock Option to the extent provided herein in the event of the Optionee's death.

5. Restrictions on Transfer of Shares. The Shares acquired upon exercise of the Stock Option shall be subject to certain transfer restrictions and other limitations including, without limitation, the provisions contained in Section 9 of the Plan and, if applicable, the Restricted Stock Agreement.

6. Miscellaneous Provisions.

(a) Equitable Relief. The parties hereto agree and declare that legal remedies may be inadequate to enforce the provisions of this Agreement and that equitable relief, including specific performance and injunctive relief, may be used to enforce the provisions of this Agreement.

(b) Adjustments for Changes in Capital Structure. If, as a result of any reorganization, recapitalization, reincorporation, reclassification, stock dividend, stock split, reverse stock split or other similar change in the Common Stock, the outstanding shares of Common Stock are increased or decreased or are exchanged for a different number or kind of securities of the Company, the restrictions contained in this Agreement shall apply with equal force to additional and/or substitute securities, if any, received by the Optionee in exchange for, or by virtue of his or her ownership of, this Stock Option or Shares acquired pursuant thereto.

(c) Change and Modifications. This Agreement may not be orally changed, modified or terminated, nor shall any oral waiver of any of its terms be effective. This Agreement may be changed, modified or terminated only by an agreement in writing signed by the Company and the Optionee.

(d) Governing Law. This Agreement shall be governed by and construed in accordance with the General Corporation Law of the State of Delaware as to matters within the scope thereof, and as to all other matters shall be governed by and construed in accordance with the internal laws of California, without regard to conflict of law principles that would result in the application of any law other than the law of the State of California.

(e) Headings. The headings are intended only for convenience in finding the subject matter and do not constitute part of the text of this Agreement and shall not be considered in the interpretation of this Agreement.

(f) Saving Clause. If any provision(s) of this Agreement shall be determined to be illegal or unenforceable, such determination shall in no manner affect the legality or enforceability of any other provision hereof.

(g) Notices. All notices, requests, consents and other communications shall be in writing and be deemed given when delivered personally, by telex or facsimile transmission or when received if mailed by first class registered or certified mail, postage prepaid. Notices to the Company or the Optionee shall be addressed as set forth underneath their signatures below, or to such other address or addresses as may have been furnished by such party in writing to the other.

(h) Benefit and Binding Effect. This Agreement shall be binding upon and shall inure to the benefit of the parties hereto, their respective successors, assigns, and legal representatives. The Company has the right to assign this Agreement, and such assignee shall become entitled to all the rights of the Company hereunder to the extent of such assignment.

(i) Counterparts. For the convenience of the parties and to facilitate execution, this Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same document.

(j) Integration. This Agreement constitutes the entire agreement between the parties with respect to this Stock Option and supersedes all prior agreements and discussions between the parties concerning such subject matter.

7. Dispute Resolution.

(a) Except as provided below, any dispute arising out of or relating to the Plan or this Stock Option, this Agreement, or the breach, termination or validity of the Plan, this Stock Option or this Agreement, shall be finally settled by binding arbitration conducted expeditiously in accordance with the J.A.M.S./Endispute Comprehensive Arbitration Rules and Procedures (the "J.A.M.S. Rules"). The arbitration shall be governed by the United States Arbitration Act, 9 U.S.C. Sections 1-16, and judgment upon the award rendered by the arbitrators may be entered by any court having jurisdiction thereof. The place of arbitration shall be San Mateo County, California.

(b) The arbitration shall commence within 60 days of the date on which a written demand for arbitration is filed by any party hereto. In connection with the arbitration proceeding, the arbitrator shall have the power to order the production of documents by each party and any third-party witnesses. In addition, each party may take up to three depositions as of right, and the arbitrator may in his or her discretion allow additional depositions upon good cause shown by the moving party. However, the arbitrator shall not have the power to order the answering of interrogatories or the response to requests for admission. In connection with any arbitration, each party to the arbitration shall provide to the other, no later than seven business days before the date of the arbitration, the identity of all persons that may testify at the arbitration and a copy of all documents that may be introduced at the arbitration or considered or used by a party's witness or expert. The arbitrator's decision and award shall be made and delivered within six months of the selection of the arbitrator. The arbitrator's decision shall set forth a reasoned basis for any award of damages or finding of liability. The arbitrator shall not have power to award damages in excess of actual compensatory damages and shall not multiply actual damages or award punitive damages, and each party hereby irrevocably waives any claim to such damages.

(c) The Company, the Optionee, each party to the Agreement and any other holder of Shares issued pursuant to this Agreement (each, a "Party") covenants and agrees that such party will participate in the arbitration in good faith. This Section 7 applies equally to requests for temporary, preliminary or permanent injunctive relief, except that in the case of temporary or preliminary injunctive relief any party may proceed in court without prior arbitration for the limited purpose of avoiding immediate and irreparable harm.

(d) Each Party (i) hereby irrevocably submits to the jurisdiction of any United States District Court of competent jurisdiction for the purpose of enforcing the award or decision in any such proceeding, (ii) hereby waives, and agrees not to assert, by way of motion, as a defense, or otherwise, in any such suit, action or proceeding, any claim that it is not subject

personally to the jurisdiction of the above named courts, that its property is exempt or immune from attachment or execution (except as protected by applicable law), that the suit, action or proceeding is brought in an inconvenient forum, that the venue of the suit, action or proceeding is improper or that this Agreement or the subject matter hereof may not be enforced in or by such court, and (iii) hereby waives and agrees not to seek any review by any court of any other jurisdiction which may be called upon to grant an enforcement of the judgment of any such court. Each Party hereby consents to service of process by registered mail at the address to which notices are to be given. Each Party agrees that its, his or her submission to jurisdiction and its, his or her consent to service of process by mail is made for the express benefit of each other Party. Final judgment against any Party in any such action, suit or proceeding may be enforced in other jurisdictions by suit, action or proceeding on the judgment, or in any other manner provided by or pursuant to the laws of such other jurisdiction.

8. Waiver of Statutory Information Rights. The Optionee understands and agrees that, but for the waiver made herein, the Optionee would be entitled, upon written demand under oath stating the purpose thereof, to inspect for any proper purpose, and to make copies and extracts from, the Company's stock ledger, a list of its stockholders, and its other books and records, and the books and records of subsidiaries of the Company, if any, under the circumstances and in the manner provided in Section 220 of the General Corporation Law of Delaware (any and all such rights, and any and all such other rights of the Optionee as may be provided for in Section 220, the "Inspection Rights"). In light of the foregoing, until the first sale of Stock of the Company to the general public pursuant to a registration statement filed with and declared effective by the Securities and Exchange Commission under the Securities Act, the Optionee hereby unconditionally and irrevocably waives the Inspection Rights, whether such Inspection Rights would be exercised or pursued directly or indirectly pursuant to Section 220 or otherwise, and covenants and agrees never to directly or indirectly commence, voluntarily aid in any way, prosecute, assign, transfer, or cause to be commenced any claim, action, cause of action, or other proceeding to pursue or exercise the Inspection Rights. The foregoing waiver shall not affect any rights of a director, in his or her capacity as such, under Section 220. The foregoing waiver shall not apply to any contractual inspection rights of the Optionee under any other written agreement between the Optionee and the Company.

[SIGNATURE PAGE FOLLOWS]

The foregoing Agreement is hereby accepted and the terms and conditions thereof hereby agreed to by the undersigned as of the date first above written.

Graphite Bio, Inc.

By: _____
Name:
Title:

Address:

_____

_____

The undersigned hereby acknowledges receiving and reviewing a copy of the Plan, including, without limitation, Section 9 thereof, and understands that this Stock Option is subject to the terms of the Plan and of this Agreement. This Agreement is hereby accepted, and the terms and conditions of the Plan, the Grant Notice and this Agreement, SPECIFICALLY INCLUDING THE ARBITRATION PROVISIONS SET FORTH IN SECTION 7 AND THE WAIVER OF STATUTORY INFORMATION RIGHTS SET FORTH IN SECTION 8 OF THIS AGREEMENT, are hereby agreed to, by the undersigned as of the date first above written.

OPTIONEE:

_____
Name:

Address:

_____

_____

_____

SPOUSE'S CONSENT
I acknowledge that I have read the foregoing
Non-Qualified Stock Option Agreement
and understand the contents thereof.

_____

DESIGNATED BENEFICIARY:

_____

Beneficiary's Address:

_____

_____

_____

Appendix A

STOCK OPTION EXERCISE NOTICE

Graphite Bio, Inc.
Attention: President

_____
_____

Pursuant to the terms of the grant notice and stock option agreement between the undersigned and Graphite Bio, Inc. (the "Company") dated _____ (the "Agreement") under the Graphite Bio, Inc. 2020 Stock Option and Grant Plan (the "Plan"), I, [Insert Name] _____, hereby [Circle One] partially/fully exercise such option by including herein payment in the amount of $_____ representing the purchase price for [Fill in number of Shares] _____ Shares. I have chosen the following form(s) of payment:

[ ] 1. Cash
[ ] 2. Certified or bank check payable to Graphite Bio, Inc.
[ ] 3. Other (as referenced in the Agreement and described in the Plan (please describe))
_____.

In connection with my exercise of the option as set forth above, I hereby represent and warrant to the Company as follows:

(i) I am purchasing the Shares for my own account for investment only, and not for resale or with a view to the distribution thereof.

(ii) I have had such an opportunity as I have deemed adequate to obtain from the Company such information as is necessary to permit me to evaluate the merits and risks of my investment in the Company and have consulted with my own advisers with respect to my investment in the Company.

(iii) I have sufficient experience in business, financial and investment matters to be able to evaluate the risks involved in the purchase of the Shares and to make an informed investment decision with respect to such purchase.

(iv) I can afford a complete loss of the value of the Shares and am able to bear the economic risk of holding such Shares for an indefinite period of time.

(v) I understand that the Shares may not be registered under the Securities Act of 1933 (it being understood that the Shares are being issued and sold in reliance on the exemption provided in Rule 701 thereunder) or any applicable state securities or "blue sky" laws and may not be sold or otherwise transferred or disposed of in the absence of an effective registration statement under the Securities Act of 1933 and under any applicable state securities or "blue sky" laws (or exemptions from the registration requirement thereof). I further acknowledge that certificates representing Shares will bear restrictive legends reflecting the foregoing and/or that book entries for uncertificated Shares will include similar restrictive notations.

(vi) To the extent required, I have executed and delivered to the Company the Restricted Stock Agreement attached as Appendix B to the Agreement.

(vii) I have read and understand the Plan and acknowledge and agree that the Shares are subject to all of the relevant terms of the Plan, including without limitation, the transfer restrictions set forth in Section 9 of the Plan.

(viii) I understand and agree that the Company has a right of first refusal with respect to the Shares pursuant to Section 9(b) of the Plan.

(ix) I understand and agree that the Company has certain repurchase rights with respect to the Shares pursuant to Section 9(c) of the Plan.

(x) I understand and agree that I may not sell or otherwise transfer or dispose of the Shares for a period of time following the effective date of a public offering by the Company as described in Section 9(f) of the Plan.

(xi) I understand and agree to the waiver of statutory information rights as set forth in Section 8 of the Agreement.

Sincerely yours,

_____

Name:

Address:

_____

_____

_____

Date: _____

Appendix B

RESTRICTED STOCK AGREEMENT FOR EARLY EXERCISE OPTION
UNDER THE GRAPHITE BIO, INC.
2020 STOCK OPTION AND GRANT PLAN

All capitalized terms used herein and not otherwise defined shall have the respective meanings set forth in the Early ExerciseNon-Qualified Stock Option Grant Notice (the "Grant Notice") and Early Exercise Non-Qualified Stock Option Agreement (the "Option Agreement") between Graphite Bio, Inc. (the "Company") and _____ (the "Grantee") for _____ Shares of Common Stock with a Grant Date of _____, _____ under the Graphite Bio, Inc. 2020 Stock Option and Grant Plan (the "Plan").

1. Purchase and Sale of Shares; Vesting.

(a) Purchase and Sale. The Company hereby sells to the Grantee, and the Grantee hereby purchases from the Company, on _____, 20[__],[1] the number of Shares set forth in the Stock Option Exercise Notice (_____ Shares) dated _____ , pursuant to the Grant Notice and Option Agreement, for the aggregate Option Exercise Price for the Shares so purchased.

(b) Vesting. The risk of forfeiture shall lapse with respect to the Shares, and such Shares shall become vested, on the respective dates indicated on the Vesting Schedule set forth in the Grant Notice.

2. Repurchase Right. Upon a Termination Event, the Company shall have the right to repurchase Shares of Restricted Stock that are unvested as of the date of such Termination Event as set forth in Section 9(c) of the Plan.

3. Restrictions on Transfer of Shares. The Shares (whether or not vested) shall be subject to certain transfer restrictions and other limitations including, without limitation, the provisions contained in Section 9 of the Plan

4. Incorporation of Plan. Notwithstanding anything herein to the contrary, this Restricted Stock Agreement shall be subject to and governed by all the terms and conditions of the Plan.

5. Miscellaneous Provisions.

(a) Record Owner; Dividends. The Grantee and any Permitted Transferees, during the duration of this Agreement, shall be considered the record owners of and shall be entitled to vote the Shares if and to the extent the Shares are entitled to voting rights. The Grantee and any Permitted Transferees shall be entitled to receive all dividends and any other distributions declared on the Shares; provided, however, that the Company is under no duty to declare any such dividends or to make any such distribution.

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[1] To be filled in with date of stock purchase/option exercise.

(b) Section 83(b) Election. The Grantee shall consult with the Grantee's tax advisor to determine whether it would be appropriate for the Grantee to make an election under Section 83(b) of the Code with respect to the Shares. Any such election must be filed with the Internal Revenue Service within 30 days of the date of exercise. If the Grantee makes an election under Section 83(b) of the Code, the Grantee shall give prompt notice to the Company (and provide a copy of such election to the Company). A sample Section 83(b) election is attached to this Agreement as Exhibit A.

(c) Equitable Relief. The parties hereto agree and declare that legal remedies may be inadequate to enforce the provisions of this Agreement and that equitable relief, including specific performance and injunctive relief, may be used to enforce the provisions of this Agreement.

(d) Change and Modifications. This Agreement may not be orally changed, modified or terminated, nor shall any oral waiver of any of its terms be effective. This Agreement may be changed, modified or terminated only by an agreement in writing signed by the Company and the Grantee.

(e) Governing Law. This Agreement shall be governed by and construed in accordance with the General Corporation Law of the State of Delaware as to matters within the scope thereof, and as to all other matters shall be governed by and construed in accordance with the internal laws of California, without regard to conflict of law principles that would result in the application of any law other than the law of the State of California.

(f) Headings. The headings are intended only for convenience in finding the subject matter and do not constitute part of the text of this Agreement and shall not be considered in the interpretation of this Agreement.

(g) Saving Clause. If any provision(s) of this Agreement shall be determined to be illegal or unenforceable, such determination shall in no manner affect the legality or enforceability of any other provision hereof.

(h) Notices. All notices, requests, consents and other communications shall be in writing and be deemed given when delivered personally, by telex or facsimile transmission or when received if mailed by first class registered or certified mail, postage prepaid. Notices to the Company or the Grantee shall be addressed as set forth underneath their signatures below, or to such other address or addresses as may have been furnished by such party in writing to the other.

(i) Benefit and Binding Effect. This Agreement shall be binding upon and shall inure to the benefit of the parties hereto, their respective successors, assigns, and legal representatives. The Company has the right to assign this Agreement, and such assignee shall become entitled to all the rights of the Company hereunder to the extent of such assignment.

(j) Counterparts. For the convenience of the parties and to facilitate execution, this Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same document.

6. Dispute Resolution.

(a) Except as provided below, any dispute arising out of or relating to the Plan or the Shares, this Agreement, or the breach, termination or validity of the Plan, the Shares or this Agreement, shall be finally settled by binding arbitration conducted expeditiously in accordance with the J.A.M.S./Endispute Comprehensive Arbitration Rules and Procedures (the "J.A.M.S. Rules"). The arbitration shall be governed by the United States Arbitration Act, 9 U.S.C. Sections 1-16, and judgment upon the award rendered by the arbitrators may be entered by any court having jurisdiction thereof. The place of arbitration shall be San Mateo County, California.

(b) The arbitration shall commence within 60 days of the date on which a written demand for arbitration is filed by any party hereto. In connection with the arbitration proceeding, the arbitrator shall have the power to order the production of documents by each party and any third-party witnesses. In addition, each party may take up to three depositions as of right, and the arbitrator may in his or her discretion allow additional depositions upon good cause shown by the moving party. However, the arbitrator shall not have the power to order the answering of interrogatories or the response to requests for admission. In connection with any arbitration, each party to the arbitration shall provide to the other, no later than seven business days before the date of the arbitration, the identity of all persons that may testify at the arbitration and a copy of all documents that may be introduced at the arbitration or considered or used by a party's witness or expert. The arbitrator's decision and award shall be made and delivered within six months of the selection of the arbitrator. The arbitrator's decision shall set forth a reasoned basis for any award of damages or finding of liability. The arbitrator shall not have power to award damages in excess of actual compensatory damages and shall not multiply actual damages or award punitive damages, and each party hereby irrevocably waives any claim to such damages.

(c) The Company, the Grantee, each party to the Agreement and any other holder of Shares issued pursuant to this Agreement (each, a "Party") covenants and agrees that such party will participate in the arbitration in good faith. This Section 6 applies equally to requests for temporary, preliminary or permanent injunctive relief, except that in the case of temporary or preliminary injunctive relief any party may proceed in court without prior arbitration for the limited purpose of avoiding immediate and irreparable harm.

(d) Each Party (i) hereby irrevocably submits to the jurisdiction of any United States District Court of competent jurisdiction for the purpose of enforcing the award or decision in any such proceeding, (ii) hereby waives, and agrees not to assert, by way of motion, as a defense, or otherwise, in any such suit, action or proceeding, any claim that it is not subject personally to the jurisdiction of the above named courts, that its property is exempt or immune from attachment or execution (except as protected by applicable law), that the suit, action or proceeding is brought in an inconvenient forum, that the venue of the suit, action or proceeding is improper or that this Agreement or the subject matter hereof may not be enforced in or by such

court, and (iii) hereby waives and agrees not to seek any review by any court of any other jurisdiction which may be called upon to grant an enforcement of the judgment of any such court. Each Party hereby consents to service of process by registered mail at the address to which notices are to be given. Each Party agrees that its, his or her submission to jurisdiction and its, his or her consent to service of process by mail is made for the express benefit of each other Party. Final judgment against any Party in any such action, suit or proceeding may be enforced in other jurisdictions by suit, action or proceeding on the judgment, or in any other manner provided by or pursuant to the laws of such other jurisdiction.

7. Waiver of Statutory Information Rights. The Grantee understands and agrees that, but for the waiver made herein, the Grantee would be entitled, upon written demand under oath stating the purpose thereof, to inspect for any proper purpose, and to make copies and extracts from, the Company's stock ledger, a list of its stockholders, and its other books and records, and the books and records of subsidiaries of the Company, if any, under the circumstances and in the manner provided in Section 220 of the General Corporation Law of Delaware (any and all such rights, and any and all such other rights of the Grantee as may be provided for in Section 220, the "Inspection Rights"). In light of the foregoing, until the first sale of Stock of the Company to the general public pursuant to a registration statement filed with and declared effective by the Securities and Exchange Commission under the Securities Act, the Grantee hereby unconditionally and irrevocably waives the Inspection Rights, whether such Inspection Rights would be exercised or pursued directly or indirectly pursuant to Section 220 or otherwise, and covenants and agrees never to directly or indirectly commence, voluntarily aid in any way, prosecute, assign, transfer, or cause to be commenced any claim, action, cause of action, or other proceeding to pursue or exercise the Inspection Rights. The foregoing waiver shall not affect any rights of a director, in his or her capacity as such, under Section 220. The foregoing waiver shall not apply to any contractual inspection rights of the Grantee under any other written agreement between the Grantee and the Company.

[SIGNATURE PAGE FOLLOWS]

The foregoing Restricted Stock Agreement is hereby accepted and the terms and conditions thereof are hereby agreed to by the undersigned as of the date written in Section 1(a) above.

Graphite Bio, Inc.

By: _____
Name:
Title:

Address:

_____

_____

The undersigned hereby acknowledges receiving and reviewing a copy of the Plan, including, without limitation, Section 9 thereof and understands that the Shares purchased hereby are subject to the terms of the Plan, the Grant Notice, and this Agreement. This Agreement is hereby accepted, and the terms and conditions of the Plan, the Grant Notice and this Agreement, SPECIFICALLY INCLUDING THE ARBITRATION PROVISIONS SET FORTH IN SECTION 6 AND THE WAIVER OF STATUTORY INFORMATION RIGHTS SET FORTH IN SECTION 7 OF THIS AGREEMENT, are hereby agreed to, by the undersigned as of the date first above written.

GRANTEE:

_____

Name:

Address:

_____

_____

SPOUSE'S CONSENT[2]
I acknowledge that I have read the foregoing Restricted Stock Agreement and understand the contents thereof.

_____

[2] A spouse's consent is required only if the Grantee's state of residence is one of the following community property states: Arizona, California, Idaho, Louisiana, New Mexico, Nevada, Texas, Washington and Wisconsin.

EXHIBIT A
Section 83(b) Election

The undersigned hereby elects pursuant to §83(b) of the Internal Revenue Code of 1986, as amended, to include in gross income as compensation for services the excess (if any) of the fair market value of the shares described below over the amount paid for those shares.

1. The name, taxpayer identification number, address of the undersigned, and the taxable year for which this election is being made are:

   Name: _____

   Address: _____

   _____

   Social Security No.: _____

   Taxable Year: Calendar Year 20__

2. The property which is the subject of this election is [number of unvested shares] shares of common stock of Graphite Bio, Inc.

3. The property was transferred to the undersigned on [date of purchase/transfer].

4. The property is subject to the following restrictions:

   The Shares will be subject to restrictions on transfer and risk of forfeiture upon termination of service relationship and in certain other events.

5. The fair market value of the property at time of transfer (determined without regard to any restrictions other than nonlapse restrictions as defined in §1.83-3(h) of the Income Tax Regulations) is $[current FMV] per share x [number of unvested shares] shares = $_____.

6. For the property transferred, the undersigned paid $[exercise price] per share x [number of unvested shares] shares = $_____.

7. The amount to include in gross income is $[amount reported in Item 5 minus the amount reported in Item 6].

The undersigned taxpayer will file this election with the Internal Revenue Service Office with which the taxpayer files his or her annual income tax return not later than 30 days after the date of transfer of the property, at the IRS address listed for the taxpayer's state under "Are you not including a check or money order . . ." given in *Where Do You File* in the Instructions for Form 1040 and the Instructions for Form 1040A (which information can also be found at: https://www.irs.gov/uac/where-to-file-addresses-for-taxpayers-and-tax-professionals). A copy of the election will also be furnished to the person for whom the services were performed. The undersigned is the person performing services in connection with which the property was transferred.

Dated: _____, 20__

_____
Taxpayer

RESTRICTED STOCK AWARD NOTICE
UNDER THE GRAPHITE BIO, INC.
2020 STOCK OPTION AND GRANT PLAN

Pursuant to the Graphite Bio, Inc. 2020 Stock Option and Grant Plan (the "Plan"), Graphite Bio, Inc. (formerly known as Integral Medicines, Inc.), a Delaware corporation (together with any successor, the "Company"), hereby grants, sells and issues to the individual named below, the Shares at the Per Share Purchase Price, subject to the terms and conditions set forth in this Restricted Stock Award Notice (the "Award Notice"), the attached Restricted Stock Agreement (the "Agreement") and the Plan. The Grantee agrees to the provisions set forth herein and acknowledges that each such provision is a material condition of the Company's agreement to issue and sell the Shares to him or her. The Company hereby acknowledges receipt of $[_____] in full payment for the Shares. All references to share prices and amounts herein shall be equitably adjusted to reflect stock splits, stock dividends, recapitalizations, mergers, reorganizations and similar changes affecting the capital stock of the Company, and any shares of capital stock of the Company received on or in respect of Shares in connection with any such event (including any shares of capital stock or any right, option or warrant to receive the same or any security convertible into or exchangeable for any such shares or received upon conversion of any such shares) shall be subject to this Agreement on the same basis and extent at the relevant time as the Shares in respect of which they were issued, and shall be deemed Shares as if and to the same extent they were issued at the date hereof.

Name of Grantee:	_____ (the "Grantee")
No. of Shares:	_____ Shares of Common Stock (the "Shares")
Grant Date:	_____ __, ____
Date of Purchase of Shares:	_____ __, ____
Vesting Commencement Date:	_____ __, ____ (the "Vesting Commencement Date")
Per Share Purchase Price:	$_____ (the "Per Share Purchase Price")
Vesting Schedule:	[25% of the Shares shall vest on the first anniversary of the Vesting Commencement Date, provided that the Grantee continues to have a Service Relationship with the Company at such time. Thereafter, the remaining 75% of the Shares shall vest in 36 equal monthly installments following the first anniversary of the Vesting Commencement Date, provided the Grantee continues to have a Service Relationship with the Company at such time.] Notwithstanding anything in the Agreement to the contrary in the case of a Sale Event, the Shares of Restricted Stock shall be treated as provided in Section 3(c) of the Plan.

Attachments: Restricted Stock Agreement, 2020 Stock Option and Grant Plan

RESTRICTED STOCK AGREEMENT
UNDER THE GRAPHITE BIO, INC.
2020 STOCK OPTION AND GRANT PLAN

All capitalized terms used herein and not otherwise defined shall have the respective meanings set forth in the Award Notice and the Plan.

1. Purchase and Sale of Shares; Vesting; Investment Representations.

(a) Purchase and Sale. The Company hereby sells to the Grantee, and the Grantee hereby purchases from the Company, the number of Shares set forth in the Award Notice for the Per Share Purchase Price.

(b) Vesting. Initially, all of the Shares are non-transferable and subject to a substantial risk of forfeiture and are Shares of Restricted Stock. The risk of forfeiture shall lapse with respect to the Shares on the respective dates indicated on the Vesting Schedule set forth in the Award Notice.

(c) Investment Representations. In connection with the purchase and sale of the Shares contemplated by Section 1(a) above, the Grantee hereby represents and warrants to the Company as follows:

(i) The Grantee is purchasing the Shares for the Grantee's own account for investment only, and not for resale or with a view to the distribution thereof.

(ii) The Grantee has had such an opportunity as he or she has deemed adequate to obtain from the Company such information as is necessary to permit him or her to evaluate the merits and risks of the Grantee's investment in the Company and has consulted with the Grantee's own advisers with respect to the Grantee's investment in the Company.

(iii) The Grantee has sufficient experience in business, financial and investment matters to be able to evaluate the risks involved in the purchase of the Shares and to make an informed investment decision with respect to such purchase.

(iv) The Grantee can afford a complete loss of the value of the Shares and is able to bear the economic risk of holding such Shares for an indefinite period.

(v) The Grantee understands that the Shares are not registered under the Act (it being understood that the Shares are being issued and sold in reliance on the exemption provided in Rule 701 thereunder) or any applicable state securities or "blue sky" laws and may not be sold or otherwise transferred or disposed of in the absence of an effective registration statement under the Act and under any applicable state securities or "blue sky" laws (or exemptions from the registration requirements thereof). The Grantee further acknowledges that certificates representing the Shares will bear restrictive legends reflecting the foregoing and/or that book entries for uncertificated Shares will include similar restrictive notations.

(vi) The Grantee has read and understands the Plan and acknowledges and agrees that the Shares are subject to all of the relevant terms of the Plan, including without limitation, the transfer restrictions set forth in Section 9 of the Plan.

(vii) The Grantee understands and agrees that the Company has a right of first refusal with respect to the Shares pursuant to Section 9(b) of the Plan.

(viii) The Grantee understands and agree that the Company has certain repurchase rights with respect to the Shares pursuant to Section 9(c) of the Plan.

(ix) The Grantee understands and agrees that the Grantee may not sell or otherwise transfer or dispose of the Shares for a period of time following the effective date of a public offering by the Company as described in Section 9(f) of the Plan.

2. Repurchase Right. Upon a Termination Event, the Company shall have the right to repurchase Shares of Restricted Stock that are unvested as of the date of such Termination Event as set forth in Section 9(c) of the Plan.

3. Restrictions on Transfer of Shares. The Shares (whether or not vested) shall be subject to certain transfer restrictions and other limitations including, without limitation, the provisions contained in Section 9 of the Plan.

4. Incorporation of Plan. Notwithstanding anything herein to the contrary, this Restricted Stock Award shall be subject to and governed by all the terms and conditions of the Plan.

5. Miscellaneous Provisions.

(a) Record Owner; Dividends. The Grantee and any Permitted Transferees, during the duration of this Agreement, shall be considered the record owners of and shall be entitled to vote the Shares if and to the extent the Shares are entitled to voting rights. The Grantee and any Permitted Transferees shall be entitled to receive all dividends and any other distributions declared on the Shares; provided, however, that the Company is under no duty to declare any such dividends or to make any such distribution.

(b) Section 83(b) Election. The Grantee shall consult with the Grantee's tax advisor to determine whether it would be appropriate for the Grantee to make an election under Section 83(b) of the Code with respect to this Award. Any such election must be filed with the Internal Revenue Service within 30 days of the date of this Award. If the Grantee makes an election under Section 83(b) of the Code, the Grantee shall give prompt notice to the Company (and provide a copy of such election to the Company). A sample Section 83(b) election is attached to this Award as Exhibit A.

(c) Equitable Relief. The parties hereto agree and declare that legal remedies may be inadequate to enforce the provisions of this Agreement and that equitable relief, including specific performance and injunctive relief, may be used to enforce the provisions of this Agreement.

(d) Change and Modifications. This Agreement may not be orally changed, modified or terminated, nor shall any oral waiver of any of its terms be effective. This Agreement may be changed, modified or terminated only by an agreement in writing signed by the Company and the Grantee.

(e) Governing Law. This Agreement shall be governed by and construed in accordance with the General Corporation Law of the State of Delaware as to matters within the scope thereof, and as to all other matters shall be governed by and construed in accordance with the internal laws of California, without regard to conflict of law principles that would result in the application of any law other than the law of the State of California.

(f) Headings. The headings are intended only for convenience in finding the subject matter and do not constitute part of the text of this Agreement and shall not be considered in the interpretation of this Agreement.

(g) Saving Clause. If any provision(s) of this Agreement shall be determined to be illegal or unenforceable, such determination shall in no manner affect the legality or enforceability of any other provision hereof.

(h) Notices. All notices, requests, consents and other communications shall be in writing and be deemed given when delivered personally, by telex or facsimile transmission or when received if mailed by first class registered or certified mail, postage prepaid. Notices to the Company or the Grantee shall be addressed as set forth underneath their signatures below, or to such other address or addresses as may have been furnished by such party in writing to the other.

(i) Benefit and Binding Effect. This Agreement shall be binding upon and shall inure to the benefit of the parties hereto, their respective successors, assigns, and legal representatives. The Company has the right to assign this Agreement, and such assignee shall become entitled to all the rights of the Company hereunder to the extent of such assignment.

(j) Counterparts. For the convenience of the parties and to facilitate execution, this Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same document.

(k) Integration. This Agreement constitutes the entire agreement between the parties with respect to this Award and supersedes all prior agreements and discussions between the parties concerning such subject matter.

6. Dispute Resolution.

(a) Except as provided below, any dispute arising out of or relating to the Plan or the Shares, this Agreement, or the breach, termination or validity of the Plan, the Shares or this Agreement, shall be finally settled by binding arbitration conducted expeditiously in accordance with the J.A.M.S./Endispute Comprehensive Arbitration Rules and Procedures (the "J.A.M.S. Rules"). The arbitration shall be governed by the United States Arbitration Act, 9 U.S.C. Sections 1-16, and judgment upon the award rendered by the arbitrators may be entered by any court having jurisdiction thereof. The place of arbitration shall be San Mateo County, California.

(b) The arbitration shall commence within 60 days of the date on which a written demand for arbitration is filed by any party hereto. In connection with the arbitration proceeding, the arbitrator shall have the power to order the production of documents by each party and any third-party witnesses. In addition, each party may take up to three depositions as of right, and the arbitrator may in his or her discretion allow additional depositions upon good cause shown by the moving party. However, the arbitrator shall not have the power to order the answering of interrogatories or the response to requests for admission. In connection with any arbitration, each party to the arbitration shall provide to the other, no later than seven business days before the date of the arbitration, the identity of all persons that may testify at the arbitration and a copy of all documents that may be introduced at the arbitration or considered or used by a party's witness or expert. The arbitrator's decision and award shall be made and delivered within six months of the selection of the arbitrator. The arbitrator's decision shall set forth a reasoned basis for any award of damages or finding of liability. The arbitrator shall not have power to award damages in excess of actual compensatory damages and shall not multiply actual damages or award punitive damages, and each party hereby irrevocably waives any claim to such damages.

(c) The Company, the Grantee, each party to the Agreement and any other holder of Shares issued pursuant to this Agreement (each, a "Party") covenants and agrees that such party will participate in the arbitration in good faith. This Section 6 applies equally to requests for temporary, preliminary or permanent injunctive relief, except that in the case of temporary or preliminary injunctive relief any party may proceed in court without prior arbitration for the limited purpose of avoiding immediate and irreparable harm.

(d) Each Party (i) hereby irrevocably submits to the jurisdiction of any United States District Court of competent jurisdiction for the purpose of enforcing the award or decision in any such proceeding, (ii) hereby waives, and agrees not to assert, by way of motion, as a defense, or otherwise, in any such suit, action or proceeding, any claim that it is not subject personally to the jurisdiction of the above named courts, that its property is exempt or immune from attachment or execution (except as protected by applicable law), that the suit, action or proceeding is brought in an inconvenient forum, that the venue of the suit, action or proceeding is improper or that this Agreement or the subject matter hereof may not be enforced in or by such court, and (iii) hereby waives and agrees not to seek any review by any court of any other jurisdiction which may be called upon to grant an enforcement of the judgment of any such court. Each Party hereby consents to service of process by registered mail at the address to which notices are to be given. Each Party agrees that its, his or her submission to jurisdiction and its, his or her consent to service of process by mail is made for the express benefit of each other Party. Final judgment against any Party in any such action, suit or proceeding may be enforced in other jurisdictions by suit, action or proceeding on the judgment, or in any other manner provided by or pursuant to the laws of such other jurisdiction.

7. Waiver of Statutory Information Rights. The Grantee understands and agrees that, but for the waiver made herein, the Grantee would be entitled, upon written demand under oath stating the purpose thereof, to inspect for any proper purpose, and to make copies and extracts from, the Company's stock ledger, a list of its stockholders, and its other books and records, and the books and records of subsidiaries of the Company, if any, under the circumstances and in the manner provided in Section 220 of the General Corporation Law of Delaware (any and all such rights, and any and all such other rights of the Grantee as may be provided for in Section 220, the "Inspection Rights"). In light of the foregoing, until the first sale of Stock of the Company to the general public pursuant to a registration statement filed with and declared effective by the Securities and Exchange Commission under the Securities Act, the Grantee hereby unconditionally and irrevocably waives the Inspection Rights, whether such Inspection Rights would be exercised or pursued directly or indirectly pursuant to Section 220 or otherwise, and covenants and agrees never to directly or indirectly commence, voluntarily aid in any way, prosecute, assign, transfer, or cause to be commenced any claim, action, cause of action, or other proceeding to pursue or exercise the Inspection Rights. The foregoing waiver shall not affect any rights of a director, in his or her capacity as such, under Section 220. The foregoing waiver shall not apply to any contractual inspection rights of the Grantee under any other written agreement between the Grantee and the Company.

[SIGNATURE PAGE FOLLOWS]

The foregoing Restricted Stock Agreement is hereby accepted and the terms and conditions thereof are hereby agreed to by the undersigned as of the date of purchase of Shares above written.

Graphite Bio, Inc.

By: _____

Name:
Title:

Address:

_____

_____

The undersigned hereby acknowledges receiving and reviewing a copy of the Plan, including, without limitation, Section 9 thereof and understands that the Shares granted hereby are subject to the terms of the Plan and of this Agreement. This Agreement is hereby accepted, and the terms and conditions of the Plan, the Award Notice and this Agreement, SPECIFICALLY INCLUDING THE ARBITRATION PROVISIONS SET FORTH IN SECTION 6 AND THE WAIVER OF STATUTORY INFORMATION RIGHTS SET FORTH IN SECTION 7 OF THIS AGREEMENT, are hereby agreed to, by the undersigned as of the date first above written.

GRANTEE:

_____

Name:

Address:

_____

_____

SPOUSE'S CONSENT
I acknowledge that I have read the foregoing Restricted Stock Agreement and understand the contents thereof.

_____

EXHIBIT A
Section 83(b) Election

The undersigned hereby elects pursuant to §83(b) of the Internal Revenue Code of 1986, as amended, to include in gross income as compensation for services the excess (if any) of the fair market value of the shares described below over the amount paid for those shares.

1. The name, taxpayer identification number, address of the undersigned, and the taxable year for which this election is being made are:

   Name: _____

   Address: _____

   _____

   Social Security No.: _____

   Taxable Year: Calendar Year 20__

2. The property which is the subject of this election is [number of unvested shares] shares of common stock of Graphite Bio, Inc.

3. The property was transferred to the undersigned on [date of purchase/transfer].

4. The property is subject to the following restrictions:

   The Shares will be subject to restrictions on transfer and risk of forfeiture upon termination of service relationship and in certain other events.

5. The fair market value of the property at time of transfer (determined without regard to any restrictions other than nonlapse restrictions as defined in §1.83-3(h) of the Income Tax Regulations) is $[current FMV] per share x [number of unvested shares] shares = $_____.

6. For the property transferred, the undersigned paid $[exercise price] per share x [number of unvested shares] shares = $_____.

7. The amount to include in gross income is $[amount reported in Item 5 minus the amount reported in Item 6].

The undersigned taxpayer will file this election with the Internal Revenue Service Office with which the taxpayer files his or her annual income tax return not later than 30 days after the date of transfer of the property, at the IRS address listed for the taxpayer's state under "Are you not including a check or money order . . ." given in *Where Do You File* in the Instructions for Form 1040 and the Instructions for Form 1040A (which information can also be found at: https://www.irs.gov/uac/where-to-file-addresses-for-taxpayers-and-tax-professionals) . A copy of the election will also be furnished to the person for whom the services were performed. The undersigned is the person performing services in connection with which the property was transferred.

Dated: _____, 20__

_____
Taxpayer

Exhibit 10.6

February 28, 2020

Josh Lehrer
[***]
[***]

Re: Executive Offer Letter

Dear Josh,

Integral Medicines, Inc., a Delaware corporation (the "**Company**"), is pleased to offer you employment pursuant to the terms of this Executive Offer Letter (the "**Agreement**").

1. Start Date. Provided that you satisfy the conditions described in the last subsection of this Agreement, your first day of employment with the Company will be March 15th or another date mutually agreed upon in writing between you and the Company. The actual day you begin employment will be referred to as the "**Start Date**" and the period between the Start Date and your date of termination shall be referred to as the "**Term**".

2. Position. During the Term, your title will be Chief Executive Officer, and you will report to the Company s Board of Directors (the "**Board**"). This is a full-time, overtime exempt position. While you render services to the Company, you will not engage in any other employment, consulting or other business activity (whether full-time or part-time) that would create a conflict of interest with the Company. By signing this Agreement, you confirm to the Company that you have no contractual commitments or other legal obligations that would prohibit you from performing your duties for the Company. Promptly following your Start Date, the Company will appoint you to the Board as the "CEO Director," to serve in such position for so long as you remain Chief Executive Officer of the Company.

Provided that such consulting agreement and/or services do not create a conflict of interest with the Company or impose any legal obligations on you that would prohibit you from performing your duties to the Company (including based on this Agreement, the PIIA, or any applicable law), you will be permitted to engage in a consulting agreement with and/or perform services for Global Blood Therapeutics, Inc., provided that: (i) such agreement and services shall terminate prior to the 6 month anniversary of the Start Date (except for services exclusively related to membership on the R&D subcommittee of the Board of Directors of Global Blood Therapeutics, Inc., which services may be performed indefinitely subject to the provisions of this Agreement), (ii) do not require you to commit more than 2 hours per week, and (iii) in the case of membership on the R&D subcommittee of the Board of Directors of Global Blood Therapeutics, Inc., do not require more than 4 hours per quarter annum.

3. Compensation, Benefits and Related Matters.

(a) Base Salary. Initially, the Company will pay you a base salary at the rate of $425,000 per year, payable in accordance with the Company's standard payroll schedule. Your base salary may be subject to review and adjustment by the Company from time to time.

(b) Annual Performance Bonus. For each calendar year during the Term, you will be eligible to earn an annual performance bonus. Your initial target annual bonus will be 40% of your base salary, and that target will be prorated for 2020 based on the portion of the year after the Start Date. To earn an annual performance bonus for any particular calendar year of employment, (i) the Company and you must achieve applicable performance metrics, to be established and determined by the Company in its sole discretion, and (ii) you must remain employed by the Company on the date the bonus is paid (which will be no later than March 15th of the calendar year following the calendar year to which the bonus pertains).

(c) Equity Compensation. Subject to the approval by the Board, you will be granted the right to purchase a number of shares of the Company's Common Stock (the "**Purchase Right**"), which is expected to represent 4.5% of the fully diluted equity capitalization of the Company immediately following the first date on which the Company has sold preferred stock with aggregate gross proceeds to the Company in the amount of at least $10,000,000 cumulatively to such date. Any purchase of shares subject to the Purchase Right will be governed by the terms and conditions of your stock purchase agreement and will include a repurchase option in favor of the Company that will be released as your shares vest in accordance with the following vesting schedule: (x) 25% of the total shares subject to the Purchase Right will vest on the 12-month anniversary of the Start Date, subject to your continuous service with the Company on such vesting date, and (y) 1/48th of the total shares subject to the Purchase Right will vest in monthly installments thereafter, subject in each case to your continuous service with the Company on each such vesting date. The exercise price per share subject to the Purchase Right will be equal to the fair market value of one share of the Company's Common Stock as determined by the Board in good faith on the date the Board approves grant of the Purchase Right. The Purchase Right, and any additional equity awards granted by the Company to you in the future, shall be subject to acceleration of vesting substantially as follows: If within a Sale Event Window (as defined below), (a) the Company terminates your employment without Cause (as defined below), or (b) you terminate your employment for Good Reason (as defined below), and in either case other than as a result of death or disability, and provided such termination constitutes a "separation from service" within the meaning of Treasury Regulation Section 1.409A-1(h), and subject to your signing the Separation Agreement (as defined below) and the Separation Agreement becoming effective within sixty (60) days of such termination, then 100% of the shares that are subject to vesting and are unvested as of the date of such termination will immediately become fully vested (the "**Double-Trigger Acceleration**"); any forfeiture or lapsing of such shares shall be delayed until the sixtieth (60th) day after the date of such termination and shall only occur if the Separation Agreement does not become effective on or before that sixtieth (60th) day.

(d) Reimbursement of Expenses. All reasonable business expenses that are documented by you and incurred in the ordinary course of business during the Term will be reimbursed in accordance with the Company's standard policies and procedures.

(e) Employee Benefits. As an employee of the Company, you will be eligible during the Term to participate in Company-sponsored benefits generally made available to the Company's executive employees. In addition, you will be entitled to paid vacation in accordance with the Company's vacation policy, as in effect from time to time. For so long as you serve as an executive officer or director of the Company, the Company shall indemnify you and provide you with D&O insurance coverage to the same extent that it indemnifies and provides D&O insurance coverage to the members of the Company's board of directors and its other most senior executive officers.

4. Termination. Subject to the terms of this Section 4, your employment with the Company will be "at will," meaning that either you or the Company may terminate your employment at any time during the Term for no reason or for any reason not otherwise specifically prohibited by law, and any contrary representations that may have been made to you are superseded by this Agreement.

(a) Compensation and Benefits Upon Termination Generally. If your employment with the Company is terminated for any reason during the Term, the Company shall pay or provide to you any earned but unpaid base salary, unpaid expense reimbursements, accrued but unused vacation and any vested benefits you may have under the Company's employee benefit plans through the date of termination (the "**Accrued Benefit**").

(b) Compensation and Benefits Upon Termination Without Cause or for Good Reason Outside of a Sale Event Window If your employment is terminated by the Company without Cause or by you for Good Reason, in either case, outside of a Sale Event Window, then, in addition to the Accrued Benefit and subject to you signing the Separation Agreement and the Separation Agreement becoming effective within sixty (60) days of such termination, the Company shall pay you the Severance Amount (defined below).

(c) Compensation and Benefits Upon Termination Without Cause or for Good Reason During a Sale Event Window If your employment is terminated by the Company without Cause or by you for Good Reason, in either case, during a Sale Event Window, then, in addition the Double-Trigger Acceleration, you shall be entitled to receive the Accrued Benefit and the Severance Amount.

(d) Definitions. For purposes of this Agreement, the following terms shall have the following definitions:

"**Cause**" means (i) conduct by you constituting a material act of misconduct in connection with the performance of your duties, including, without limitation, misappropriation of funds or property of the Company or any of its subsidiaries or affiliates other than the occasional, customary and de minimis use of Company property for personal purposes; (ii) your conviction of, or plea of nolo contendere to, (A) any felony; or (B) a misdemeanor involving moral turpitude, deceit, dishonesty or fraud; (iii) any willful misconduct by you that would reasonably be expected to result in material injury or material reputational harm to the Company or any of its subsidiaries and affiliates if you were retained in your position; (iv) your continued willful non-performance of your responsibilities hereunder (other than by reason of your physical or mental illness, incapacity or disability) which has continued for more than thirty (30) days following written notice of such non-performance from the Board; (v) your willful breach of any obligation in the PIIA; (vi) an intentional, material violation by you of any of the Company's written employment policies; or (vii) your failure to reasonably cooperate with a bona fide internal investigation or an investigation by regulatory or law enforcement authorities, after being instructed by the Board to cooperate, or the willful destruction or failure to preserve documents or other materials known to be relevant to such investigation or the inducement of others to fail to cooperate or to produce documents or other materials in connection with such investigation.

"**Good Reason**" means that you have complied with the Good Reason Process (defined below) following the occurrence of any of the following events: (i) a material diminution in your responsibilities, authority or duties; *provided* that a Sale Event of the Company and subsequent conversion of the Company to a division or unit of the surviving or acquiring entity will not result in a material diminution absent a material diminution of your responsibilities, authority or duties with respect to such division or unit; (ii) a material diminution in your base salary except for across-the-board salary reductions based on the Company's financial performance similarly affecting all or substantially all similarly situated employees; (iii) the Company shall have required that you relocate your principal work location to any place which is more than fifty (50) miles from your principal place of work as of the Start Date; or (iv) the material breach of this Agreement by the Company.

"**Good Reason Process**" means that (i) you reasonably determine in good faith that a "Good Reason" condition has occurred; (ii) you notify the Company in writing of the occurrence of the Good Reason condition within sixty (60) days of the occurrence of such condition; (iii) you cooperate in good faith with the Company's efforts, for a period not less than thirty (30) days following such notice (the "**Cure Period**"), to remedy the condition; (iv) notwithstanding such efforts, the Good Reason condition continues to exist; and (v) you terminate your employment within sixty (60) days after the end of the Cure Period. For the avoidance of doubt, if the Company cures the Good Reason condition during the Cure Period, Good Reason shall be deemed not to have occurred.

"**Sale Event**" means (1) a merger or consolidation in which the Company is a constituent party (or in which a subsidiary of the Company is a constituent party and the Company issues shares of its capital stock pursuant to such merger or consolidation), other than a merger or consolidation in which the voting securities of the Company outstanding immediately prior to such merger or consolidation continue to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity) more than 50% of the combined voting power of the voting securities of the surviving entity outstanding immediately after such merger or consolidation, or (2) any transaction or series of related transactions in which in excess of 50% of the Company's voting power is transferred, other than the sale by the Company of stock in transactions the primary purpose of which is to raise capital for the Company's operations and activities, or (3) a sale, lease, exclusive license or other disposition of all or substantially all (as determined by the Board in its sole discretion) of the assets of the Company other than a sale, lease, license or other disposition of all or substantially all of the consolidated assets of the Company to an entity, more than 50% of the combined voting power of the voting securities of which are beneficially owned by shareholders of the Company in substantially the same proportions as as their beneficial ownership of the outstanding voting securities of the Company immediately prior to such sale, lease, exclusive license or other disposition.

"**Sale Event Window**" means the period beginning three (3) months before and ending twelve (12) months following a Sale Event of the Company.

"**Separation Agreement**" means a separation agreement in a form satisfactory to the Company containing, among other provisions, a release of claims in favor of the Company and its related persons and entities, nondisparagement, and reaffirmation of post-employment continuing obligations to the Company under the PIIA.

"**Severance Amount**" means an amount equal to (i) if termination occurs prior to the first date on which the Company has sold preferred stock with aggregate gross proceeds to the Company in the amount of at least $20,000,000 cumulatively to such date (such date, the "**Second Tranche Closing**"), six (6) months of your final base salary rate or (ii) if termination occurs subsequent to the Second Tranche Closing, twelve (12) months of your final base salary rate, in either case, plus, if you are participating in the Company's group health insurance plans on the effective date of termination and timely elect and remains eligible for continued coverage under the Consolidated Omnibus Budget Reconciliation Act ("**COBRA**"), or, if applicable, state or local insurance laws, (a) six (6) months of the employer-paid portion of your COBRA premiums (including family coverage, if applicable) if termination occurs prior to the Second Tranche Closing or (b) twelve (12) months of the employer-paid portion of your COBRA premiums (including family coverage, if applicable) if termination occurs subsequent to the Second Tranche Closing. When due under Sections 4(b) or 4(c), the Severance Amount shall be paid out in substantially equal installments in accordance with the Company's payroll practice (I) over six (6) months if termination occurs prior to the Second Tranche Closing or (II) over twelve (12) months if termination occurs subsequent to the Second Tranche Closing, in either case, commencing within sixty (60) days after the date of termination; *provided, however,* that if the 60-day period begins in one calendar year and ends in a second calendar year, the Severance Amount shall begin to be paid in the second calendar year by the last day of such 60-day period; *provided, further,* that the initial payment shall include a catch-up payment to cover amounts retroactive to the day immediately following the date of termination before the Separation Agreement became effective. The Severance Amount is intended, and shall

be interpreted, to: (x) comply with Section 409A of the Internal Revenue Code and the Treasury Regulations and other guidance promulgated thereunder; or (y) be exempt from Code Section 409A as a "short term deferral," within the meaning of Treas. Reg. Section 1.409A-1(b)(4), or as "separation pay," within the meaning of Treas. Reg. Section 1.409A-1(b)(9). In all events, this Agreement shall be interpreted and administered consistent with such intent. If the Severance Amount is to be paid in two or more installments, each installment shall be treated as a separate payment for purposes of Code Section 409A.

5. Covenants.

(a) Proprietary Information and Inventions Agreement. As a condition of your employment with the Company and as a material term of this Agreement, you agree to execute contemporaneously with the execution of this Agreement and comply during and after the Term with the Proprietary Information and Inventions Agreement (the "**PIIA**") attached hereto as Attachment A, the terms of which are hereby incorporated by reference into this Agreement.

(b) Litigation and Regulatory Cooperation. During and after the Term, you shall cooperate fully with the Company and all of its subsidiaries and affiliates (including its and their outside counsel) in connection with the contemplation, prosecution and defense of all phases of existing, past and future claims or actions which relate to events or occurrences that transpired while you were employed by the Company. Your full cooperation in connection with such claims or actions shall include, but not be limited to, being available to meet with counsel to prepare for discovery or trial and to act as a witness on behalf of the Company at mutually convenient times. During and after the Term, you also shall cooperate fully with the Company in connection with any investigation or review of any federal, state or local regulatory authority as any such investigation or review relates to events or occurrences that transpired while you were employed by the Company. To the extent the Company requests such cooperation after the Term, the Company shall provide you reasonable compensation and use reasonable efforts to minimize disruption to you.

6. Miscellaneous.

(a) Consent to Jurisdiction. The parties hereby consent to the exclusive jurisdiction of the state and federal courts located in San Mateo County, California. Accordingly, with respect to any such court action, you (i) submit to the personal jurisdiction of such courts; (ii) consent to service of process; and (iii) waive any other requirement (whether imposed by statute, rule of court, or otherwise) with respect to personal jurisdiction or service of process.

(b) Taxes. All forms of compensation referred to in this Agreement are subject to reduction to reflect applicable withholding and payroll taxes and other deductions required by law. You agree that the Company does not have a duty to design its compensation policies in a manner that minimizes your tax liabilities, and you will not make any claim against the Company or its Board related to tax liabilities arising from your compensation.

If any payment or benefit you would receive from the Company pursuant to the Severance Amount or Double-Trigger Acceleration or otherwise ("**Payment**") would (i) constitute a "parachute payment" within the meaning of 26 U.S. Code Section 280G, and (ii) but for this sentence, be subject to the excise tax imposed by 26 U.S. Code Section 4999 (the "**Excise Tax**"), then such Payment will be reduced to the Reduced Amount. The "Reduced Amount" will be either (x) the largest portion of the Payment that would result in no portion of the Payment being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount, after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable

marginal rate), results in your receipt, on an after-tax basis, of the greater amount of the Payment notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in payments and/or benefits constituting "parachute payments" is necessary so that the Payment equals the Reduced Amount, reduction will occur in the following order: reduction of current cash payments; reduction of deferred cash payments subject to 26 U.S. Code Section 409A; cancellation of accelerated vesting of stock awards; reduction of employee benefits. In the event that acceleration of vesting of stock award compensation is to be reduced, such acceleration of vesting will be cancelled in the reverse order of the date of grant of your stock awards.

The accounting firm engaged by the Company for general audit purposes as of the day prior to the effective date of the Sale Event will perform the foregoing calculations. If the accounting firm so engaged by the Company is serving as accountant or auditor for the individual, entity or group affecting the Sale Event, the Company will appoint a nationally recognized accounting firm to make the determinations required hereunder. The Company will bear all expenses with respect to the determinations by such accounting firm required to be made hereunder.

The accounting firm engaged to make the determinations hereunder will provide its calculations, together with detailed supporting documentation, to the Company and you within fifteen (15) calendar days after the date on which your right to a Payment is triggered (if requested at that time by the Company or you) or such other time as requested by the Company or you. If the accounting firm determines that no Excise Tax is payable with respect to a Payment, it will furnish the Company and you with an opinion reasonably acceptable to you that no Excise Tax will be imposed with respect to such Payment Any good faith determinations of the accounting firm made hereunder will be final, binding and conclusive upon the Company and you.

(c) Integration. This Agreement, together with the PIIA and any other plans or agreements referenced herein, constitutes the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior agreements between the parties concerning such subject matter.

(d) Successors. This Agreement shall inure to the benefit of and be enforceable by your personal representatives, executors, administrators, heirs, distributees, devisees and legatees.

(e) Enforceability. If any portion or provision of this Agreement (including, without limitation, any portion or provision of any section of this Agreement) shall to any extent be declared illegal or unenforceable by a court of competent jurisdiction, then the remainder of this Agreement, or the application of such portion or provision in circumstances other than those as to which it is so declared illegal or unenforceable, shall not be affected thereby, and each portion and provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

(f) Survival. The provisions of this Agreement shall survive the termination of this Agreement and/or the termination of your employment to the extent necessary to effectuate the terms contained herein.

(g) Waiver. No waiver of any provision hereof shall be effective unless made in writing and signed by the waiving party. The failure of any party to require the performance of any term or obligation of this Agreement, or the waiver by any party of any breach of this Agreement, shall not prevent any subsequent enforcement of such term or obligation or be deemed a waiver of any subsequent breach.

(h) Notices. Any notices, requests, demands and other communications provided for by this Agreement shall be sufficient if in writing and delivered in person or sent by a nationally recognized overnight courier service or by registered or certified mail, postage prepaid, return receipt requested, to you at the last address you have filed in writing with the Company or, to the Company, at its main offices, attention of the Board.

(i) Successors to and Assigns of the Company. This Agreement and the PIIA shall inure to the benefit and be enforceable by the Company's successors and assigns.

(j) Amendment. This Agreement may be amended or modified only by a written instrument signed by you and by a duly authorized representative of the Company.

(k) Governing Law. This is a California contract and shall be construed under and be governed in all respects by the laws of the State of California, without giving effect to the conflict of laws principle of such State. With respect to any disputes concerning federal law, such disputes shall be determined in accordance with the law as it would be interpreted and applied by the United States Court of Appeals for the Ninth Circuit.

(l) Counterparts. This Agreement may be executed in any number of counterparts, each of which when so executed and delivered shall be taken to be an original; but such counterparts shall together constitute one and the same document.

(m) Conditions of Offer. As with all employees, the Company's offer of employment to you is also conditioned on your submission of satisfactory proof of your identity and your legal authorization to work in the United States and, if requested, your completion of a standard background check to the satisfaction of the Company. This offer is also conditioned on you signing and returning this Agreement and the PIIA to the Company by no later than March 1st, 2020.

[Signature Page Follows]

We hope that you will accept our offer to join the Company. You may indicate your agreement with these terms and accept this offer by signing and returning a copy of this Agreement and the PIIA by the date specified in the last subsection of the Agreement.

Very truly yours,

Integral Medicines, Inc.

By: /s/ Jerel Davis
Name: Jerel Davis
Title: President
Date: 3/1/2020

I have read and accept this Agreement:

/s/ Josh Lehrer
Josh Lehrer

Date: 28 Feb 2020

ATTACHMENT A TO EXECUTIVE EMPLOYMENT AGREEMENT

PROPRIETARY INFORMATION AND INVENTIONS AGREEMENT

(attached)

Exhibit 10.7

Integral Medicines, Inc.

August 3, 2020

Katherine Stultz
Via Electronic Delivery

Dear Katherine:

It is my great pleasure to present this offer letter to you to join Integral Medicines, Inc. (the "Company") as our Chief Operating Officer (COO). The entire Board and I are very excited to have you as a member of the Integral team. Your experiences and accomplishments are consistent with the impact we hope to have at Integral on science and on patients, and we look forward to your many contributions to the Company.

1. **Position**. Your initial title will be Chief Operating Officer, and you will initially report to the Company's Chief Executive Officer. This is a full-time position. While you render services to the Company, you will not engage in any other employment, consulting or other business activity (whether full-time or part-time) that would create a conflict of interest with the Company. By signing this letter agreement, you confirm to the Company that you have no contractual commitments or other legal obligations that would prohibit you from performing your duties for the Company.

2. **Cash Compensation**. The Company will pay you a starting salary at the rate of $400,000.00 per year, payable in accordance with the Company's standard payroll schedule and subject to applicable deductions and withholdings. This salary will be subject to periodic review and adjustments at the Company's discretion. In addition, in the first payroll following your commencement of employment with the Company, you will receive a one-time bonus of $150,000.00 (the "Signing Bonus"), less applicable deductions and withholdings. Notwithstanding the foregoing, if your employment with the Company is terminated voluntarily by you (except for Good Reason, as defined below), prior to the twelve (12) month anniversary of your start date as an employee of the Company, you agree that you will not have earned the Signing Bonus or any prorated portion thereof and that you will be required to pay the full $150,000.00 of the Signing Bonus to the Company within thirty (30) days of the end of your employment.

3. **Annual Performance Bonus**. You will be eligible to earn an annual performance bonus. The Company will target the bonus at 30% of your annual salary rate, and, solely with respect to calendar year 2020, that target will be prorated to reflect the portion of the calendar year you were actually eligible to earn an annual performance bonus as of the Start Date. The actual bonus percentage is discretionary and will be subject to the Company's assessment of your performance, as well as business conditions at the Company. The annual performance bonus, if any, shall be paid between January 1st and March 15th of the calendar year following the calendar year for which such bonus was earned. To earn an annual performance bonus for any particular calendar year of employment, (i) the Company and you must achieve applicable performance metrics, to be established and determined by the Company in its sole discretion, and (ii) you must remain employed by the Company on the date the bonus is paid (which will be no later than March 15th of the calendar year following the calendar year to which the bonus pertains). The bonus will also be subject to approval by and adjustment at the discretion of the Board and the terms of any applicable bonus plan.

4. **Employee Benefits**. As a regular employee of the Company, you will be eligible to participate in a number of Company-sponsored benefits. In addition, you will be entitled to paid vacation in accordance with the Company's vacation policy, as in effect from time to time.

5. **Stock Options**. Subject to the approval of the Company's Board of Directors or its Compensation Committee, which approval shall be solicited at the next regularly scheduled meeting of the Company's Board of Directors, and further subject to the Company's approved Stock Option Plan, you will be granted an option to purchase 505,600 shares of the Company's Common Stock (the "Option"). The exercise price per share of the Option will be the fair market value of the Company's Common Stock as of the date the Option is approved by the Board of Directors as determined by the Board of Directors. The Option will be subject to the terms and conditions applicable to options granted under the stock option plan in effect at the time of the grant and the applicable stock option agreement. You will vest in 25% of the Option shares after 12 months of continuous service from the Start Date, and the balance will vest in equal monthly installments over the next 36 months of continuous service, as described in the applicable stock option agreement. If within a Sale Event Window (as defined below), (a) the Company terminates your employment without Cause (as defined below), or (b) you terminate your employment for Good Reason, and in either case other than as a result of death or disability, and provided such termination constitutes a "separation from service" within the meaning of Treasury Regulation Section 1.409A-1(h), and subject to your signing the Separation Agreement (as defined below) and the Separation Agreement becoming effective within sixty (60) days of such termination, then 100% of the shares that are subject to vesting and are unvested as of the date of such termination will immediately become fully vested (the "Double-Trigger Acceleration"); any forfeiture or lapsing of such shares shall be delayed until the sixtieth (60th) day after the date of such termination and shall only occur if the Separation Agreement does not become effective on or before that sixtieth (60th) day. Subject to the approval of the Company's Board of Directors or its Compensation Committee, the Company may award additional equity grants to you in the future.

6. **Termination**. Subject to the terms of this Section 6, your employment with the Company will be "at will," meaning that either you or the Company may terminate your employment at any time during for no reason or for any reason not otherwise specifically prohibited by law, and any contrary representations that may have been made to you are superseded by this offer.

(a) **Compensation and Benefits Upon Termination Generally**. If your employment with the Company is terminated for any reason, the Company shall pay or provide to you any earned but unpaid base salary, unpaid expense reimbursements, accrued but unused vacation (if applicable under the Company's vacation policy), and any vested benefits you may have under the Company's employee benefit plans through the date of termination (the "Accrued Benefit").

(b) **Compensation and Benefits Upon Termination Without Cause or for Good Reason After the Second Tranche Closing Outside of a Sale Event Window**. If your employment is terminated by the Company without Cause or by you for Good Reason, in either case, outside of a Sale Event Window, and if such termination occurs after the first date on which the Company has sold preferred stock with aggregate gross proceeds to the Company in the amount of at least $20,000,000 cumulatively to such date (such date, the "Second Tranche Closing"), then, in addition to the Accrued Benefit and subject to you signing the Separation Agreement and the Separation Agreement becoming effective within sixty (60) days of such termination, the Company shall pay you the Severance Amount (defined below). As of the date hereof, the Company has sold preferred stock with aggregate gross proceeds to the Company in excess of $15,000,000; pursuant to the definitive Series A financing agreements, the Company shall sell additional shares of preferred stock with aggregate gross proceeds to the Company in excess of $5,000,000 upon the occurrence of certain defined milestone events.

(c) **Compensation and Benefits Upon Termination Without Cause or for Good Reason After the Second Tranche Closing During a Sale Event Window**. If your employment is terminated by the Company without Cause or by you for Good Reason, in either case, during a Sale Event Window, and if such termination occurs after the Second Tranche Closing, then, in addition to the Accrued Benefit and subject to you signing the Separation Agreement and the Separation Agreement becoming effective within sixty (60) days of such termination, you shall be entitled to receive the Double-Trigger Acceleration and the Severance Amount.

(d) **Definitions**. For purposes of this offer, the following terms shall have the following definitions:

"Cause" means (i) conduct by you constituting a material act of misconduct in connection with the performance of your duties, including, without limitation, misappropriation of funds or property of the Company or any of its subsidiaries or affiliates other than the occasional, customary and de minimis use of Company property for personal purposes; (ii) your conviction of, or plea of nolo contendere to, (A) any felony; or (B) a misdemeanor involving moral turpitude, deceit, dishonesty or fraud; (iii) any willful misconduct by you that would reasonably be expected to result in material injury or material reputational harm to the Company or any of its subsidiaries and affiliates if you were retained in your position; (iv) your continued willful non-performance of your responsibilities hereunder (other than by reason of your physical or mental illness, incapacity or disability) which has continued for more than thirty (30) days following written notice of such non-performance from the Board; (v) your willful breach of any obligation in the PIIA; (vi) an intentional, material violation by you of any of the Company's written employment policies; or (vii) your failure to reasonably cooperate with a bona fide internal investigation or an investigation by regulatory or law enforcement authorities, after being instructed by the Board to cooperate, or the willful destruction or failure to preserve documents or other materials known to be relevant to such investigation or the inducement of others to fail to cooperate or to produce documents or other materials in connection with such investigation.

"Good Reason" means that you have complied with the Good Reason Process (defined below) following the occurrence of any of the following events: (i) a material diminution in your responsibilities, authority or duties; provided that a Sale Event of the Company and subsequent conversion of the Company to a division or unit of the surviving or acquiring entity will not result

in a material diminution absent a material diminution of your responsibilities, authority or duties with respect to such division or unit; (ii) a material diminution in your base salary except for across-the-board salary reductions based on the Company's financial performance similarly affecting all or substantially all similarly situated employees; (iii) the Company shall have required that you relocate your principal work location to any place which is more than fifty (50) miles from your principal place of work as of the date of the commencement of your employment with the Company; or (iv) the material breach of this offer by the Company.

"Good Reason Process" means that (i) you reasonably determine in good faith that a "Good Reason" condition has occurred; (ii) you notify the Company in writing of the occurrence of the Good Reason condition within sixty (60) days of the occurrence of such condition; (iii) you cooperate in good faith with the Company's efforts, for a period not less than thirty (30) days following such notice (the "Cure Period"), to remedy the condition; (iv) notwithstanding such efforts, the Good Reason condition continues to exist; and (v) you terminate your employment within sixty (60) days after the end of the Cure Period. For the avoidance of doubt, if the Company cures the Good Reason condition during the Cure Period, Good Reason shall be deemed not to have occurred.

"Sale Event" means (1) a merger or consolidation in which the Company is a constituent party (or in which a subsidiary of the Company is a constituent party and the Company issues shares of its capital stock pursuant to such merger or consolidation), other than a merger or consolidation in which the voting securities of the Company outstanding immediately prior to such merger or consolidation continue to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity) more than 50% of the combined voting power of the voting securities of the surviving entity outstanding immediately after such merger or consolidation, or (2) any transaction or series of related transactions in which in excess of 50% of the Company's voting power is transferred, other than the sale by the Company of stock in transactions the primary purpose of which is to raise capital for the Company's operations and activities, or (3) a sale, lease, exclusive license or other disposition of all or substantially all (as determined by the Board in its sole discretion) of the assets of the Company other than a sale, lease, license or other disposition of all or substantially all of the consolidated assets of the Company to an entity, more than 50% of the combined voting power of the voting securities of which are beneficially owned by shareholders of the Company in substantially the same proportions as their beneficial ownership of the outstanding voting securities of the Company immediately prior to such sale, lease, exclusive license or other disposition.

"Sale Event Window" means the period beginning three (3) months before and ending twelve (12) months following a Sale Event of the Company.

"Separation Agreement" means a separation agreement in a form satisfactory to the Company containing, among other provisions, a release of claims in favor of the Company and its related persons and entities, nondisparagement, and reaffirmation of post-employment continuing obligations to the Company under the PIIA.

"Severance Amount" means an amount equal to three (3) months of your final base salary rate plus, if you are participating in the Company's group health insurance plans on the effective date of termination and timely elect and remains eligible for continued coverage under the Consolidated Omnibus Budget Reconciliation Act ("COBRA"), or, if applicable, state or local insurance laws, three (3) months of the employer-paid portion of your COBRA premiums (including family coverage, if applicable). When due under Sections 6(b), the Severance Amount shall be paid out in substantially equal installments in accordance with the Company's payroll practice over three (3) months, commencing within sixty (60) days after the date of termination; provided, however, that if the 60-day period begins in one calendar year and ends in a second calendar year, the Severance Amount shall begin to be paid in the second calendar year by the last day of such 60-day period; provided, further, that the initial payment shall include acatch-up payment to cover amounts retroactive to the day immediately following the date of termination before the Separation Agreement became effective. The Severance Amount is intended, and shall be interpreted, to: (x) comply with Section 409A of the Internal Revenue Code and the Treasury Regulations and other guidance promulgated thereunder; or (y) be exempt from Code Section 409A as a "short term deferral," within the meaning of Treas. Reg. Section 1.409A-1(b)(4), or as "separation pay," within the meaning of Treas. Reg. Section 1.409A-1(b)(9). In all events, this offer shall be interpreted and administered consistent with such intent. If the Severance Amount is to be paid in two or more installments, each installment shall be treated as a separate payment for purposes of Code Section 409A.

7. **Proprietary Information and Inventions Agreement**. Like all Company employees, you will be required, as a condition of your employment with the Company, to sign the Company's standard Proprietary Information and Inventions Agreement (the "PIIA"), a copy of which is attached hereto as **Exhibit A**.

8. **Employment Relationship**. Employment with the Company is for no specific period of time. Your employment with the Company will be "at will," meaning that either you or the Company may terminate your employment at any time and for any reason, with or without cause. Any contrary representations that may have been made to you are superseded by this letter agreement. This is the full and complete agreement between you and the Company on this term. Although your job duties, title, compensation and benefits, as well as the Company's personnel policies and procedures, may change from time to time, the "at will" nature of your employment may only be changed in an express written agreement signed by you and a duly authorized officer of the Company (other than you).

9. **Tax Matters**.

(a) **Withholding**. All forms of compensation referred to in this letter agreement are subject to reduction to reflect applicable withholding and payroll taxes and other deductions required by law.

(b) **Tax Advice**. You are encouraged to obtain your own tax advice regarding your compensation from the Company. You agree that the Company does not have a duty to design its compensation policies in a manner that minimizes your tax liabilities, and you will not make any claim against the Company or its Board of Directors related to tax liabilities arising from your compensation.

(c) **Severance**. If any payment or benefit you would receive from the Company pursuant to the Severance Amount or Double-Trigger Acceleration or otherwise ("Payment") would (i) constitute a "parachute payment" within the meaning of 26 U.S. Code Section 280G, and (ii) but for this sentence, be subject to the excise tax imposed by 26 U.S. Code Section 4999 (the "Excise Tax"), then such Payment will be reduced to the Reduced Amount. The "Reduced Amount" will be either (x) the largest portion of the Payment that would result in no portion of the Payment being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount, after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in your receipt, on an after-tax basis, of the greater amount of the Payment notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in payments and/or benefits constituting "parachute payments" is necessary so that the Payment equals the Reduced Amount, reduction will occur in the following order: reduction of current cash payments; reduction of deferred cash payments subject to 26 U.S. Code Section 409A; cancellation of accelerated vesting of stock awards; reduction of employee benefits. In the event that acceleration of vesting of stock award compensation is to be reduced, such acceleration of vesting will be cancelled in the reverse order of the date of grant of your stock awards.

The accounting firm engaged by the Company for general audit purposes as of the day prior to the effective date of the Sale Event will perform the foregoing calculations. If the accounting firm so engaged by the Company is serving as accountant or auditor for the individual, entity or group affecting the Sale Event, the Company will appoint a nationally recognized accounting firm to make the determinations required hereunder. The Company will bear all expenses with respect to the determinations by such accounting firm required to be made hereunder.

The accounting firm engaged to make the determinations hereunder will provide its calculations, together with detailed supporting documentation, to the Company and you within fifteen (15) calendar days after the date on which your right to a Payment is triggered (if requested at that time by the Company or you) or such other time as requested by the Company or you. If the accounting firm determines that no Excise Tax is payable with respect to a Payment, it will furnish the Company and you with an opinion reasonably acceptable to you that no Excise Tax will be imposed with respect to such Payment. Any good faith determinations of the accounting firm made hereunder will be final, binding and conclusive upon the Company and you.

10. **Interpretation, Amendment and Enforcement**. This letter agreement and Exhibit A constitute the complete agreement between you and the Company, contain all of the terms of your employment with the Company and supersede any prior agreements, representations or understandings (whether written, oral or implied) between you and the Company. This letter agreement may not be amended or modified, except by an express written agreement signed by both you and a duly authorized officer of the Company. The terms of this letter agreement and the resolution of any disputes as to the meaning, effect, performance or validity of this letter agreement or arising out of related to, or in any way connected with, this letter agreement, your employment with the Company or any other relationship between you and the Company (the "Disputes") will be governed by California law, excluding laws relating to conflicts or choice of law. You and the Company submit to the exclusive personal jurisdiction of the federal and state courts located in San Francisco, California, in connection with any Dispute or any claim related to any Dispute.

* * * * *

We hope that you will accept our offer to join the Company. You may indicate your agreement with these terms and accept this offer by signing and dating both the original of this letter agreement and the enclosed Proprietary Information and Inventions Agreement and returning them to me. This offer, if not accepted, will expire at the close of business on August 4, 2020. As required by law, your employment with the Company is contingent upon your providing legal proof of your identity and authorization to work in the United States. Your employment is also contingent upon your starting work with the Company on or before August 31, 2020.

I very much look forward to receiving your signed offer letter. Most importantly, I look forward to partnering with you, Katherine, to build an outstanding company that will transform science and medicine and profoundly alter the lives of our patients and their families.

Sincerely,

/s/ Josh Lehrer

Integral Medicines, Inc.

By: Josh Lehrer, MD
Title: Chief Executive Officer

I have read and accept this employment offer:

/s/ Katherine Stultz
Signature of Employee

Dated: 8/3/2020

Attachment:

Exhibit A: Proprietary Information and Inventions Agreement

Exhibit 10.8

Graphite Bio, Inc.

September 14, 2020

Philip Gutry
Via Electronic Delivery

Dear Philip:

It is my great pleasure to present this offer letter to you to join Graphite Bio, Inc. (the "Company") as our Chief Business Officer (CBO) and Head of Finance and Investor Relations. The entire Board and I are very excited to have you as a member of the Graphite Bio team. Your experiences and accomplishments are consistent with the impact we hope to have at Graphite Bio on science and on patients, and we look forward to your many contributions to the Company.

1. **Position**. Your initial title will be Chief Business Officer and Head of Finance and Investor Relations, and you will initially report to the Company's Chief Executive Officer. This is a full-time position. While you render services to the Company, you will not engage in any other employment, consulting or other business activity (whether full-time or part-time) that would create a conflict of interest with the Company. By signing this letter agreement, you confirm to the Company that you have no contractual commitments or other legal obligations that would prohibit you from performing your duties for the Company.

2. **Cash Compensation**. The Company will pay you a starting salary at the rate of $375,000.00 per year, payable in accordance with the Company's standard payroll schedule and subject to applicable deductions and withholdings. This salary will be subject to periodic review and adjustments at the Company's discretion. In addition, in the first payroll following your commencement of employment with the Company, you will receive a one-time bonus of $50,000.00 (the "Signing Bonus"), less applicable deductions and withholdings. Notwithstanding the foregoing, if your employment with the Company is terminated voluntarily by you, prior to the twelve (12) month anniversary of your start date as an employee of the Company, you agree that you will not have earned the Signing Bonus or any prorated portion thereof and that you will be required to pay the full $50,000.00 of the Signing Bonus to the Company within thirty (30) days of the end of your employment.

3. **Annual Performance Bonus**. You will be eligible to earn an annual performance bonus. The Company will target the bonus at 30% of your annual salary rate, and that target will be prorated for calendar year 2020 to reflect the portion of the calendar year you were actually eligible to earn an annual performance bonus as of the Start Date. The actual bonus percentage is discretionary and will be subject to the Company's assessment of your performance, as well as business conditions at the Company. The annual performance bonus, if any, shall be paid between January 1st and March 15th of the calendar year following the calendar year for which such bonus was earned. To earn an annual performance bonus for any particular calendar year of employment, (i) the Company and you must achieve applicable performance metrics, to be established and determined by the Company in its sole discretion, and (ii) you must remain employed by the Company on the date the bonus is paid (which will be no later than March 15th of the calendar year following the calendar year to which the bonus pertains). The bonus will also be subject to approval by and adjustment at the discretion of the Board and the terms of any applicable bonus plan.

4. **Employee Benefits**. As a regular employee of the Company, you will be eligible to participate in a number of Company-sponsored benefits. In addition, you will be entitled to paid vacation in accordance with the Company's vacation policy, as in effect from time to time.

5. **Stock Options**. Subject to the approval of the Company's Board of Directors or its Compensation Committee, and further subject to the Company's approved Stock Option Plan, you will be granted an option to purchase 463,433 shares of the Company's Common Stock (the "Option"). The exercise price per share of the Option will be determined by the Board of Directors when the Option is granted. The Option will be subject to the terms and conditions applicable to options granted under the stock option plan in effect at the time of the grant and the applicable stock option agreement. You will vest in 25% of the Option shares after 12 months of continuous service, and the balance will vest in equal monthly installments over the next 36 months of continuous service, as described in the applicable stock option agreement. If within a Sale Event Window (as defined below), (a) the Company terminates your employment without Cause (as defined below), or (b) you terminate your employment for Good Reason (as defined below), and in either case other than as a result of death or disability, and provided such termination constitutes a "separation from service" within the meaning of Treasury Regulation Section 1.409A-1(h), and subject to your signing the Separation Agreement (as defined below) and the Separation Agreement becoming effective within sixty (60) days of such termination, then 100% of the shares that are subject to vesting and are unvested as of the date of such termination will immediately become fully vested (the "Double-Trigger Acceleration"); any forfeiture or lapsing of such shares shall be delayed until the sixtieth (60th) day after the date of such termination and shall only occur if the Separation Agreement does not become effective on or before that sixtieth (60th) day.

6. **Termination**. Subject to the terms of this Section 6, your employment with the Company will be "at will," meaning that either you or the Company may terminate your employment at any time during for no reason or for any reason not otherwise specifically prohibited by law, and any contrary representations that may have been made to you are superseded by this offer.

(a) **Compensation and Benefits Upon Termination Generally**. If your employment with the Company is terminated for any reason, the Company shall pay or provide to you any earned but unpaid base salary, unpaid expense reimbursements, accrued but unused vacation (if applicable under the Company's vacation policy), and any vested benefits you may have under the Company's employee benefit plans through the date of termination (the "Accrued Benefit").

(b) **Compensation and Benefits Upon Termination Without Cause or for Good Reason After the Second Tranche Closing Outside of a Sale Event Window**. If your employment is terminated by the Company without Cause or by you for Good Reason, in either case, outside of a Sale Event Window, and if such termination occurs after the first date on which the Company has sold preferred stock with aggregate gross proceeds to the Company in the amount

of at least $20,000,000 cumulatively to such date (such date, the "Second Tranche Closing"), then, in addition to the Accrued Benefit and subject to you signing the Separation Agreement and the Separation Agreement becoming effective within sixty (60) days of such termination, the Company shall pay you the Severance Amount (defined below).

(c) **Compensation and Benefits Upon Termination Without Cause or for Good Reason After the Second Tranche Closing During a Sale Event Window**. If your employment is terminated by the Company without Cause or by you for Good Reason, in either case, during a Sale Event Window, and if such termination occurs after the Second Tranche Closing, then, in addition to the Accrued Benefit and subject to you signing the Separation Agreement and the Separation Agreement becoming effective within sixty (60) days of such termination, you shall be entitled to receive the Double-Trigger Acceleration and the Severance Amount.

(d) **Definitions**. For purposes of this offer, the following terms shall have the following definitions:

"Cause" means (i) conduct by you constituting a material act of misconduct in connection with the performance of your duties, including, without limitation, misappropriation of funds or property of the Company or any of its subsidiaries or affiliates other than the occasional, customary and de minimis use of Company property for personal purposes; (ii) your conviction of, or plea of nolo contendere to, (A) any felony; or (B) a misdemeanor involving moral turpitude, deceit, dishonesty or fraud; (iii) any willful misconduct by you that would reasonably be expected to result in material injury or material reputational harm to the Company or any of its subsidiaries and affiliates if you were retained in your position; (iv) your continued willful non-performance of your responsibilities hereunder (other than by reason of your physical or mental illness, incapacity or disability) which has continued for more than thirty (30) days following written notice of such non-performance from the Board; (v) your willful breach of any obligation in the PIIA; (vi) an intentional, material violation by you of any of the Company's written employment policies; or (vii) your failure to reasonably cooperate with a bona fide internal investigation or an investigation by regulatory or law enforcement authorities, after being instructed by the Board to cooperate, or the willful destruction or failure to preserve documents or other materials known to be relevant to such investigation or the inducement of others to fail to cooperate or to produce documents or other materials in connection with such investigation.

"Good Reason" means that you have complied with the Good Reason Process (defined below) following the occurrence of any of the following events: (i) a material diminution in your responsibilities, authority or duties; provided that a Sale Event of the Company and subsequent conversion of the Company to a division or unit of the surviving or acquiring entity will not result in a material diminution absent a material diminution of your responsibilities, authority or duties with respect to such division or unit; (ii) a material diminution in your base salary except for across-the-board salary reductions based on the Company's financial performance similarly affecting all or substantially all similarly situated employees; (iii) the Company shall have required that you relocate your principal work location to any place which is more than fifty (50) miles from your principal place of work as of the date of the commencement of your employment with the Company; or (iv) the material breach of this offer by the Company.

"Good Reason Process" means that (i) you reasonably determine in good faith that a "Good Reason" condition has occurred; (ii) you notify the Company in writing of the occurrence of the Good Reason condition within sixty (60) days of the occurrence of such condition; (iii) you cooperate in good faith with the Company's efforts, for a period not less than thirty (30) days following such notice (the "Cure Period"), to remedy the condition; (iv) notwithstanding such efforts, the Good Reason condition continues to exist; and (v) you terminate your employment within sixty (60) days after the end of the Cure Period. For the avoidance of doubt, if the Company cures the Good Reason condition during the Cure Period, Good Reason shall be deemed not to have occurred.

"Sale Event" means (1) a merger or consolidation in which the Company is a constituent party (or in which a subsidiary of the Company is a constituent party and the Company issues shares of its capital stock pursuant to such merger or consolidation), other than a merger or consolidation in which the voting securities of the Company outstanding immediately prior to such merger or consolidation continue to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity) more than 50% of the combined voting power of the voting securities of the surviving entity outstanding immediately after such merger or consolidation, or (2) any transaction or series of related transactions in which in excess of 50% of the Company's voting power is transferred, other than the sale by the Company of stock in transactions the primary purpose of which is to raise capital for the Company's operations and activities, or (3) a sale, lease, exclusive license or other disposition of all or substantially all (as determined by the Board in its sole discretion) of the assets of the Company other than a sale, lease, license or other disposition of all or substantially all of the consolidated assets of the Company to an entity, more than 50% of the combined voting power of the voting securities of which are beneficially owned by shareholders of the Company in substantially the same proportions as their beneficial ownership of the outstanding voting securities of the Company immediately prior to such sale, lease, exclusive license or other disposition.

"Sale Event Window" means the period beginning three (3) months before and ending twelve (12) months following a Sale Event of the Company.

"Separation Agreement" means a separation agreement in a form satisfactory to the Company containing, among other provisions, a release of claims in favor of the Company and its related persons and entities, nondisparagement, and reaffirmation of post-employment continuing obligations to the Company under the PIIA.

"Severance Amount" means an amount equal to three (3) months of your final base salary rate, plus, if you are participating in the Company's group health insurance plans on the effective date of termination and timely elect and remains eligible for continued coverage under the Consolidated Omnibus Budget Reconciliation Act ("COBRA"), or, if applicable, state or local insurance laws, three (3) months of the employer-paid portion of your COBRA premiums (including family coverage, if applicable). When due under Sections 6(b), the Severance Amount shall be paid out in substantially equal installments in accordance with the Company's payroll practice over three (3) months, commencing within sixty (60) days after the date of termination; provided, however, that if the 60-day period begins in one calendar year and ends in a second calendar year, the Severance Amount shall begin to be paid in the second calendar year by the last

day of such 60-day period; provided, further, that the initial payment shall include acatch-up payment to cover amounts retroactive to the day immediately following the date of termination before the Separation Agreement became effective. The Severance Amount is intended, and shall be interpreted, to: (x) comply with Section 409A of the Internal Revenue Code and the Treasury Regulations and other guidance promulgated thereunder; or (y) be exempt from Code Section 409A as a "short term deferral," within the meaning of Treas. Reg. Section 1.409A-1(b)(4), or as "separation pay," within the meaning of Treas. Reg. Section 1.409A-1(b)(9). In all events, this offer shall be interpreted and administered consistent with such intent. If the Severance Amount is to be paid in two or more installments, each installment shall be treated as a separate payment for purposes of Code Section 409A.

7. **Proprietary Information and Inventions Agreement**. Like all Company employees, you will be required, as a condition of your employment with the Company, to sign the Company's standard Proprietary Information and Inventions Agreement (the "PIIA"), a copy of which is attached hereto as **Exhibit A**.

8. **Employment Relationship**. Employment with the Company is for no specific period of time. Your employment with the Company will be "at will," meaning that either you or the Company may terminate your employment at any time and for any reason, with or without cause. Any contrary representations that may have been made to you are superseded by this letter agreement. This is the full and complete agreement between you and the Company on this term. Although your job duties, title, compensation and benefits, as well as the Company's personnel policies and procedures, may change from time to time, the "at will" nature of your employment may only be changed in an express written agreement signed by you and a duly authorized officer of the Company (other than you).

9. **Tax Matters**.

(a) **Withholding**. All forms of compensation referred to in this letter agreement are subject to reduction to reflect applicable withholding and payroll taxes and other deductions required by law.

(b) **Tax Advice**. You are encouraged to obtain your own tax advice regarding your compensation from the Company. You agree that the Company does not have a duty to design its compensation policies in a manner that minimizes your tax liabilities, and you will not make any claim against the Company or its Board of Directors related to tax liabilities arising from your compensation.

(c) **Severance**. If any payment or benefit you would receive from the Company pursuant to the Severance Amount or Double-Trigger Acceleration or otherwise ("Payment") would (i) constitute a "parachute payment" within the meaning of 26 U.S. Code Section 280G, and (ii) but for this sentence, be subject to the excise tax imposed by 26 U.S. Code Section 4999 (the "Excise Tax"), then such Payment will be reduced to the Reduced Amount. The "Reduced Amount" will be either (x) the largest portion of the Payment that would result in no portion of the Payment being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount, after taking into account all applicable federal, state and local

employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in your receipt, on an after-tax basis, of the greater amount of the Payment notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in payments and/or benefits constituting "parachute payments" is necessary so that the Payment equals the Reduced Amount, reduction will occur in the following order: reduction of current cash payments; reduction of deferred cash payments subject to 26 U.S. Code Section 409A; cancellation of accelerated vesting of stock awards; reduction of employee benefits. In the event that acceleration of vesting of stock award compensation is to be reduced, such acceleration of vesting will be cancelled in the reverse order of the date of grant of your stock awards.

The accounting firm engaged by the Company for general audit purposes as of the day prior to the effective date of the Sale Event will perform the foregoing calculations. If the accounting firm so engaged by the Company is serving as accountant or auditor for the individual, entity or group affecting the Sale Event, the Company will appoint a nationally recognized accounting firm to make the determinations required hereunder. The Company will bear all expenses with respect to the determinations by such accounting firm required to be made hereunder.

The accounting firm engaged to make the determinations hereunder will provide its calculations, together with detailed supporting documentation, to the Company and you within fifteen (15) calendar days after the date on which your right to a Payment is triggered (if requested at that time by the Company or you) or such other time as requested by the Company or you. If the accounting firm determines that no Excise Tax is payable with respect to a Payment, it will furnish the Company and you with an opinion reasonably acceptable to you that no Excise Tax will be imposed with respect to such Payment. Any good faith determinations of the accounting firm made hereunder will be final, binding and conclusive upon the Company and you.

10. **Interpretation, Amendment and Enforcement**. This letter agreement and Exhibit A constitute the complete agreement between you and the Company, contain all of the terms of your employment with the Company and supersede any prior agreements, representations or understandings (whether written, oral or implied) between you and the Company. This letter agreement may not be amended or modified, except by an express written agreement signed by both you and a duly authorized officer of the Company. The terms of this letter agreement and the resolution of any disputes as to the meaning, effect, performance or validity of this letter agreement or arising out of, related to, or in any way connected with, this letter agreement, your employment with the Company or any other relationship between you and the Company (the "Disputes") will be governed by California law, excluding laws relating to conflicts or choice of law. You and the Company submit to the exclusive personal jurisdiction of the federal and state courts located in San Francisco, California, in connection with any Dispute or any claim related to any Dispute.

* * * * *

We hope that you will accept our offer to join the Company. You may indicate your agreement with these terms and accept this offer by signing and dating both the original of this letter agreement and the enclosed Proprietary Information and Inventions Agreement and returning them to me. This offer, if not accepted, will expire at the close of business on September 15, 2020. As required by law, your employment with the Company is contingent upon your providing legal proof of your identity and authorization to work in the United States. Your employment is also contingent upon your starting work with the Company on or before October 5, 2020.

I very much look forward to receiving your signed offer letter. Most importantly, I look forward to partnering with you to build an outstanding company that will transform science and medicine and profoundly alter the lives of our patients and their families.

Sincerely,

/s/ Josh Lehrer

Graphite Bio, Inc.

By: Josh Lehrer, MD
Title: Chief Executive Officer

I have read and accept this employment offer:

/s/ Philip Gutry
Signature of Employee

Dated: 9/15/20

Attachment:

Exhibit A: Proprietary Information and Inventions Agreement

LEASE AGREEMENT

THIS LEASE AGREEMENT (this "**Lease**") is made this 24th day of April, 2020, between **ARE-SAN FRANCISCO NO. 12, LLC**, a Delaware limited liability company ("**Landlord**"), and **INTEGRAL MEDICINES, INC**., a Delaware corporation ("**Tenant**").

Building: That certain building containing 6 floors known as 279 East Grand Avenue, South San Francisco, California

Premises: A portion of the fourth floor of the Building, containing approximately 6,340 rentable square feet, as determined by Landlord, as shown on **Exhibit A**.

Project: The real property on which the Building in which the Premises are located, together with all improvements thereon and appurtenances thereto as described on **Exhibit B**.

Base Rent: $5.50 per rentable square foot of the Premises per month.

Rentable Area of Premises: 6,340 sq. ft.

Rentable Area of Building: 211,405 sq. ft.

Rentable Area of Project: 618,774 sq. ft.

Tenant's Share of Operating Expenses of the Building: 3.00%

Building's Share of the Project: 34.16%

Security Deposit: $34,870.00

Base Term: Beginning on the Commencement Date and ending on June 30, 2021.

Permitted Use: Research and development laboratory, office and other related uses consistent with the character of the Project and otherwise in compliance with the provisions of Section 7 hereof.

Address for Rent Payment:
P.O. Box 975383
Dallas, TX 75397-5383

Landlord's Notice Address:
26 North Euclid Avenue
Pasadena, CA 91101
Attention: Corporate Secretary

Tenant's Notice Address prior to Commencement Date:
c/o Versant Ventures
One Sansome Street, Suite 3630
San Francisco, CA 94104
Attention: Jerel Davis

Tenant's Notice Address after Commencement Date:
279 East Grand Avenue, Suite 430
South San Francisco, CA 94080
Attention: Chief Executive Officer

The following Exhibits and Addenda are attached hereto and incorporated herein by this reference:

[X] **EXHIBIT A** - PREMISES DESCRIPTION
[ ] **EXHIBIT C** - INTENTIONALLY OMITTED
[X] **EXHIBIT E** - RULES AND REGULATIONS
[X] **EXHIBIT G** - SHARED AREAS

[X] **EXHIBIT B** - DESCRIPTION OF PROJECT
[X] **EXHIBIT D** - COMMENCEMENT DATE
[X] **EXHIBIT F** - TENANT'S PERSONAL PROPERTY

1. **Lease of Premises**. Upon and subject to all of the terms and conditions hereof, Landlord hereby leases the Premises to Tenant and Tenant hereby leases the Premises from Landlord. The portions of the Project which are for the non-exclusive use of tenants of the Project, including without limitation, public or common lobbies, any Common Area amenities made available for use by tenants of the fourth floor of the Building, common chases and conduits, shared mechanical and utility rooms, hallways, stairways, elevators and common walkways, the common toilets, corridors and elevator lobbies of multi-tenant floors, access roads, driveways, parking areas, shared loading areas, pedestrian sidewalks, landscaped areas and trash enclosures, are collectively referred to herein as the "**Common Areas**." Tenant shall have the non-exclusive right during the Term to use the Common Areas along with others having the right to use the Common Areas. Landlord reserves the right to modify Common Areas, provided that such modifications do not materially adversely affect Tenant's use of the Premises for the Permitted Use. From and after the Commencement Date through the expiration of the Term, Tenant shall have access to the Building and the Premises 24 hours a day, 7 days a week, 365 days per year, except in the case of emergencies, as the result of Legal Requirements, the performance by Landlord of any installation, maintenance or repairs, or any other temporary interruptions, and otherwise subject to the terms of this Lease.

2. **Delivery; Acceptance of Premises; Commencement Date**. Commencing on the date that is 1 business day after the mutual execution and delivery of this Lease by the parties (the "**Delivery Date**"), Landlord shall permit Tenant access to the Premises for Tenant's installation and set-up of its furniture, fixtures and equipment in the Premises (collectively, "**FF&E Installation**"), provided that such FF&E installation is coordinated with Landlord, and Tenant complies with this Lease and all other reasonable restrictions and conditions Landlord may impose during the FF&E Installation. All such access shall be during normal business hours. Notwithstanding the foregoing, Tenant shall have no right to enter onto any portion of the Premises or the Project unless and until Tenant shall deliver to Landlord evidence reasonably satisfactory to Landlord demonstrating that the insurance required to be carried by Tenant pursuant to Section 17 is in full force and effect. Any access to the Premises by Tenant before the Commencement Date shall be subject to all of the terms and conditions of this Lease, excluding the obligation to pay Base Rent and Operating Expenses (so long as Tenant does not operate its business in all or any portion of the Premises during such period, in which case Base Rent and Operating Expenses shall be payable).

The "**Commencement Date**" shall be the date that is 14 days after the Delivery Date. Upon request of Landlord, Tenant shall execute and deliver a written acknowledgment of the Commencement Date and the expiration date of the Term when such are established in the form of the "Acknowledgement of Commencement Date" attached to this Lease as **Exhibit D**; provided, however, Tenant's failure to execute and deliver such acknowledgment shall not affect Landlord's or Tenant's rights hereunder. The "**Term**" of this Lease shall be the Base Term, as defined above on the first page on this Lease.

Notwithstanding the foregoing, Landlord and Tenant acknowledge that as of the date of this Lease, the County of San Mateo has placed a moratorium on construction and related activities in the county as part of its efforts to slow the transmission of COVID-19 (such moratorium and any extensions or replacements thereof for the purposes of slowing the transmission of COVID-19 by any applicable governmental entity, the "**Moratorium**"). To the extent that the Moratorium precludes or materially restricts activities required to prepare space for the operation of research and development/biotech companies in the County of San Mateo of the type that would preclude or materially restrict Tenant from performing the FF&E Installation required for Tenant's occupancy of the Premises or otherwise preparing the Premises for occupancy or from moving into the Premises, then the Commencement Date shall be delayed 1 day for each day that such Moratorium remains in effect; provided, however, that to the extent that Tenant is precluded or materially restricted due to the existence of the Moratorium from substantially completing the FF&E Installation required for Tenant's use and occupancy of the Premises by July 1, 2020, then this Lease may be terminated by Tenant by written notice to the Landlord, and if so terminated by Tenant: (a) the Security Deposit, or any balance thereof (i.e., after deducting therefrom all amounts to which Landlord is entitled under the provisions of this Lease), shall be returned to Tenant, and (b) neither Landlord nor Tenant shall have any further rights, duties or obligations under this Lease, except with respect to provisions which expressly survive termination of this Lease. If Tenant does not elect to void this Lease by July 8, 2020, such right to void this Lease shall be waived and this Lease shall remain in full force and effect.

During the Term, Tenant shall have the right to use the furniture, fixtures and equipment belonging to Landlord shown on **Exhibit A** attached to this Lease and located within the Premises on the Commencement Date ("**Landlord's FF&E**"). Tenant shall have no right to remove any of Landlord's FF&E from the Premises and Landlord's FF&E shall be returned to Landlord at the expiration or earlier termination of the Term in substantially the same condition as received by Tenant, except for ordinary wear and tear and casualty.

Except as otherwise expressly set forth in this Lease: (i) Tenant shall accept the Premises in their condition as of the Commencement Date; (ii) Landlord shall have no obligation for any defects in the Premises; and (iii) Tenant's taking possession of the Premises shall be conclusive evidence that Tenant accepts the Premises and that the Premises were in good condition at the time possession was taken.

Notwithstanding anything to the contrary contained herein, for the period of 30 consecutive days after the Commencement Date, Landlord shall, at its sole cost and expense (which shall not constitute an Operating Expense), be responsible for any repairs that are required to be made to the Building or Building Systems (as defined in Section 13). unless Tenant or any Tenant Party was responsible for the cause of such repair, in which case Tenant shall pay the cost. In addition, Tenant shall have the benefit of any existing warranties issued to Landlord with respect to the Building Systems serving the Premises.

Tenant agrees and acknowledges that neither Landlord nor any agent of Landlord has made any representation or warranty with respect to the condition of all or any portion of the Premises or the Project, and/or the suitability of the Premises or the Project for the conduct of Tenant's business, and Tenant waives any implied warranty that the Premises or the Project are suitable for the Permitted Use. This Lease constitutes the complete agreement of Landlord and Tenant with respect to the subject matter hereof and supersedes any and all prior representations, inducements, promises, agreements, understandings and negotiations which are not contained herein. Landlord in executing this Lease does so in reliance upon Tenant's representations, warranties, acknowledgments and agreements contained herein.

3. **Rent**.

(a) **Base Rent**. The first month's Base Rent and the Security Deposit shall be due and payable on delivery of an executed copy of this Lease to Landlord. Tenant shall pay to Landlord in advance, without demand, abatement, deduction or set-off, monthly installments of Base Rent on or before the first day of each calendar month during the Term hereof, in lawful money of the United States of America, at the office of Landlord for payment of Rent set forth above, or to such other person or at such other place as Landlord may from time to time designate in writing. Payments of Base Rent for any fractional calendar month shall be prorated. The obligation of Tenant to pay Base Rent and other sums to Landlord and the obligations of Landlord under this Lease are independent obligations. Tenant shall have no right at any time to abate, reduce, or set-off any Rent (as defined in Section 5) due hereunder except for any abatement as may be expressly provided in this Lease.

(b) **Additional Rent**. In addition to Base Rent, Tenant agrees to pay to Landlord as additional rent ("**Additional Rent**"): (i) commencing on the Commencement Date, Tenant's Share of "Operating Expenses" (as defined in Section 5), and (ii) any and all other amounts Tenant assumes or agrees to pay under the provisions of this Lease, including, without limitation, any and all other sums that may become due by reason of any default of Tenant or failure to comply with the agreements, terms, covenants and conditions of this Lease to be performed by Tenant, after any applicable notice and cure period.

4. **Intentionally omitted**.

5. **Operating Expense Payments**. Landlord shall endeavor to deliver to Tenant, at least 30 days prior to the beginning of each calendar year of the Term, a written estimate of Operating Expenses for each calendar year during the Term (the "**Annual Estimate**"), which may be revised by Landlord from time to time during such calendar year (but no more than quarterly). Commencing on the Commencement Date and continuing thereafter on the first day of each month during the Term, Tenant shall pay Landlord an amount equal to 1/12th of Tenant's Share of the Annual Estimate. Payments for any fractional calendar month shall be prorated.

The term "**Operating Expenses**" means all costs and expenses of any kind or description whatsoever incurred or accrued each calendar year by Landlord with respect to the Building (including the Building's Share of all costs and expenses of any kind or description incurred or accrued by Landlord with respect to the Project which are not specific to the Building or any other building located in the Project) (including, without duplication, Taxes (as defined in Section 9), capital repairs, improvements and replacements amortized over the lesser of 10 years and the useful life (as reasonably determined by Landlord) of such capital repairs, improvements and replacements, and the costs of Landlord's third party property manager (not to exceed 3.0% of Base Rent) or, if there is no third party property manager, administration rent in the amount of 3.0% of Base Rent), excluding only:

(a) the original construction costs of the Project and renovation prior to the Commencement Date and costs of correcting defects in such original construction or renovation;

(b) capital expenditures for expansion of the Project;

(c) interest, principal payments of Mortgage (as defined inSection 27) debts of Landlord, financing costs and amortization of funds borrowed by Landlord, whether secured or unsecured, and all payments of base rent (but not taxes or operating expenses) under any ground lease or other underlying lease of all or any portion of the Project;

(d) depreciation of the Project (except for capital improvements, the cost of which are includable in Operating Expenses);

(e) advertising, legal and space planning expenses and leasing commissions and other costs and expenses incurred in procuring and leasing space to tenants for the Project, including any leasing office maintained in the Project, free rent and construction allowances for tenants;

(f) legal and other expenses incurred in the negotiation or enforcement of leases;

(g) completing, fixturing, improving, renovating, painting, redecorating or other work, which Landlord pays for or performs for other tenants within their premises, and costs of correcting defects in such work;

(h) costs to be reimbursed by other tenants of the Project or Taxes to be paid directly by Tenant or other tenants of the Project, whether or not actually paid;

(i) salaries, wages, benefits and other compensation paid to officers and employees of Landlord who are not assigned in whole or in part to the operation, management, maintenance or repair of the Project;

(j) general organizational, administrative and overhead costs relating to maintaining Landlord's existence, either as a corporation, partnership, or other entity, including general corporate, legal and accounting expenses;

(k) costs (including attorneys' fees and costs of settlement, judgments and payments in lieu thereof) incurred in connection with disputes with tenants, other occupants, or prospective tenants, and costs and expenses, including legal fees, incurred in connection with negotiations or disputes with employees, consultants, management agents, leasing agents, purchasers or mortgagees of the Building;

(l) costs incurred by Landlord due to the violation by Landlord, its employees, agents or contractors or any tenant of the terms and conditions of any lease of space in the Project or any Legal Requirement (as defined in Section 7);

(m) penalties, fines or interest incurred as a result of Landlord's inability or failure to make payment of Taxes and/or to file any tax or informational returns when due, or from Landlord's failure to make any payment of Taxes required to be made by Landlord hereunder before delinquency;

(n) overhead and profit increment paid to Landlord or to subsidiaries or affiliates of Landlord for goods and/or services in or to the Project to the extent the same exceeds the costs of such goods and/or services rendered by unaffiliated third parties on a competitive basis;

(o) costs of Landlord's charitable or political contributions, or of fine art maintained at the Project;

(p) costs in connection with services (including electricity), items or other benefits of a type which are not standard for the Project and which are not available to Tenant without specific charges therefor, but which are provided to another tenant or occupant of the Project, whether or not such other tenant or occupant is specifically charged therefor by Landlord;

(q) costs incurred in the sale or refinancing of the Project;

(r) net income taxes of Landlord or the owner of any interest in the Project, franchise, capital stock, gift, estate or inheritance taxes or any federal, state or local documentary taxes imposed against the Project or any portion thereof or interest therein;

(s) any costs incurred to remove, study, test or remediate, or otherwise related to the presence of Hazardous Materials in or about the Building or the Project for which Tenant is not responsible under this Lease;

(t) reserves;

(u) costs occasioned by condemnation;

(v) any expenses otherwise includable within Operating Expenses to the extent actually reimbursed by insurance policies required to be maintained by Landlord in accordance with Section 17;

(w) costs of repairs or other work necessitated by fire, windstorm or other similar casualty (deductible amounts may be included by Landlord as part of Operating Expenses, but Tenant's Share (i.e., 3.00%) of any earthquake deductible in excess of $25,000 may be included as part of Operating Expenses provided they are amortized over a period of 15 years (with interest not to exceed 8% per annum));

(x) insurance deductibles in excess of deductibles that Tenant can demonstrate are in excess of customary deductible amounts carried by institutional owners of Class A laboratory/office buildings in the South San Francisco area; provided, however, that if Tenant's Share of any earthquake deductibles exceeds $25,000, the same shall be amortized as provided for in Section 5(w) above; and

(y) any expenses otherwise includable within Operating Expenses to the extent actually reimbursed by persons other than tenants of the Project under leases for space in the Project.

Within 90 days after the end of each calendar year (or such longer period as may be reasonably required), Landlord shall furnish to Tenant a statement (an "**Annual Statement**") showing in reasonable detail: (a) the total and Tenant's Share of actual Operating Expenses for the previous calendar year, and (b) the total of Tenant's payments in respect of Operating Expenses for such year. If Tenant's Share of actual Operating Expenses for such year exceeds Tenant's payments of Operating Expenses for such year, the excess shall be due and payable by Tenant as Rent within 30 days after delivery of such Annual Statement to Tenant. If Tenant's payments of Operating Expenses for such year exceed Tenant's Share of actual Operating Expenses for such year Landlord shall pay the excess to Tenant within 30 days after delivery of such Annual Statement, except that after the expiration, or earlier termination of the Term or if

Tenant is delinquent in its obligation to pay Rent, Landlord shall pay the excess to Tenant after deducting all other amounts due Landlord. Landlord's and Tenant's obligations to pay any overpayments or deficiencies due pursuant to this paragraph shall survive the expiration or earlier termination of this Lease.

The Annual Statement shall be final and binding upon Tenant unless Tenant, within 60 days after Tenant's receipt thereof, shall contest any item therein by giving written notice to Landlord, specifying each item contested and the reason therefor. If, during such 60 day period, Tenant reasonably and in good faith questions or contests the accuracy of Landlord's statement of Tenant's Share of Operating Expenses, Landlord will provide Tenant with access to Landlord's books and records relating to the operation of the Project and such information as Landlord reasonably determines to be responsive to Tenant's questions (the "**Expense Information**"). If after Tenant's review of such Expense Information, Landlord and Tenant cannot agree upon the amount of Tenant's Share of Operating Expenses, then Tenant shall have the right to have a regionally or nationally recognized independent public accounting firm selected by Tenant and approved by Landlord (which approval shall not be unreasonably withheld, conditioned or delayed), working pursuant to a fee arrangement other than a contingent fee (at Tenant's sole cost and expense), audit and/or review the Expense Information for the year in question (the "**Independent Review**"). The results of any such Independent Review shall be binding on Landlord and Tenant. If the Independent Review shows that the payments actually made by Tenant with respect to Operating Expenses for the calendar year in question exceeded Tenant's Share of Operating Expenses for such calendar year, Landlord shall at Landlord's option either (i) credit the excess amount to the next succeeding installments of estimated Operating Expenses or (ii) pay the excess to Tenant within 30 days after delivery of such statement, except that after the expiration or earlier termination of this Lease or if Tenant is delinquent in its obligation to pay Rent, Landlord shall pay the excess to Tenant after deducting all other amounts due Landlord. If the Independent Review shows that Tenant's payments with respect to Operating Expenses for such calendar year were less than Tenant's Share of Operating Expenses for the calendar year, Tenant shall pay the deficiency to Landlord within 30 days after delivery of such statement. If the Independent Review shows that Tenant has overpaid with respect to Operating Expenses by more than 5% then Landlord shall reimburse Tenant for all costs incurred by Tenant for the Independent Review. Operating Expenses for the calendar years in which Tenant's obligation to share therein begins and ends shall be prorated. Notwithstanding anything set forth herein to the contrary, if the Building is not at least 95% occupied on average during any year of the Term, Tenant's Share of Operating Expenses for such year shall be computed as though the Building had been 95% occupied on average during such year.

"**Tenant's Share**" shall be the percentage set forth on the first page of this Lease as Tenant's Share as reasonably adjusted by Landlord for changes in the physical size of the Premises or the Project occurring thereafter. The rentable area of the Premises shall not be subject to re-measurement by either party during the Term. If Landlord has a reasonable basis for doing so, Landlord may equitably increase Tenant's Share for any item of expense or cost reimbursable by Tenant that relates to a repair, replacement, or service that benefits only the Premises or only a portion of the Project that includes the Premises or that varies with occupancy or use. Base Rent, Tenant's Share of Operating Expenses and all other amounts payable by Tenant to Landlord hereunder are collectively referred to herein as "**Rent**."

6. **Security Deposit**. Tenant shall deposit with Landlord, upon delivery of an executed copy of this Lease to Landlord, a security deposit (the "**Security Deposit**") for the performance of all of Tenant's obligations hereunder in the amount set forth on page 1 of this Lease, which Security Deposit shall be in the form of an unconditional and irrevocable letter of credit (the "**Letter of Credit**"): (i) in form and substance satisfactory to Landlord, (ii) naming Landlord as beneficiary, (iii) expressly allowing Landlord to draw upon it at any time from time to time by delivering to the issuer notice that Landlord is entitled to draw thereunder, (iv) issued by Silicon Valley Bank or another FDIC-insured financial institution satisfactory to Landlord, and (v) redeemable by presentation of a sight draft in the state of Landlord's choice. If Tenant does not provide Landlord with a substitute Letter of Credit complying with all of the requirements hereof at least 10 days before the stated expiration date of any then current Letter of Credit, Landlord shall have the right to draw the full amount of the current Letter of Credit and hold the funds drawn in cash without obligation for interest thereon as the Security Deposit until Tenant shall have replaced the expired Letter of Credit with a new Letter of Credit consistent with the requirements herein, at which time Landlord shall refund the amount of the previously drawn Letter of Credit to Tenant less any amounts applied under this Lease. The Security

Deposit shall be held by Landlord as security for the performance of Tenant's obligations under this Lease. The Security Deposit is not an advance rental deposit or a measure of Landlord's damages in case of Tenant's default. Upon each occurrence of a Default (as defined in Section 20), Landlord may use all or any part of the Security Deposit to pay delinquent payments due under this Lease, future rent damages under California Civil Code Section 1951.2, and the cost of any damage, injury, expense or liability caused by such Default, without prejudice to any other remedy provided herein or provided by law. Landlord's right to use the Security Deposit under this Section 6 includes the right to use the Security Deposit to pay future rent damages following the termination of this Lease pursuant to Section 21(c) below. Upon any use of all or any portion of the Security Deposit, Tenant shall pay Landlord on demand the amount that will restore the Security Deposit to the amount set forth on Page 1 of this Lease. Tenant hereby waives the provisions of any law, now or hereafter in force, including, without limitation, California Civil Code Section 1950.7, which provide that Landlord may claim from a security deposit only those sums reasonably necessary to remedy defaults in the payment of Rent, to repair damage caused by Tenant or to clean the Premises, it being agreed that Landlord may, in addition, claim those sums reasonably necessary to compensate Landlord for any other loss or damage, foreseeable or unforeseeable, caused by the act or omission of Tenant or any officer, employee, agent or invitee of Tenant. Upon bankruptcy or other debtor-creditor proceedings against Tenant, the Security Deposit shall be deemed to be applied first to the payment of Rent and other charges due Landlord for periods prior to the filing of such proceedings. If Tenant shall fully perform every provision of this Lease to be performed by Tenant, the Security Deposit, or any balance thereof (i.e., after deducting therefrom all amounts to which Landlord is entitled under the provisions of this Lease), shall be returned to Tenant (or, at Landlord's option, to the last assignee of Tenant's interest hereunder) within 60 days after the expiration or earlier termination of this Lease.

If Landlord transfers its interest in the Project or this Lease, Landlord shall either (a) transfer any Security Deposit then held by Landlord to a person or entity assuming Landlord's obligations under this Section 6, or (b) return to Tenant any Security Deposit then held by Landlord and remaining after the deductions permitted herein. Upon such transfer to such transferee or the return of the Security Deposit to Tenant, Landlord shall have no further obligation with respect to the Security Deposit, and Tenant's right to the return of the Security Deposit shall apply solely against Landlord's transferee. The Security Deposit is not an advance rental deposit or a measure of Landlord's damages in case of Tenant's default. Landlord's obligation respecting the Security Deposit is that of a debtor, not a trustee, and no interest shall accrue thereon.

7. **Use**. The Premises shall be used solely for the Permitted Use set forth in the basic lease provisions on page 1 of this Lease, and in compliance with all laws, orders, judgments, ordinances, regulations, codes, directives, permits, licenses, covenants and restrictions now or hereafter applicable to the Premises, and to the use and occupancy thereof, including, without limitation, the Americans With Disabilities Act, 42 U.S.C. § 12101, et seq. (together with the regulations promulgated pursuant thereto, "**ADA**") (collectively, "**Legal Requirements**" and each, a "**Legal Requirement**"). Tenant shall, upon 10 days' written notice from Landlord, discontinue any use of the Premises which is declared by any Governmental Authority (as defined in Section 9) having jurisdiction to be a violation of a Legal Requirement; unless Tenant is actively contesting any such determination in good faith and by appropriate legal proceedings, provided that Tenant first gives Landlord appropriate assurances reasonably satisfactory to Landlord against any loss, cost or expense on account thereof, and further provided such contest shall not subject Landlord to criminal penalties or civil sanctions, loss of property or civil liability. Tenant will not use or permit the Premises to be used for any purpose or in any manner that would void Tenant's or Landlord's insurance, increase the insurance risk, or cause the disallowance of any sprinkler or other credits. The Permitted Use as defined in this Lease will not result in the voidance of or an increased insurance risk or cause the disallowance of any sprinkler or other credits with respect to the insurance currently being maintained by Landlord. Tenant shall not permit any part of the Premises to be used as a "place of public accommodation", as defined in the ADA or any similar legal requirement. Tenant shall reimburse Landlord promptly upon demand for any additional premium charged for any such insurance policy by reason of Tenant's failure to comply with the provisions of this Section or otherwise caused by Tenant's use and/or occupancy of the Premises. Tenant will use the Premises in a careful, safe and proper manner and will not commit or permit waste, overload the floor or structure of the Premises, subject the Premises to use that would damage the Premises or obstruct or interfere with the rights of Landlord or other

tenants or occupants of the Project, including conducting or giving notice of any auction, liquidation, or going out of business sale on the Premises, or using or allowing the Premises to be used for any unlawful purpose. Tenant shall cause any equipment or machinery to be installed in the Premises so as to reasonably prevent sounds or vibrations from the Premises from extending into Common Areas, or other space in the Project. Tenant shall not place any machinery or equipment which would overload the floor in or upon the Premises or transport or move such items through the Common Areas of the Project or in the Project elevators without the prior written consent of Landlord, which shall not be unreasonably withheld or delayed. Tenant shall not, without the prior written consent of Landlord, which shall not be unreasonably withheld or delayed, use the Premises in any manner which will require ventilation, air exchange, heating, gas, steam, electricity or water beyond the existing capacity of the Project as proportionately allocated to the Premises based upon Tenant's Share as usually furnished for the Permitted Use.

Landlord, at its sole cost and not as an Operating Expense, shall be responsible for the compliance of the Common Areas of the Project with Legal Requirements as of the Commencement Date. Following the Commencement Date, Landlord shall, as an Operating Expense (to the extent such Legal Requirement is generally applicable to similar buildings in the area in which the Project is located) and at Tenant's expense (to the extent such Legal Requirement is triggered by reason of Tenant's, as compared to other tenants of the Project, specific use of the Premises or Tenant's Alterations) make any alterations or modifications to the Common Areas or the exterior of the Building or Project that are required by Legal Requirements. Except as provided in the 2 immediately preceding sentences, Tenant, at its sole expense, shall make any alterations or modifications to the interior of the Premises that are required by Legal Requirements (including, without limitation, compliance of the Premises with the ADA) related to Tenant's particular use of the Premises or Tenant's Alterations. Notwithstanding any other provision herein to the contrary, subject to the terms of this paragraph, Tenant shall be responsible for any and all demands, claims, liabilities, losses, costs, expenses, actions, causes of action, damages or judgments, and all reasonable expenses incurred in investigating or resisting the same (including, without limitation, reasonable attorneys' fees, charges and disbursements and costs of suit) (collectively, "**Claims**") arising out of or in connection with any failure of the Premises to comply with Legal Requirements to the extent related to Tenant's particular use of the Premises or Tenant's Alterations, and Tenant shall indemnify, defend, hold and save Landlord harmless from and against any and all Claims arising out of or in connection with any breach of this sentence.

Tenant acknowledges that Landlord may, but shall not be obligated to, seek to obtain Leadership in Energy and Environmental Design (LEED), WELL Building Standard, or other similar "green" certification with respect to the Project and/or the Premises, and Tenant agrees to reasonably cooperate with Landlord, and to provide such information and/or documentation as Landlord may reasonably request, in connection therewith.

8. **Holding Over**. If, with Landlord's express written consent, Tenant retains possession of the Premises after the termination of the Term, (i)unless otherwise agreed in such written consent, such possession shall be subject to immediate termination by Landlord at any time, (ii) all of the other terms and provisions of this Lease (including, without limitation, the adjustment of Base Rent pursuant to Section 4 hereof) shall remain in full force and effect (excluding any expansion or renewal option or other similar right or option) during such holdover period, (iii) Tenant shall continue to pay Base Rent in the amount payable upon the date of the expiration or earlier termination of this Lease or such other amount as Landlord may indicate, in Landlord's sole and absolute discretion, in such written consent, and (iv) all other payments shall continue under the terms of this Lease. If Tenant remains in possession of the Premises after the expiration or earlier termination of the Term without the express written consent of Landlord, (A) Tenant shall become a tenant at sufferance upon the terms of this Lease except that the monthly rental shall be equal to 150% of Base Rent, plus Operating Expenses, in effect during the last 30 days of the Term, and (B) Tenant shall be responsible for all damages suffered by Landlord resulting from or occasioned by Tenant's holding over, including consequential damages. Tenant acknowledges that Landlord has informed Tenant that the Premises is subject to a lease agreement with a third party which is scheduled to commence on July 1, 2021, and that the possibility of Landlord suffering consequential damages exists if Landlord is unable to deliver the Premises to such third party pursuant to such the terms of such lease agreement. No holding over by Tenant, whether with or without consent of Landlord, shall operate to extend

this Lease except as otherwise expressly provided, and this Section 8 shall not be construed as consent for Tenant to retain possession of the Premises. Acceptance by Landlord of Rent after the expiration of the Term or earlier termination of this Lease shall not result in a renewal or reinstatement of this Lease. Payments of Rent payable pursuant to this Section 8 for any fractional calendar month shall be prorated.

9. **Taxes**. Landlord shall pay, as part of Operating Expenses, all taxes, levies, fees, assessments and governmental charges of any kind, existing as of the Commencement Date or thereafter enacted (collectively referred to as "**Taxes**"), imposed by any federal, state, regional, municipal, local or other governmental authority or agency, including, without limitation, quasi-public agencies (collectively, "**Governmental Authority**") during the Term, including, without limitation, all Taxes: (i) imposed on or measured by or based, in whole or in part, on rent payable to (or gross receipts received by) Landlord under this Lease and/or from the rental by Landlord of the Project or any portion thereof, or (ii) based on the square footage, assessed value or other measure or evaluation of any kind of the Premises or the Project, or (iii) assessed or imposed by or on the operation or maintenance of any portion of the Premises or the Project, including parking, or (iv) assessed or imposed by, or at the direction of, or resulting from Legal Requirements, or interpretations thereof, promulgated by any Governmental Authority, or (v) imposed as a license or other fee, charge, tax, or assessment on Landlord's business or occupation of leasing space in the Project. Landlord may contest by appropriate legal proceedings the amount, validity, or application of any Taxes or liens securing Taxes. Notwithstanding anything to the contrary herein, Landlord shall only charge Tenant for assessments as if those assessments were paid by Landlord over the longest possible term which Landlord is permitted to pay for the applicable assessments without additional charge other than interest, if any, provided under the terms of the underlying assessments. Notwithstanding anything to the contrary contained in this Lease, Taxes shall not include any net income taxes, estate taxes or inheritance taxes imposed on Landlord except to the extent such net income taxes are in substitution for any Taxes payable hereunder, or any late penalties, interest or fines unless due to any late payment of Rent by Tenant. If any such Tax is levied or assessed directly against Tenant, then Tenant shall be responsible for and shall pay the same at such times and in such manner as the taxing authority shall require. Tenant shall pay, prior to delinquency, any and all Taxes levied or assessed against any personal property or trade fixtures placed by Tenant in the Premises, whether levied or assessed against Landlord or Tenant. If any Taxes on Tenant's personal property or trade fixtures are levied against Landlord or Landlord's property, or if the assessed valuation of the Project is increased by a value attributable to improvements in or alterations to the Premises, whether owned by Landlord or Tenant and whether or not affixed to the real property so as to become a part thereof, higher than the base valuation on which Landlord from time-to-time allocates Taxes to all tenants in the Project, Landlord shall have the right, but not the obligation, to pay such Taxes. Landlord's determination of any excess assessed valuation shall be binding and conclusive, absent manifest error. The amount of any such payment by Landlord shall constitute Additional Rent due from Tenant to Landlord immediately upon demand.

10. **Parking**. Subject to all applicable Legal Requirements, Force Majeure, a Taking (as defined inSection 19 below) and the exercise by Landlord of its rights hereunder, Tenant shall have the right, in common with other tenants of the Project pro rata in accordance with the rentable area of the Premises and the rentable areas of the Project occupied by such other tenants, to park in those areas designated for non-reserved parking, subject in each case to Landlord's rules and regulations. Landlord shall not be responsible for enforcing Tenant's parking rights against any third parties, including other tenants of the Project.

11. **Utilities, Services**.

(a) Landlord shall provide, subject to the terms of this Section 11, water, electricity, heat, light, power, sewer, and other utilities (including gas and fire sprinklers to the extent the Project is plumbed for such services), and refuse and trash collection and janitorial services (collectively, "**Utilities**"). Landlord shall pay, as Operating Expenses or subject to Tenant's reimbursement obligation, for all Utilities used on the Premises, all maintenance charges for Utilities, and any storm sewer charges or other similar charges for Utilities imposed by any Governmental Authority or Utility provider, and any taxes, penalties, surcharges or similar charges thereon. Landlord may cause, at Landlord's expense, any Utilities to be separately metered or charged directly to Tenant by the provider. Tenant shall pay directly to the Utility provider, prior

to delinquency, any separately metered Utilities and services which may be furnished to Tenant or the Premises during the Term. Tenant shall pay, as part of Operating Expenses, its share of all charges for jointly metered Utilities based upon consumption, as reasonably determined by Landlord. No interruption or failure of Utilities, from any cause whatsoever other than Landlord's willful misconduct, shall result in eviction or constructive eviction of Tenant, termination of this Lease or the abatement of Rent.

(b) Landlord's sole obligation for either providing emergency generators or providing emergency back-up power to Tenant shall be: (i) to provide emergency generators with not less than the capacity of the emergency generators located in the Building as of the date of this Lease, and (ii) to contract with a third party to maintain the emergency generators as per the manufacturer's standard maintenance guidelines. Except as otherwise provided in the immediately preceding sentence, Landlord shall have no obligation to provide Tenant with operational emergency generators or back-up power or to supervise, oversee or confirm that the third party maintaining the emergency generators is maintaining the generators as per the manufacturer's standard guidelines or otherwise. During any period of replacement, repair or maintenance of the emergency generators when the emergency generators are not operational, including any delays thereto due to the inability to obtain parts or replacement equipment, Landlord shall have no obligation to provide Tenant with an alternative back-up generator or generators or alternative sources of back-up power. Tenant expressly acknowledges and agrees that Landlord does not guaranty that such emergency generators will be operational at all times or that emergency power will be available to the Premises when needed.

(c) Shared compressed air and vacuum systems are available for Tenant's use within the Premises. Landlord's sole obligation for providing compressed air and vacuum systems to Tenant shall be to contract with a third party to maintain the components of the compressed air and vacuum systems located outside the Premises as per the manufacturer's standard maintenance guidelines. Except as otherwise provided in the immediately preceding sentence, Landlord shall have no obligation to supervise, oversee or confirm that the third party maintaining the compressed air and vacuum systems is maintaining the compressed air and vacuum systems as per the manufacturer's standard guidelines or otherwise. During any period of replacement, repair or maintenance of the compressed air and vacuum systems when the compressed air and vacuum systems are not operational, including any delays thereto due to the inability to obtain parts or replacement equipment, Landlord shall have no obligation to provide Tenant with an alternative compressed air and vacuum systems. Tenant expressly acknowledges and agrees that Landlord does not guaranty that such compressed air and vacuum systems will be operational at all times or that compressed air and vacuum systems will be available to the Premises when needed.

(d) Tenant agrees to provide Landlord with access to Tenant's water and/or energy usage data on a monthly basis, either by providing Tenant's applicable utility login credentials to Landlord's Measurabl online portal, or by another delivery method reasonably agreed to by Landlord and Tenant. The reasonable costs and expenses incurred by Landlord in connection with receiving and analyzing such water and/or energy usage data (including, without limitation, as may be required pursuant to applicable Legal Requirements) shall be included as part of Operating Expenses.

12. **Alterations and Tenant's Property**. Any alterations, additions, or improvements made to the Premises by or on behalf of Tenant, including additional locks or bolts of any kind or nature upon any doors or windows in the Premises, but excluding installation, removal or realignment of furniture systems (other than removal of furniture systems owned or paid for by Landlord) not involving any modifications to the structure or connections (other than by ordinary plugs or jacks) to Building Systems (as defined in Section 13) ("**Alterations**") shall be subject to Landlord's prior written consent, which may be given or withheld in Landlord's sole discretion if any such Alteration affects the structure or Building Systems and shall not be otherwise unreasonably withheld. If Landlord approves any Alterations, Landlord may impose such conditions on Tenant in connection with the commencement, performance and completion of such Alterations as Landlord may deem appropriate in Landlord's reasonable discretion. Any request for approval shall be in writing, delivered not less than 10 business days in advance of any proposed construction, and accompanied by plans, specifications, bid proposals, work contracts and such other information concerning the nature and cost of the alterations as may be reasonably requested by Landlord, including the identities and mailing addresses of all persons performing work or supplying materials.

Landlord's right to review plans and specifications and to monitor construction shall be solely for its own benefit, and Landlord shall have no duty to ensure that such plans and specifications or construction comply with applicable Legal Requirements. Tenant shall cause, at its sole cost and expense, all Alterations to comply with insurance requirements and with Legal Requirements and shall implement at its sole cost and expense any alteration or modification required by Legal Requirements as a result of any Alterations. Tenant shall pay to Landlord, as Additional Rent, on demand, an amount equal to the reasonable out-of-pocket costs incurred by Landlord to review Tenant's plans with respect to each Alteration. Before Tenant begins any Alteration, Landlord may post on and about the Premises notices of non-responsibility pursuant to applicable law. Tenant shall reimburse Landlord for, and indemnify and hold Landlord harmless from, any expense incurred by Landlord by reason of faulty work done by Tenant or its contractors, delays caused by such work, or inadequate cleanup.

Tenant shall furnish security or make other arrangements reasonably satisfactory to Landlord to assure payment for the completion of all Alterations work free and clear of liens, and shall provide (and cause each contractor or subcontractor to provide) certificates of insurance for workers' compensation and other coverage in amounts and from an insurance company satisfactory to Landlord protecting Landlord against liability for personal injury or property damage during construction. Upon completion of any Alterations, Tenant shall deliver to Landlord: (i) sworn statements setting forth the names of all contractors and subcontractors who did the work and final lien waivers from all such contractors and subcontractors; and (ii) "as built" plans for any such Alteration.

Except for Removable Installations (as hereinafter defined), all Installations (as hereinafter defined) shall be and shall remain the property of Landlord during the Term and following the expiration or earlier termination of the Term, shall not be removed by Tenant at any time during the Term, and shall remain upon and be surrendered with the Premises as a part thereof. Notwithstanding the foregoing, Landlord may, at the time its approval of any such Installation is requested, notify Tenant that Landlord requires that Tenant remove such Installation upon the expiration or earlier termination of the Term, in which event Tenant shall remove such Installation in accordance with the immediately succeeding sentence. Upon the expiration or earlier termination of the Term, Tenant shall remove (i) all wires, cables or similar equipment which Tenant has installed in the Premises or in the risers or plenums of the Building, (ii) any Installations for which Landlord has given Tenant notice of removal in accordance with the immediately preceding sentence, and (iii) all of Tenant's Property (as hereinafter defined), and Tenant shall restore and repair any damage caused by or occasioned as a result of such removal, including, without limitation, capping off all such connections behind the walls of the Premises and repairing any holes. During any restoration period beyond the expiration or earlier termination of the Term, Tenant shall pay Rent to Landlord as provided herein as if said space were otherwise occupied by Tenant. If Landlord is requested by Tenant or any lender, lessor or other person or entity claiming an interest in any of Tenant's Property to waive any lien Landlord may have against any of Tenant's Property, and Landlord consents to such waiver, then Landlord shall be entitled to be paid as administrative rent a fee of $1,000 per occurrence for its time and effort in preparing and negotiating such a waiver of lien.

For purposes of this Lease, (x) "**Removable Installations**" means any items listed on Exhibit F attached hereto and any items agreed by Landlord in writing to be included on Exhibit F in the future, (y) "**Tenant's Property**" means Removable Installations and, other than Installations, any personal property, trade fixtures, machinery or equipment of Tenant that may be removed without material damage to the Premises, and (z) "**Installations**" means all property of any kind paid for by Landlord, all Alterations, all fixtures, and all partitions, hardware, built-in machinery, built-in casework and cabinets and other similar additions, equipment, property and improvements built into the Premises so as to become an integral part of the Premises, including, without limitation, fume hoods which penetrate the roof or plenum area, built-in cold rooms, built-in warm rooms, walk-in cold rooms, walk-in warm rooms, deionized water systems, glass washing equipment, autoclaves, chillers, built-in plumbing, electrical and mechanical equipment and systems, and any power generator and transfer switch.

13. **Landlord's Repairs**. Landlord, as an Operating Expense (except to the extent the cost thereof is excluded from Operating Expenses pursuant to Section 5 hereof), shall maintain all of the structural, exterior, parking and other Common Areas of the Project, including HVAC, plumbing, fire sprinklers, elevators and all other building systems serving the Premises and other portions of the Project ("**Building Systems**"), in good repair, reasonable wear and tear and uninsured losses and damages caused by Tenant, or by any of Tenant's assignees, sublessees, licensees, agents, servants, employees, invitees and contractors (or any of Tenant's assignees, sublessees and/or licensees respective agents, servants, employees, invitees and contractors) (collectively, "**Tenant Parties**") excluded. Subject to the provisions of the penultimate paragraph of Section 17, losses and damages caused by Tenant or any Tenant Party shall be repaired by Landlord, to the extent not covered by insurance, at Tenant's sole cost and expense. Landlord reserves the right to stop Building Systems services when necessary (i) by reason of accident or emergency, or (ii) for planned repairs, alterations or improvements, which are, in the judgment of Landlord, desirable or necessary to be made, until said repairs, alterations or improvements shall have been completed. Landlord shall have no responsibility or liability for failure to supply Building Systems services during any such period of interruption; provided, however, that Landlord shall, except in case of emergency, make a commercially reasonable effort to give Tenant 24 hours advance notice of any planned stoppage of Building Systems services for routine maintenance, repairs, alterations or improvements. Landlord shall use reasonable efforts to minimize interference with Tenant's operations in the Premises in connection with the stoppage of Building Systems pursuant to this Section 13. Tenant shall promptly give Landlord written notice of any repair required by Landlord pursuant to this Section, after which Landlord shall make a commercially reasonable effort to effect such repair. Landlord shall not be liable for any failure to make any repairs or to perform any maintenance unless such failure shall persist for an unreasonable time after Tenant's written notice of the need for such repairs or maintenance. Tenant waives its rights under any state or local law to terminate this Lease or to make such repairs at Landlord's expense and agrees that the parties' respective rights with respect to such matters shall be solely as set forth herein. Repairs required as the result of fire, earthquake, flood, vandalism, war, or similar cause of damage or destruction shall be controlled by Section 18.

14. **Tenant's Repairs**. Subject to Section 13 hereof, Tenant, at its expense, shall repair, replace and maintain in good condition all portions of the Premises, including, without limitation, entries, doors, ceilings, interior windows, interior walls, and the interior side of demising walls. Should Tenant fail to make any such repair or replacement or fail to maintain the Premises, Landlord shall give Tenant notice of such failure. If Tenant fails to commence cure of such failure within 10 days of Landlord's notice, and thereafter diligently prosecute such cure to completion, Landlord may perform such work and shall be reimbursed by Tenant within 10 days after demand therefor; provided, however, that if such failure by Tenant creates or could create an emergency, Landlord may immediately commence cure of such failure and shall thereafter be entitled to recover the costs of such cure from Tenant. Subject to Sections 17 and 18, Tenant shall bear the full uninsured cost of any repair or replacement to any part of the Project that results from damage caused by Tenant or any Tenant Party and any repair that benefits only the Premises.

15. **Mechanic's Liens**. Tenant shall discharge, by bond or otherwise, any mechanic's lien filed against the Premises or against the Project for work claimed to have been done for, or materials claimed to have been furnished to, Tenant within 10 days after Tenant receives notice of the filing thereof, at Tenant's sole cost and shall otherwise keep the Premises and the Project free from any liens arising out of work performed, materials furnished or obligations incurred by Tenant. Should Tenant fail to discharge any lien described herein, Landlord shall have the right, but not the obligation, to pay such claim or post a bond or otherwise provide security to eliminate the lien as a claim against title to the Project and the cost thereof shall be immediately due from Tenant as Additional Rent. If Tenant shall lease or finance the acquisition of office equipment, furnishings, or other personal property of a removable nature utilized by Tenant in the operation of Tenant's business, Tenant warrants that any Uniform Commercial Code Financing Statement filed as a matter of public record by any lessor or creditor of Tenant will upon its face or by exhibit thereto indicate that such Financing Statement is applicable only to removable personal property of Tenant located within the Premises. In no event shall the address of the Project be furnished on the statement without qualifying language as to applicability of the lien only to removable personal property, located in an identified suite held by Tenant.

16. **Indemnification**. Tenant hereby indemnifies and agrees to defend, save and hold Landlord, its officers, directors, employees, managers, agents, sub-agents, constituent entities and lease signators (collectively, "**Landlord Indemnified Parties**") harmless from and against any and all Claims for injury or death to persons or damage to property occurring within or about the Premises or the Project arising directly or indirectly out of use or occupancy of the Premises or the Project by Tenant or any Tenant Parties (including, without limitation, any act, omission or neglect by Tenant or any Tenant's Parties in or about the Premises or at the Project) or the breach or default by Tenant in the performance of any of its obligations hereunder, except to the extent caused by (x) the willful misconduct or negligence of Landlord Indemnified Parties or (y) the default by Landlord in the performance of its obligations under this Lease. Landlord shall not be liable to Tenant for, and Tenant assumes all risk of damage to, personal property (including, without limitation, loss of records kept within the Premises). Tenant further waives any and all Claims for injury to Tenant's business or loss of income relating to any such damage or destruction of personal property (including, without limitation, any loss of records). Landlord Indemnified Parties shall not be liable for any damages arising from any act, omission or neglect of any tenant in the Project or of any other third party or Tenant Parties.

17. **Insurance**. Landlord shall maintain all risk property and, if applicable, sprinkler damage insurance covering the full replacement cost of the Project. Landlord shall further procure and maintain commercial general liability insurance with a single loss limit of not less than $2,000,000 for bodily injury and property damage with respect to the Project. Landlord may, but is not obligated to, maintain such other insurance and additional coverages as it may deem necessary, including, but not limited to, flood, environmental hazard and earthquake, loss or failure of building equipment, errors and omissions, rental loss during the period of repair or rebuilding, workers' compensation insurance and fidelity bonds for employees employed to perform services and insurance for any improvements installed by Tenant or which are in addition to the standard improvements customarily furnished by Landlord without regard to whether or not such are made a part of the Project. All such insurance shall be included as part of the Operating Expenses. The Project may be included in a blanket policy (in which case the cost of such insurance allocable to the Project will be determined by Landlord based upon the insurer's cost calculations). Tenant shall also reimburse Landlord for any increased premiums or additional insurance which Landlord reasonably deems necessary as a result of Tenant's use of the Premises.

Tenant, at its sole cost and expense, shall maintain during the Term: all risk property insurance with business interruption and extra expense coverage, covering the full replacement cost of all property and improvements installed or placed in the Premises by Tenant at Tenant's expense; workers' compensation insurance with no less than the minimum limits required by law; employer's liability insurance with employers liability limits of $1,000,000 bodily injury by accident - each accident, $1,000,000 bodily injury by disease - policy limit, and $1,000,000 bodily injury by disease - each employee; and commercial general liability insurance, with a minimum limit of not less than $2,000,000 per occurrence for bodily injury and property damage with respect to the Premises, which limits may be met with a combination of excess or umbrella policies. The commercial general liability insurance maintained by Tenant shall name Alexandria Real Estate Equities, Inc., and Landlord, its officers, directors, employees, managers, agents, sub-agents, constituent entities and lease signators (collectively, "**Landlord Insured Parties**"), as additional insureds; insure on an occurrence and not a claims-made basis; be issued by insurance companies which have a rating of not less than policyholder rating of A and financial category rating of at least Class X in "Best's Insurance Guide"; not contain a hostile fire exclusion, contain a contractual liability endorsement; and provide primary coverage to Landlord Insured Parties (any policy issued to Landlord Insured Parties providing duplicate or similar coverage shall be deemed excess over Tenant's policies, regardless of limits). Tenant shall (i) provide Landlord with 30 days advance written notice of cancellation of such commercial general liability policy, and (ii) request Tenant's insurer to endeavor to provide 30 days advance written notice to Landlord of cancellation of such commercial general liability policy (or 10 days in the event of a cancellation due to non-payment of premium). Certificates of insurance showing the limits of coverage required hereunder and showing Landlord as an additional insured, along with reasonable evidence of the payment of premiums for the applicable period, shall be delivered to Landlord by Tenant prior to (i) the earlier to occur of (x) the Commencement Date, or (y) the date that Tenant accesses the Premises under this Lease, and (ii) each renewal of said insurance. Tenant's policy may be a "blanket policy" with an aggregate per location endorsement which specifically provides that the amount of insurance shall not be prejudiced by other losses covered by the policy. Tenant shall, at least 5 days prior to the expiration of such policies, furnish Landlord with renewal certificates.

In each instance where insurance is to name Landlord as an additional insured, Tenant shall upon written request of Landlord also designate and furnish certificates so evidencing Landlord as additional insured to: (i) any lender of Landlord holding a security interest in the Project or any portion thereof, (ii) the landlord under any lease wherein Landlord is tenant of the real property on which the Project is located, if the interest of Landlord is or shall become that of a tenant under a ground or other underlying lease rather than that of a fee owner, and/or (iii) any management company retained by Landlord to manage the Project.

The property insurance obtained by Landlord and Tenant shall include a waiver of subrogation by the insurers and all rights based upon an assignment from its insured, against Landlord or Tenant, and their respective officers, directors, employees, managers, agents, invitees and contractors ("**Related Parties**"), in connection with any loss or damage thereby insured against. Notwithstanding anything to the contrary contained in this Lease, neither party nor its respective Related Parties shall be liable to the other for loss or damage caused by any risk insured against under property insurance required to be maintained hereunder regardless of the negligence of the party to this Lease receiving the benefit of the waiver, and each party waives any claims against the other party, and its respective Related Parties, for such loss or damage. The failure of a party to insure its property shall not void this waiver. Landlord and its respective Related Parties shall not be liable for, and Tenant hereby waives all claims against such parties for, business interruption and losses occasioned thereby sustained by Tenant or any person claiming through Tenant resulting from any accident or occurrence in or upon the Premises or the Project from any cause whatsoever. If the foregoing waivers shall contravene any law with respect to exculpatory agreements, the liability of Landlord or Tenant shall be deemed not released but shall be secondary to the other's insurer.

Landlord may require insurance policy limits to be raised to conform with requirements of Landlord's lender and/or to bring coverage limits to levels then being generally required of new tenants within the Project; provided, however, that the increased amount of coverage is consistent with coverage amounts then being required by institutional owners of similar projects with tenants occupying similar size premises in the geographical area in which the Project is located.

18. **Restoration**. If at any time during the Term the Premises or the Building are materially damaged or destroyed by a fire or other casualty, this Lease shall, at the written election of Landlord or Tenant, terminate as of the date of such damage or destruction. Any statute or regulation which is now or may hereafter be in effect shall have no application to this Lease or any such damage or destruction, the parties hereto expressly agreeing that this Section 18 sets forth their entire understanding and agreement with respect to such matters. Upon any fire or other casualty, Landlord shall be entitled to receive the entire proceeds of the insurance maintained by Landlord without any payment to Tenant, and Tenant hereby assigns to Landlord Tenant's interest, if any, in such proceeds. Unless either Landlord or Tenant so elects to terminate this Lease, Landlord shall, subject to receipt of sufficient insurance proceeds (with any deductible to be treated as a current Operating Expense subject to the provisions of Section 5), promptly restore the Premises (excluding the improvements installed by Tenant or by Landlord and paid for by Tenant), subject to delays arising from the collection of insurance proceeds, from Force Majeure events or as needed to obtain any license, clearance or other authorization of any kind required to enter into and restore the Premises issued by any Governmental Authority having jurisdiction over the use, storage, handling, treatment, generation, release, disposal, removal or remediation of Hazardous Materials (as defined in Section 30) in, on or about the Premises (collectively referred to herein as "**Hazardous Materials Clearances**"). Rent shall be abated from the date all required Hazardous Material Clearances are obtained until the Premises are repaired and restored, in the proportion which the area of the Premises, if any, which is not usable by Tenant bears to the total area of the Premises. In the event that no Hazardous Material Clearances are required to be obtained by Tenant with respect to the Premises, rent abatement shall commence on the date of discovery of the damage or destruction. In the event that this Lease terminates pursuant to the provisions of this Section 18 as a result of an earthquake, Tenant shall not be required to pay any deductibles applicable thereto as part of Operating Expenses.

19. **Condemnation**. If the whole or any material part of the Premises or the Project is taken for any public or quasi-public use under governmental law, ordinance, or regulation, or by right of eminent domain, or by private purchase in lieu thereof (a "**Taking**" or "**Taken**"), and the Taking would in Landlord's reasonable judgment, materially interfere with or impair Landlord's ownership or operation of the Project or

would in the reasonable judgment of Landlord and Tenant either prevent or materially interfere with Tenant's use of the Premises (as resolved, if the parties are unable to agree, by arbitration by a single arbitrator with the qualifications and experience appropriate to resolve the matter and appointed pursuant to and acting in accordance with the rules of the American Arbitration Association), then upon written notice by Landlord or Tenant to the other this Lease shall terminate and Rent shall be apportioned as of said date. If part of the Premises shall be Taken, and this Lease is not terminated as provided above, Landlord shall promptly restore the Premises and the Project as nearly as is commercially reasonable under the circumstances to their condition prior to such partial Taking and the rentable square footage of the Building, the rentable square footage of the Premises, Tenant's Share of Operating Expenses and the Rent payable hereunder during the unexpired Term shall be reduced to such extent as may be fair and reasonable under the circumstances. Upon any such Taking, Landlord shall be entitled to receive the entire price or award from any such Taking without any payment to Tenant, and Tenant hereby assigns to Landlord Tenant's interest, if any, in such award. Tenant shall have the right, to the extent that same shall not diminish Landlord's award, to make a separate claim against the condemning authority (but not Landlord) for such compensation as may be separately awarded or recoverable by Tenant for moving expenses and damage to Tenant's trade fixtures, if a separate award for such items is made to Tenant. Tenant hereby waives any and all rights it might otherwise have pursuant to any provision of state law to terminate this Lease upon a partial Taking of the Premises or the Project.

20. **Events of Default**. Each of the following events shall be a default ("**Default**") by Tenant under this Lease:

(a) **Payment Defaults**. Tenant shall fail to pay any installment of Rent or any other payment hereunder when due; provided, however, that Landlord will give Tenant notice and an opportunity to cure any failure to pay Rent within 5 days of any such notice not more than once in any 12 month period.

(b) **Insurance**. Any insurance required to be maintained by Tenant pursuant to this Lease shall be canceled or terminated or shall expire or shall be reduced or materially changed, or Landlord shall receive a notice of nonrenewal of any such insurance and Tenant shall fail to obtain replacement insurance at least 20 days before the expiration of the current coverage.

(c) **Abandonment**. Tenant shall abandon the Premises. Tenant shall not be deemed to have abandoned the Premises if Tenant provides Landlord with reasonable advance notice prior to vacating and, at the time of vacating the Premises, (i) Tenant completes Tenant's obligations under the Decommissioning and HazMat Closure Plan in compliance with Section 28, (ii) Tenant has obtained the release of the Premises of all Hazardous Materials Clearances and the Premises are free from any residual impact from the Tenant HazMat Operations and provides reasonably detailed documentation to Landlord confirming such matters, (iii) Tenant has made reasonable arrangements with Landlord for the security of the Premises for the balance of the Term, and (iv) Tenant continues during the balance of the Term to satisfy and perform all of Tenant's obligations under this Lease as they come due.

(d) **Improper Transfer**. Tenant shall assign, sublease or otherwise transfer or attempt to transfer all or any portion of Tenant's interest in this Lease or the Premises except as expressly permitted herein, or Tenant's interest in this Lease shall be attached, executed upon, or otherwise judicially seized and such action is not released within 90 days of the action.

(e) **Liens**. Tenant shall fail to discharge or otherwise obtain the release of any lien placed upon the Premises in violation of this Lease within 10 days after Tenant receives notice that any such lien has been filed against the Premises.

(f) **Insolvency Events**. Tenant or any guarantor or surety of Tenant's obligations hereunder shall: (A)make a general assignment for the benefit of creditors; (B) commence any case, proceeding or other action seeking to have an order for relief entered on its behalf as a debtor or to adjudicate it a bankrupt or insolvent, or seeking reorganization, arrangement, adjustment, liquidation, dissolution or composition of it or its debts or seeking appointment of a receiver, trustee, custodian or other similar official for it or for all or of any substantial part of its property (collectively a "**Proceeding for Relief**"); (C) become the subject of any Proceeding for Relief which is not dismissed within 90 days of its filing or entry; or (D) die or suffer a legal disability (if Tenant, guarantor, or surety is an individual) or be dissolved or otherwise fail to maintain its legal existence (if Tenant, guarantor or surety is a corporation, partnership or other entity).

(g) **Estoppel Certificate or Subordination Agreement** Tenant fails to execute any document required from Tenant under Sections 23 or 27 within 5 days after a second notice requesting such document.

(h) **Other Defaults**. Tenant shall fail to comply with any provision of this Lease other than those specifically referred to in this Section 20, and, except as otherwise expressly provided herein, such failure shall continue for a period of 30 days after written notice thereof from Landlord to Tenant.

Any notice given under Section 20(h) hereof shall: (i) specify the alleged default, (ii) demand that Tenant cure such default, (iii) be in lieu of, and not in addition to, or shall be deemed to be, any notice required under any provision of applicable law, and (iv) not be deemed a forfeiture or a termination of this Lease unless Landlord elects otherwise in such notice; provided that if the nature of Tenant's default pursuant to Section 20(h) is such that it cannot be cured by the payment of money and reasonably requires more than 30 days to cure, then Tenant shall not be deemed to be in default if Tenant commences such cure within said 30 day period and thereafter diligently prosecutes the same to completion; provided, however, that such cure shall be completed no later than 60 days from the date of Landlord's notice.

21. **Landlord's Remedies**.

(a) **Payment By Landlord; Interest**. Upon a Default by Tenant hereunder, Landlord may, without waiving or releasing any obligation of Tenant hereunder, make such payment or perform such act. All sums so paid or incurred by Landlord, together with interest thereon, from the date such sums were paid or incurred, at the annual rate equal to 12% per annum or the highest rate permitted by law (the "**Default Rate**"), whichever is less, shall be payable to Landlord on demand as Additional Rent. Nothing herein shall be construed to create or impose a duty on Landlord to mitigate any damages resulting from Tenant's Default hereunder.

(b) **Late Payment Rent**. Late payment by Tenant to Landlord of Rent and other sums due will cause Landlord to incur costs not contemplated by this Lease, the exact amount of which will be extremely difficult and impracticable to ascertain. Such costs include, but are not limited to, processing and accounting charges and late charges which may be imposed on Landlord under any Mortgage covering the Premises. Therefore, if any installment of Rent due from Tenant is not received by Landlord within 5 days after the date such payment is due, Tenant shall pay to Landlord an additional sum equal to 6% of the overdue Rent as a late charge. Notwithstanding the foregoing, before assessing a late charge the first time in any calendar year, Landlord shall provide Tenant written notice of the delinquency and will waive the right if Tenant pays such delinquency within 5 days thereafter. The parties agree that this late charge represents a fair and reasonable estimate of the costs Landlord will incur by reason of late payment by Tenant. In addition to the late charge, Rent not paid when due shall bear interest at the Default Rate from the 5th day after the date due until paid.

(c) **Remedies**. Upon the occurrence of a Default, Landlord, at its option, without further notice or demand to Tenant, shall have in addition to all other rights and remedies provided in this Lease, at law or in equity, the option to pursue any one or more of the following remedies, each and all of which shall be cumulative and nonexclusive, without any notice or demand whatsoever.

(i) Terminate this Lease, or at Landlord's option, Tenant's right to possession only, in which event Tenant shall immediately surrender the Premises to Landlord, and if Tenant fails to do so, Landlord may, without prejudice to any other remedy which it may have for possession or arrearages in rent, enter upon and take possession of the Premises and expel or remove Tenant and any other person who may be occupying the Premises or any part thereof, without being liable for prosecution or any claim for damages therefor;

(ii) Upon any termination of this Lease, whether pursuant to the foregoing Section 21(c)(i) or otherwise, Landlord may recover from Tenant the following:

(A) The worth at the time of award of any unpaid rent which has been earned at the time of such termination; plus

(B) The worth at the time of award of the amount by which the unpaid rent which would have been earned after termination until the time of award exceeds the amount of such rental loss that Tenant proves could have been reasonably avoided; plus

(C) The worth at the time of award of the amount by which the unpaid rent for the balance of the Term after the time of award exceeds the amount of such rental loss that Tenant proves could have been reasonably avoided; plus

(D) Any other amount necessary to compensate Landlord for all the detriment proximately caused by Tenant's failure to perform its obligations under this Lease or which in the ordinary course of things would be likely to result therefrom, specifically including, but not limited to, brokerage commissions and advertising expenses incurred, expenses of remodeling the Premises or any portion thereof for a new tenant, whether for the same or a different use, and any special concessions made to obtain a new tenant; and

(E) At Landlord's election, such other amounts in addition to or in lieu of the foregoing as may be permitted from time to time by applicable law.

The term "**rent**" as used in this Section 21 shall be deemed to be and to mean all sums of every nature required to be paid by Tenant pursuant to the terms of this Lease, whether to Landlord or to others. As used in Sections 21(c)(ii)(A) and (B), above, the "**worth at the time of award**" shall be computed by allowing interest at the Default Rate. As used in Section 21(c)(ii)(C) above, the "**worth at the time of award**" shall be computed by discounting such amount at the discount rate of the Federal Reserve Bank of San Francisco at the time of award plus 1%.

(iii) Landlord may continue this Lease in effect after Tenant's Default and recover rent as it becomes due (Landlord and Tenant hereby agreeing that Tenant has the right to sublet or assign hereunder, subject only to reasonable limitations). Accordingly, if Landlord does not elect to terminate this Lease following a Default by Tenant, Landlord may, from time to time, without terminating this Lease, enforce all of its rights and remedies hereunder, including the right to recover all Rent as it becomes due.

(iv) Following Landlord's termination of this Lease following a Default by Tenant, Landlord shall have the right to terminate any and all subleases, licenses, concessions or other consensual arrangements for possession entered into by Tenant and affecting the Premises or may, in Landlord's sole discretion, succeed to Tenant's interest in such subleases, licenses, concessions or arrangements. Upon Landlord's election to succeed to Tenant's interest in any such subleases, licenses, concessions or arrangements, Tenant shall, as of the date of notice by Landlord of such election, have no further right to or interest in the rent or other consideration receivable thereunder.

(v) Independent of the exercise of any other remedy of Landlord hereunder or under applicable law, Landlord may conduct an environmental test of the Premises as generally described in Section 30(d) hereof, at Tenant's expense.

(d) **Effect of Exercise**. Exercise by Landlord of any remedies hereunder or otherwise available shall not be deemed to be an acceptance of surrender of the Premises and/or a termination of this Lease by Landlord, it being understood that such surrender and/or termination can be effected only by the express written agreement of Landlord and Tenant. Any law, usage, or custom to the contrary

notwithstanding, Landlord shall have the right at all times to enforce the provisions of this Lease in strict accordance with the terms hereof; and the failure of Landlord at any time to enforce its rights under this Lease strictly in accordance with same shall not be construed as having created a custom in any way or manner contrary to the specific terms, provisions, and covenants of this Lease or as having modified the same and shall not be deemed a waiver of Landlord's right to enforce one or more of its rights in connection with any subsequent default. A receipt by Landlord of Rent or other payment with knowledge of the breach of any covenant hereof shall not be deemed a waiver of such breach, and no waiver by Landlord of any provision of this Lease shall be deemed to have been made unless expressed in writing and signed by Landlord. To the greatest extent permitted by law, Tenant waives the service of notice of Landlord's intention to re-enter, re-take or otherwise obtain possession of the Premises as provided in any statute, or to institute legal proceedings to that end, and also waives all right of redemption in case Tenant shall be dispossessed by a judgment or by warrant of any court or judge. Notwithstanding the foregoing, nothing contained herein shall constitute Tenant's waiver of its rights under applicable Legal Requirements to receive a 3-day notice from Landlord to quit or pay rent prior to Landlord commencing an unlawful detainer action. Any reletting of the Premises or any portion thereof shall be on such terms and conditions as Landlord in its sole discretion may determine. Landlord shall not be liable for, nor shall Tenant's obligations hereunder be diminished because of, Landlord's failure to relet the Premises or collect rent due in respect of such reletting or otherwise to mitigate any damages arising by reason of Tenant's Default.

22. **Assignment and Subletting**.

(a) **General Prohibition**. Without Landlord's prior written consent subject to and on the conditions described in this Section 22, Tenant shall not, directly or indirectly, voluntarily or by operation of law, assign this Lease or sublease the Premises or any part thereof or mortgage, pledge, or hypothecate its leasehold interest or grant any concession or license within the Premises, and any attempt to do any of the foregoing shall be void and of no effect. If Tenant is a corporation, partnership or limited liability company, the shares or other ownership interests thereof which are not actively traded upon a stock exchange or in the over-the-counter market, a transfer or series of transfers whereby 50% or more of the issued and outstanding shares or other ownership interests of such corporation are, or voting control is, transferred (but excepting transfers upon deaths of individual owners) from a person or persons or entity or entities which were owners thereof at time of execution of this Lease to persons or entities who were not owners of shares or other ownership interests of the corporation, partnership or limited liability company at time of execution of this Lease, shall be deemed an assignment of this Lease requiring the consent of Landlord as provided in this Section 22. Notwithstanding the foregoing, Tenant shall have the right to obtain financing from institutional investors (including venture capital funding and corporate partners) which regularly invest in private biotechnology companies or undergo a public offering or become a publicly traded company which results in a change in control of Tenant without such change of control constituting an assignment under this Section 22 requiring Landlord consent, provided that (i) Tenant notifies Landlord in writing of the financing at least 5 business days prior to the closing of the financing, and (ii) provided that in no event shall such financing result in a change in use of the Premises from the use contemplated by Tenant at the commencement of the Term.

(b) **Permitted Transfers**. If Tenant desires to assign, sublease, hypothecate or otherwise transfer this Lease or sublet the Premises other than pursuant to a Permitted Assignment (as defined below), then at least 15 business days, but not more than 45 business days, before the date Tenant desires the assignment or sublease to be effective (the "**Assignment Date**"), Tenant shall give Landlord a notice (the "**Assignment Notice**") containing such information about the proposed assignee or sublessee, including the proposed use of the Premises and any Hazardous Materials proposed to be used, stored handled, treated, generated in or released or disposed of from the Premises, the Assignment Date, any relationship between Tenant and the proposed assignee or sublessee, and all material terms and conditions of the proposed assignment or sublease, including a copy of any proposed assignment or sublease in its final form, and such other information as Landlord may deem reasonably necessary or appropriate to its consideration whether to grant its consent. Landlord may, by giving written notice to Tenant within 15 business days after receipt of the Assignment Notice: (i) grant such consent (provided that Landlord shall further have the right to review and approve or disapprove the proposed form of sublease prior to the effective date of any such subletting), (ii) refuse such consent, in its reasonable discretion; or (iii) terminate

this Lease with respect to the space described in the Assignment Notice as of the Assignment Date (an "**Assignment Termination**"). Among other reasons, it shall be reasonable for Landlord to withhold its consent in any of these instances: (1) the proposed assignee or subtenant is a governmental agency; (2) in Landlord's reasonable judgment, the use of the Premises by the proposed assignee or subtenant would entail any alterations that would materially lessen the value of the leasehold improvements in the Premises, or would require materially increased services by Landlord; (3) in Landlord's reasonable judgment, the proposed assignee or subtenant is engaged in areas of scientific research or other business concerns that are controversial in a manner that is inconsistent with other tenants in the Project such that they may (i) attract or cause negative publicity for or about the Building or the Project, (ii) negatively affect the reputation of the Building, the Project or Landlord, (iii) attract protestors to the Building or the Project, or (iv) lessen the attractiveness of the Building or the Project to any tenants or prospective tenants, purchasers or lenders; (4) in Landlord's reasonable judgment, the proposed assignee or subtenant lacks the creditworthiness to support the financial obligations it will incur under the proposed assignment or sublease; (5) in Landlord's reasonable judgment, the character, reputation, or business of the proposed assignee or subtenant is inconsistent with the desired tenant-mix or the quality of other tenancies in the Project or is inconsistent with the type and quality of the nature of the Building; (6) intentionally omitted; (7) Landlord has experienced previous defaults by or is in litigation with the proposed assignee or subtenant; (8) the use of the Premises by the proposed assignee or subtenant will violate any applicable Legal Requirement; (9) intentionally omitted; (10) the proposed assignee or subtenant is an entity with whom Landlord is negotiating to lease space in the Project; or (11) the assignment or sublease is prohibited by Landlord's lender. If Landlord delivers notice of its election to exercise an Assignment Termination, Tenant shall have the right to withdraw such Assignment Notice by written notice to Landlord of such election within 5 business days after Landlord's notice electing to exercise the Assignment Termination. If Tenant withdraws such Assignment Notice, this Lease shall continue in full force and effect. If Tenant does not withdraw such Assignment Notice, this Lease, and the term and estate herein granted, shall terminate as of the Assignment Date with respect to the space described in such Assignment Notice. No failure of Landlord to exercise any such option to terminate this Lease, or to deliver a timely notice in response to the Assignment Notice, shall be deemed to be Landlord's consent to the proposed assignment, sublease or other transfer. Tenant shall pay to Landlord a fee equal to Two Thousand Five Hundred Dollars ($2,500) in connection with its consideration of any Assignment Notice and/or its preparation or review of any consent documents. Notwithstanding the foregoing, Landlord's consent to an assignment of this Lease or a subletting of any portion of the Premises to any entity controlling, controlled by or under common control with Tenant (a "**Control Permitted Assignment**") shall not be required, provided that Landlord shall have the right to approve the form of any such sublease or assignment (which approval shall not be unreasonably withheld or delayed. In addition, Tenant shall have the right to assign this Lease, upon 30 days prior written notice to Landlord ((x) unless Tenant is prohibited from providing such notice by applicable Legal Requirements in which case Tenant shall notify Landlord promptly thereafter, and (y) if the transaction is subject to confidentiality requirements, Tenant's advance notification shall be subject to Landlord's execution of a non-disclosure agreement reasonably acceptable to Landlord and Tenant) but without obtaining Landlord's prior written consent, to a corporation or other entity which is a successor-in-interest to Tenant, by way of merger, consolidation or corporate reorganization, or by the purchase of all or substantially all of the assets or the ownership interests of Tenant, or as a result of a deemed assignment due to a change in control pursuant to Section 22(a), provided that (i) such merger or consolidation, or such acquisition or assumption, or deemed assignment, as the case may be, is for a good business purpose and not principally for the purpose of transferring this Lease, and (ii) the net worth (as determined in accordance with generally accepted accounting principles ("**GAAP**")) of the assignee is not less than the net worth (as determined in accordance with GAAP) of Tenant as of the date of Tenant's most current quarterly or annual financial statements, and (iii) such assignee shall agree in writing to assume all of the terms, covenants and conditions of this Lease (a "**Corporate Permitted Assignment**"). Control Permitted Assignments and Corporate Permitted Assignments are hereinafter referred to as "**Permitted Assignments**." Notwithstanding anything to the contrary contained herein, Landlord shall have no right to deliver an Assignment Termination as a result of a Permitted Assignment or any notice of a Permitted Assignment from Tenant.

Notwithstanding anything to the contrary contained in this Lease, Tenant may from time to time enter into agreements (each, a "**Shared Space Arrangement**") with Tenant's affiliates or clients pursuant to which such affiliates or clients may occupy portions of the Premises as "**Shared Space Area**", and such agreements shall not require Landlord's consent under this Section 22; provided, however, that Tenant shall be required to provide Landlord with a copy of each such license agreement and, prior to the effective date of each such license agreement, Tenant and each licensee shall be required to execute Landlord's reasonable form of acknowledgment pursuant to which Tenant and the licensee acknowledge and agree, among other things, that: (i) the terms of the Shared Space Arrangement are subject and subordinate to the terms of the Lease, (ii) if the Lease terminates, then the Shared Space Arrangement shall terminate concurrently therewith, (iii) each licensee shall, during the term of its applicable Shared Space Arrangement, maintain the same insurance as is required of Tenant under the Lease and provide Landlord with insurance certificates evidencing the same and naming the Landlord Parties as additional insureds, and (iv) the waivers and releases set forth in the second to last paragraph of Section 17 that apply as between Landlord and Tenant shall also apply as between Landlord and licensee. Tenant shall be fully responsible for the conduct of such companies within the Shared Space Area and the Project, and Tenant's indemnification obligations set forth in this Lease shall apply with respect to the conduct of such parties within the Shared Space Area and Project.

(c) **Additional Conditions**. As a condition to any such assignment or subletting, whether or not Landlord's consent is required, Landlord may require:

(i) that any assignee or subtenant agree, in writing at the time of such assignment or subletting, that if Landlord gives such party notice that Tenant is in default under this Lease, such party shall thereafter make all payments otherwise due Tenant directly to Landlord, which payments will be received by Landlord without any liability except to credit such payment against those due under the Lease, and any such third party shall agree to attorn to Landlord or its successors and assigns should this Lease be terminated for any reason; provided, however, in no event shall Landlord or its successors or assigns be obligated to accept such attornment; and

(ii) A list of Hazardous Materials, certified by the proposed assignee or sublessee to be true and correct, which the proposed assignee or sublessee intends to use, store, handle, treat, generate in or release or dispose of from the Premises, together with copies of all documents relating to such use, storage, handling, treatment, generation, release or disposal of Hazardous Materials by the proposed assignee or subtenant in the Premises or on the Project, prior to the proposed assignment or subletting, including, without limitation: permits; approvals; reports and correspondence; storage and management plans; plans relating to the installation of any storage tanks to be installed in or under the Project (provided, said installation of tanks shall only be permitted after Landlord has given its written consent to do so, which consent may be withheld in Landlord's sole and absolute discretion); and all closure plans or any other documents required by any and all federal, state and local Governmental Authorities for any storage tanks installed in, on or under the Project for the closure of any such tanks. Neither Tenant nor any such proposed assignee or subtenant is required, however, to provide Landlord with any portion(s) of the such documents containing information of a proprietary nature which, in and of themselves, do not contain a reference to any Hazardous Materials or hazardous activities.

(d) **No Release of Tenant, Sharing of Excess Rents**. Notwithstanding any assignment or subletting, Tenant and any guarantor or surety of Tenant's obligations under this Lease shall at all times remain fully and primarily responsible and liable for the payment of Rent and for compliance with all of Tenant's other obligations under this Lease. Other than in connection with Permitted Assignments and Shared Space Arrangements, if the Rent due and payable by a sublessee or assignee (or a combination of the rental payable under such sublease or assignment plus any bonus or other consideration therefor or incident thereto in any form attributable to the assignment or sublease) exceeds the sum of the rental payable under this Lease, (excluding however, any Rent payable under this Section) and actual and reasonable brokerage fees, legal costs and any design or construction fees directly related to and required pursuant to the terms of any such sublease) ("**Excess Rent**"), then Tenant shall be bound and obligated to pay Landlord as Additional Rent hereunder 50% of such Excess Rent within 10 days following receipt thereof by Tenant. If Tenant shall sublet the Premises or any part thereof, Tenant hereby immediately and irrevocably assigns to Landlord, as security for Tenant's obligations under this Lease, all rent from any such subletting, and Landlord as assignee and as attorney-in-fact for Tenant, or a receiver for Tenant appointed on Landlord's application, may collect such rent and apply it toward Tenant's obligations under this Lease; except that, until the occurrence of a Default, Tenant shall have the right to collect such rent.

(e) **No Waiver**. The consent by Landlord to an assignment or subletting shall not relieve Tenant or any assignees of this Lease or any sublessees of the Premises from obtaining the consent of Landlord to any further assignment or subletting nor shall it release Tenant or any assignee or sublessee of Tenant from full and primary liability under the Lease. The acceptance of Rent hereunder, or the acceptance of performance of any other term, covenant, or condition thereof, from any other person or entity shall not be deemed to be a waiver of any of the provisions of this Lease or a consent to any subletting, assignment or other transfer of the Premises.

(f) **Prior Conduct of Proposed Transferee**. Notwithstanding any other provision of this Section 22, if (i) the proposed assignee or sublessee of Tenant has been required by any prior landlord, lender or Governmental Authority to take remedial action in connection with Hazardous Materials contaminating a property, where the contamination resulted from such party's action or use of the property in question, (ii) the proposed assignee or sublessee is subject to an enforcement order issued by any Governmental Authority in connection with the use, storage, handling, treatment, generation, release or disposal of Hazardous Materials (including, without limitation, any order related to the failure to make a required reporting to any Governmental Authority), or (iii) because of the existence of a pre-existing environmental condition in the vicinity of or underlying the Project, the risk that Landlord would be targeted as a responsible party in connection with the remediation of such pre-existing environmental condition would be materially increased or exacerbated by the proposed use of Hazardous Materials by such proposed assignee or sublessee, Landlord shall have the absolute right to refuse to consent to any assignment or subletting to any such party.

23. **Estoppel Certificate**. Tenant shall, within 10 business days of written notice from Landlord, execute, acknowledge and deliver a statement in writing in any form reasonably requested by a proposed lender or purchaser, (i) certifying that this Lease is unmodified and in full force and effect (or, if modified, stating the nature of such modification and certifying that this Lease as so modified is in full force and effect) and the dates to which the rental and other charges are paid in advance, if any, (ii) acknowledging that, to Tenant's knowledge, there are not any uncured defaults on the part of Landlord hereunder, or specifying such defaults if any are claimed, and (iii) setting forth such further information with respect to the status of this Lease or the Premises as may be requested thereon. Any such statement may be relied upon by any prospective purchaser or encumbrancer of all or any portion of the real property of which the Premises are a part. Tenant's failure to deliver such statement within such time shall be conclusive upon Tenant that the Lease is in full force and effect and without modification except as may be represented by Landlord in any certificate prepared by Landlord and delivered to Tenant for execution.

24. **Quiet Enjoyment**. So long as Tenant is not in Default under this Lease, Tenant shall, subject to the terms of this Lease, at all times during the Term, have peaceful and quiet enjoyment of the Premises against any person claiming by, through or under Landlord.

25. **Prorations**. All prorations required or permitted to be made hereunder shall be made on the basis of a 360 day year and 30 day months.

26. **Rules and Regulations**. Tenant shall, at all times during the Term and any extension thereof, comply with all reasonable rules and regulations at any time or from time to time established by Landlord covering use of the Premises and the Project. The current rules and regulations are attached hereto as **Exhibit E**. If there is any conflict between said rules and regulations and other provisions of this Lease, the terms and provisions of this Lease shall control. Landlord shall not have any liability or obligation for the breach of any rules or regulations by other tenants in the Project and shall not enforce such rules and regulations in a discriminatory manner.

27. **Subordination**. This Lease and Tenant's interest and rights hereunder are hereby made and shall be subject and subordinate at all times to the lien of any Mortgage now existing or hereafter created on or against the Project or the Premises, and all amendments, restatements, renewals, modifications, consolidations, refinancing, assignments and extensions thereof, without the necessity of any further instrument or act on the part of Tenant; provided, however that so long as there is no Default hereunder, Tenant's right to possession of the Premises shall not be disturbed by the Holder of any such Mortgage. Tenant agrees, at the election of the Holder of any such Mortgage, to attorn to any such Holder. Tenant agrees upon demand to execute, acknowledge and deliver such instruments, confirming such subordination, and such instruments of attornment as shall be requested by any such Holder, provided any such instruments contain appropriate non-disturbance provisions assuring Tenant's quiet enjoyment of the Premises as set forth inSection 24 hereof. Notwithstanding the foregoing, any such Holder may at any time subordinate its Mortgage to this Lease, without Tenant's consent, by notice in writing to Tenant, and thereupon this Lease shall be deemed prior to such Mortgage without regard to their respective dates of execution, delivery or recording and in that event such Holder shall have the same rights with respect to this Lease as though this Lease had been executed prior to the execution, delivery and recording of such Mortgage and had been assigned to such Holder. The term "**Mortgage**" whenever used in this Lease shall be deemed to include deeds of trust, security assignments and any other encumbrances, and any reference to the "**Holder**" of a Mortgage shall be deemed to include the beneficiary under a deed of trust. As of the date of this Lease, there is no existing Mortgage encumbering the Project.

28. **Surrender**. Upon the expiration of the Term or earlier termination of Tenant's right of possession, Tenant shall surrender the Premises to Landlord in the same condition as received, subject to any Alterations or Installations permitted by Landlord to remain in the Premises, free of Hazardous Materials brought upon, kept, used, stored, handled, treated, generated in, or released or disposed of from, the Premises by any person other than a Landlord Party (collectively, "**Tenant HazMat Operations**") and released of all Hazardous Materials Clearances, broom clean, ordinary wear and tear and casualty loss and condemnation covered by Sections 18 and 19 excepted. At least 3 months prior to the surrender of the Premises or such earlier date as Tenant may elect to cease operations at the Premises, Tenant shall deliver to Landlord a narrative description of the actions proposed (or required by any Governmental Authority) to be taken by Tenant in order to surrender the Premises (including any Installations permitted by Landlord to remain in the Premises) at the expiration or earlier termination of the Term, free from any residual impact from the Tenant HazMat Operations and otherwise released for unrestricted use and occupancy (the "**Decommissioning and HazMat Closure Plan**"). Such Decommissioning and HazMat Closure Plan shall be accompanied by a current listing of (i) all Hazardous Materials licenses and permits held by or on behalf of any Tenant Party with respect to the Premises, and (ii) all Hazardous Materials used, stored, handled, treated, generated, released or disposed of from the Premises, and shall be subject to the review and approval of Landlord's environmental consultant, such approval not to be unreasonably withheld or delayed. In connection with the review and approval of the Decommissioning and HazMat Closure Plan, upon the request of Landlord, Tenant shall deliver to Landlord or its consultant such additional non-proprietary information concerning Tenant HazMat Operations as Landlord shall request. On or before such surrender, Tenant shall deliver to Landlord evidence that the approved Decommissioning and HazMat Closure Plan shall have been satisfactorily completed and Landlord shall have the right, subject to reimbursement at Tenant's expense as set forth below, to cause Landlord's environmental consultant to inspect the Premises and perform such additional procedures as may be deemed reasonably necessary to confirm that the Premises are, as of the effective date of such surrender or early termination of the Lease, free from any residual impact from Tenant HazMat Operations. Tenant shall reimburse Landlord, as Additional Rent, for the actual, reasonable out-of-pocket expense incurred by Landlord for Landlord's environmental consultant to review and approve the Decommissioning and HazMat Closure Plan and to visit the Premises and verify satisfactory completion of the same, which cost shall not exceed $5,000. Landlord shall have the unrestricted right to deliver such Decommissioning and HazMat Closure Plan and any report by Landlord's environmental consultant with respect to the surrender of the Premises to third parties.

If Tenant shall fail to prepare or submit a Decommissioning and HazMat Closure Plan approved by Landlord, or if Tenant shall fail to complete the approved Decommissioning and HazMat Closure Plan, or if such Decommissioning and HazMat Closure Plan, whether or not approved by Landlord, shall fail to adequately address any residual effect of Tenant HazMat Operations in, on or about the Premises, Landlord shall have the right to take such actions as Landlord may deem reasonable or appropriate to assure that the Premises and the Project are surrendered free from any residual impact from Tenant HazMat Operations, the cost of which actions shall be reimbursed by Tenant as Additional Rent, without regard to the limitation set forth in the first paragraph of this Section 28.

Tenant shall immediately return to Landlord all keys and/or access cards to parking, the Project, restrooms or all or any portion of the Premises furnished to or otherwise procured by Tenant. If any such access card or key is lost, Tenant shall pay to Landlord, at Landlord's election, either the reasonable cost of replacing such lost access card or key or the reasonable cost of reprogramming the access security system in which such access card was used or changing the lock or locks opened by such lost key. Any Tenant's Property, Alterations and property not so removed by Tenant as permitted or required herein shall be deemed abandoned and may be stored, removed, and disposed of by Landlord at Tenant's expense, and Tenant waives all claims against Landlord for any damages resulting from Landlord's retention and/or disposition of such property. All obligations of Tenant hereunder not fully performed as of the termination of the Term, including the obligations of Tenant under Section 30 hereof, shall survive the expiration or earlier termination of the Term, including, without limitation, indemnity obligations, payment obligations with respect to Rent and obligations concerning the condition and repair of the Premises.

29. **Waiver of Jury Trial**. TO THE EXTENT PERMITTED BY LAW, TENANT AND LANDLORD WAIVE ANY RIGHT TO TRIAL BY JURY OR TO HAVE A JURY PARTICIPATE IN RESOLVING ANY DISPUTE, WHETHER SOUNDING IN CONTRACT, TORT, OR OTHERWISE, BETWEEN LANDLORD AND TENANT ARISING OUT OF THIS LEASE OR ANY OTHER INSTRUMENT, DOCUMENT, OR AGREEMENT EXECUTED OR DELIVERED IN CONNECTION HEREWITH OR THE TRANSACTIONS RELATED HERETO.

30. **Environmental Requirements**.

(a) **Prohibition/Compliance/Indemnity**. Tenant shall not cause or permit any Hazardous Materials (as hereinafter defined) to be brought upon, kept, used, stored, handled, treated, generated in or about, or released or disposed of from, the Premises or the Project in violation of applicable Environmental Requirements (as hereinafter defined) by Tenant or any Tenant Party. If Tenant breaches the obligation stated in the preceding sentence, or if the presence of Hazardous Materials in the Premises during the Term or any holding over results in contamination of the Premises, the Project or any adjacent property or if contamination of the Premises, the Project or any adjacent property by Hazardous Materials brought into, kept, used, stored, handled, treated, generated in or about, or released or disposed of from, the Premises by anyone other than Landlord and Landlord's employees, agents and contractors otherwise occurs during the Term or any holding over, Tenant hereby indemnifies and shall defend and hold Landlord, its officers, directors, employees, agents and contractors harmless from any and all actions (including, without limitation, remedial or enforcement actions of any kind, administrative or judicial proceedings, and orders or judgments arising out of or resulting therefrom), costs, claims, damages (including, without limitation, punitive damages and damages based upon diminution in value of the Premises or the Project, or the loss of, or restriction on, use of the Premises or any portion of the Project), expenses (including, without limitation, attorneys', consultants' and experts' fees, court costs and amounts paid in settlement of any claims or actions), fines, forfeitures or other civil, administrative or criminal penalties, injunctive or other relief (whether or not based upon personal injury, property damage, or contamination of, or adverse effects upon, the environment, water tables or natural resources), liabilities or losses (collectively, "**Environmental Claims**") which arise during or after the Term as a result of such contamination. This indemnification of Landlord by Tenant includes, without limitation, costs incurred in connection with any investigation of site conditions or any cleanup, treatment, remedial, removal, or restoration work required by any federal, state or local Governmental Authority because of Hazardous Materials present in the air, soil or ground water above, on, or under the Premises. Without limiting the foregoing, if the presence of any Hazardous Materials on the Premises, the Building, the Project or any adjacent property caused or permitted by Tenant or any Tenant Party results in any contamination of the Premises, the Building, the Project or any adjacent property, Tenant shall promptly take all actions at its sole expense and in accordance with applicable Environmental Requirements as are necessary to return the Premises, the Building, the Project or any adjacent property to the condition existing prior to the time of such contamination, provided that Landlord's approval of such action shall first be obtained, which approval shall not unreasonably be withheld so long

as such actions would not potentially have any material adverse long-term or short-term effect on the Premises, the Building or the Project. Notwithstanding anything to the contrary contained in Section 28 or this Section 30. Tenant shall not be responsible for or have any liability to Landlord, and the indemnification and hold harmless obligation set forth in this paragraph shall not apply to (i) contamination in the Premises which Tenant can prove to Landlord's reasonable satisfaction existed in the Premises immediately prior to the Commencement Date, (ii) the presence of any Hazardous Materials in the Premises which Tenant can prove to Landlord's reasonable satisfaction migrated from outside of the Premises into the Premises, or (iii) any Hazardous Materials at the Project (outside the Premises) that Tenant can prove to Landlord's reasonable satisfaction were not brought upon, kept, used, stored, handled, treated, generated in or released or disposed of by Tenant or any Tenant Party, unless in any case, the presence of such Hazardous Materials (x) is the result of a breach by Tenant of any of its obligations under this Lease, or (y) was caused, contributed to or exacerbated by Tenant or any Tenant Party.

(b) **Business**. Landlord acknowledges that it is not the intent of this Section 30 to prohibit Tenant from using the Premises for the Permitted Use. Tenant may operate its business according to prudent industry practices so long as the use or presence of Hazardous Materials is strictly and properly monitored according to all then applicable Environmental Requirements. As a material inducement to Landlord to allow Tenant to use Hazardous Materials in connection with its business, Tenant agrees to deliver to Landlord prior to the Commencement Date a list identifying each type of Hazardous Materials to be brought upon, kept, used, stored, handled, treated, generated on, or released or disposed of from, the Premises and setting forth any and all governmental approvals or permits required in connection with the presence, use, storage, handling, treatment, generation, release or disposal of such Hazardous Materials on or from the Premises ("**Hazardous Materials List**"). Upon Landlord's request, or any time that Tenant is required to deliver a Hazardous Materials List to any Governmental Authority (e.g., the fire department) in connection with Tenant's use or occupancy of the Premises, Tenant shall deliver to Landlord a copy of such Hazardous Materials List. Tenant shall deliver to Landlord true and correct copies of the following documents (the "**Haz Mat Documents**") relating to the use, storage, handling, treatment, generation, release or disposal of Hazardous Materials prior to the Commencement Date, or if unavailable at that time, concurrent with the receipt from or submission to a Governmental Authority: permits; approvals; reports and correspondence; storage and management plans, notice of violations of any Legal Requirements; plans relating to the installation of any storage tanks to be installed in or under the Project (provided, said installation of tanks shall only be permitted after Landlord has given Tenant its written consent to do so, which consent may be withheld in Landlord's sole and absolute discretion); all closure plans or any other documents required by any and all federal, state and local Governmental Authorities for any storage tanks installed in, on or under the Project for the closure of any such tanks; and a Decommissioning and HazMat Closure Plan (to the extent surrender in accordance with Section 28 cannot be accomplished in 3 months). Tenant is not required, however, to provide Landlord with any portion(s) of the Haz Mat Documents containing information of a proprietary nature which, in and of themselves, do not contain a reference to any Hazardous Materials or hazardous activities. It is not the intent of this Section to provide Landlord with information which could be detrimental to Tenant's business should such information become possessed by Tenant's competitors.

(c) **Tenant Representation and Warranty**. Tenant hereby represents and warrants to Landlord that (i)neither Tenant nor any of its legal predecessors has been required by any prior landlord, lender or Governmental Authority at any time to take remedial action in connection with Hazardous Materials contaminating a property which contamination was permitted by Tenant of such predecessor or resulted from Tenant's or such predecessor's action or use of the property in question, and (ii) Tenant is not subject to any enforcement order issued by any Governmental Authority in connection with the use, storage, handling, treatment, generation, release or disposal of Hazardous Materials (including, without limitation, any order related to the failure to make a required reporting to any Governmental Authority). If Landlord determines that this representation and warranty was not true as of the date of this Lease, Landlord shall have the right to terminate this Lease in Landlord's sole and absolute discretion.

(d) **Testing**. Landlord shall have the right to conduct annual tests of the Premises to determine whether any contamination of the Premises or the Project has occurred as a result of Tenant's use. Tenant shall be required to pay the cost of such annual test of the Premises only if there is violation of this Section 30 or if contamination for which Tenant is responsible under this Section 30 is identified; provided, however, that if Tenant conducts its own tests of the Premises using third party contractors and test procedures acceptable to Landlord which tests are certified to Landlord, Landlord shall accept such tests in lieu of the annual tests. In addition, at any time, and from time to time, prior to the expiration or earlier termination of the Term, Landlord shall have the right to conduct appropriate tests of the Premises and the Project to determine if contamination has occurred as a result of Tenant's use of the Premises. In connection with such testing, upon the request of Landlord, Tenant shall deliver to Landlord or its consultant such non-proprietary information concerning the use of Hazardous Materials in or about the Premises by Tenant or any Tenant Party. If contamination has occurred for which Tenant is liable under this Section 30, Tenant shall pay all costs to conduct such tests. If no such contamination is found, Landlord shall pay the costs of such tests (which shall not constitute an Operating Expense). Landlord shall provide Tenant with a copy of all third party, non-confidential reports and tests of the Premises made by or on behalf of Landlord during the Term without representation or warranty and subject to a confidentiality agreement. Tenant shall, at its sole cost and expense, promptly and satisfactorily remediate any environmental conditions identified by such testing for which Tenant is responsible under this Lease, in accordance with all Environmental Requirements. Landlord's receipt of or satisfaction with any environmental assessment in no way waives any rights which Landlord may have against Tenant.

(e) **Control Areas**. Tenant shall be allowed to utilize up to its pro rata share of the Hazardous Materials inventory within any control area or zone (located within the Premises), as designated by the applicable building code, for chemical use or storage. As used in the preceding sentence, Tenant's pro rata share of any control areas or zones located within the Premises shall be determined based on the rentable square footage that Tenant leases within the applicable control area or zone. For purposes of example only, if a control area or zone contains 10,000 rentable square feet and 2,000 rentable square feet of a tenant's premises are located within such control area or zone (while such premises as a whole contains 5,000 rentable square feet), the applicable tenant's pro rata share of such control area would be 20%.

(f) **Storage Tanks**. If storage tanks storing Hazardous Materials located on the Premises or the Project are used by Tenant or are hereafter placed on the Premises or the Project by Tenant, Tenant shall install, use, monitor, operate, maintain, upgrade and manage such storage tanks, maintain appropriate records, obtain and maintain appropriate insurance, implement reporting procedures, properly close any storage tanks, and take or cause to be taken all other actions necessary or required under applicable state and federal Legal Requirements, as such now exists or may hereafter be adopted or amended in connection with the installation, use, maintenance, management, operation, upgrading and closure of such storage tanks. Notwithstanding anything to the contrary contained herein, Tenant shall have no right to use or install any underground storage tanks at the Project.

(g) **Tenant's Obligations**. Tenant's obligations under this Section 30 shall survive the expiration or earlier termination of the Lease. During any period of time after the expiration or earlier termination of this Lease required by Tenant or Landlord to complete the removal from the Premises of any Hazardous Materials (including, without limitation, the release and termination of any licenses or permits restricting the use of the Premises and the completion of the approved Decommissioning and HazMat Closure Plan), Tenant shall continue to pay the full Rent in accordance with this Lease for any portion of the Premises not relet by Landlord in Landlord's sole discretion, which Rent shall be prorated daily.

(h) **Definitions**. As used herein, the term "**Environmental Requirements**" means all applicable present and future statutes, regulations, ordinances, rules, codes, judgments, orders or other similar enactments of any Governmental Authority regulating or relating to health, safety, or environmental conditions on, under, or about the Premises or the Project, or the environment, including without limitation, the following: the Comprehensive Environmental Response, Compensation and Liability Act; the Resource Conservation and Recovery Act; and all state and local counterparts thereto, and any regulations or policies promulgated or issued thereunder. As used herein, the term "**Hazardous Materials**" means and includes any substance, material, waste, pollutant, or contaminant listed or defined as hazardous or toxic, or regulated by reason of its impact or potential impact on humans, animals and/or the environment under any Environmental Requirements, asbestos and petroleum, including crude oil or any fraction thereof, natural

gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas). As defined in Environmental Requirements, Tenant is and shall be deemed to be the "**operator**" of Tenant's "**facility**" and the "**owner**" of all Hazardous Materials brought on the Premises by Tenant or any Tenant Party, and the wastes, by-products, or residues generated, resulting, or produced therefrom.

31. **Tenant's Remedies/Limitation of Liability**. Landlord shall not be in default hereunder unless Landlord fails to perform any of its obligations hereunder within 30 days after written notice from Tenant specifying such failure (unless such performance will, due to the nature of the obligation, require a period of time in excess of 30 days, then after such period of time as is reasonably necessary). Upon any default by Landlord, Tenant shall give notice by registered or certified mail to any Holder of a Mortgage covering the Premises and to any landlord of any lease of property in or on which the Premises are located and Tenant shall offer such Holder and/or landlord a reasonable opportunity to cure the default, including time to obtain possession of the Project by power of sale or a judicial action if such should prove necessary to effect a cure; provided Landlord shall have furnished to Tenant in writing the names and addresses of all such persons who are to receive such notices. All obligations of Landlord hereunder shall be construed as covenants, not conditions; and, except as may be otherwise expressly provided in this Lease, Tenant may not terminate this Lease for breach of Landlord's obligations hereunder.

All obligations of Landlord under this Lease will be binding upon Landlord only during the period of its ownership of the Premises and not thereafter. The term "**Landlord**" in this Lease shall mean only the owner for the time being of the Premises. Upon the transfer by such owner of its interest in the Premises, such owner shall thereupon be released and discharged from all obligations of Landlord thereafter accruing, but such obligations shall be binding during the Term upon each new owner for the duration of such owner's ownership.

32. **Inspection and Access**. Landlord and its agents, representatives, and contractors may enter the Premises at any reasonable time to inspect the Premises and to make such repairs as may be required or permitted pursuant to this Lease and for any other business purpose. Landlord and Landlord's representatives may enter the Premises during business hours on not less than 48 hours advance written notice (except in the case of emergencies in which case no such notice shall be required and such entry may be at any time) for the purpose of effecting any such repairs, inspecting the Premises, showing the Premises to prospective purchasers and, during the last 9 months of the Term, to prospective tenants or for any other business purpose. Landlord may erect a suitable sign on the Premises stating that the Project is available for sale. Landlord may grant easements, make public dedications, designate Common Areas and create restrictions on or about the Premises, provided that no such easement, dedication, designation or restriction materially, adversely affects Tenant's use or occupancy of the Premises for the Permitted Use. At Landlord's request, Tenant shall execute such instruments as may be necessary for such easements, dedications or restrictions. Tenant shall at all times, except in the case of emergencies, have the right to escort Landlord or its agents, representatives, contractors or guests while the same are in the Premises, provided such escort does not materially and adversely affect Landlord's access rights hereunder. Landlord shall use reasonable efforts to comply with Tenant's reasonable security, confidentiality and safety requirements with respect to entering the Premises; provided, however, that Tenant has notified Landlord of such security, confidentiality and safety requirements reasonably prior to Landlord's entry into the Premises and provided further that in no event shall Tenant bar or prohibit access by Landlord and its employees, agents and contractors for the performance of the obligations of Landlord or the exercise of the rights of Landlord under this Lease.

33. **Security**. Tenant acknowledges and agrees that security devices and services, if any, while intended to deter crime may not in given instances prevent theft or other criminal acts and that Landlord is not providing any security services with respect to the Premises. Tenant agrees that Landlord shall not be liable to Tenant for, and Tenant waives any claim against Landlord with respect to, any loss by theft or any other damage suffered or incurred by Tenant in connection with any unauthorized entry into the Premises or any other breach of security with respect to the Premises. Tenant shall be solely responsible for the personal safety of Tenant's officers, employees, agents, contractors, guests and invitees while any such person is in, on or about the Premises and/or the Project. Tenant shall at Tenant's cost obtain insurance coverage to the extent Tenant desires protection against such criminal acts.

34. **Force Majeure**. Except for the payment of Rent, neither Landlord nor Tenant shall be held responsible or liable for delays in the performance of its obligations hereunder when caused by, related to, or arising out of acts of God, sinkholes or subsidence, strikes, lockouts, or other labor disputes, embargoes, quarantines, weather, national, regional, or local disasters, calamities, or catastrophes, inability to obtain labor or materials (or reasonable substitutes therefor) at reasonable costs or failure of, or inability to obtain, utilities necessary for performance, governmental restrictions, orders, limitations, regulations, or controls, national emergencies, local, regional or national epidemic or pandemic, delay in issuance or revocation of permits, enemy or hostile governmental action, terrorism, insurrection, riots, civil disturbance or commotion, fire or other casualty, and other similar causes or events beyond their reasonable control ("**Force Majeure**").

35. **Brokers**. Landlord and Tenant each represents and warrants that it has not dealt with any broker, agent or other person (collectively, "**Broker**") in connection with this transaction and that no Broker brought about this transaction, other than Newmark Knight Frank. Landlord and Tenant each hereby agree to indemnify and hold the other harmless from and against any claims by any Broker, other than Newmark Knight Frank, claiming a commission or other form of compensation by virtue of having dealt with Tenant or Landlord, as applicable, with regard to this leasing transaction.

36. **Limitation on Landlord's Liability**. NOTWITHSTANDING ANYTHING SET FORTH HEREIN OR IN ANY OTHER AGREEMENT BETWEEN LANDLORD AND TENANT TO THE CONTRARY: (A) LANDLORD SHALL NOT BE LIABLE TO TENANT OR ANY OTHER PERSON FOR (AND TENANT AND EACH SUCH OTHER PERSON ASSUME ALL RISK OF) LOSS, DAMAGE OR INJURY, WHETHER ACTUAL OR CONSEQUENTIAL TO: TENANT'S PERSONAL PROPERTY OF EVERY KIND AND DESCRIPTION, INCLUDING, WITHOUT LIMITATION TRADE FIXTURES, EQUIPMENT, INVENTORY, SCIENTIFIC RESEARCH, SCIENTIFIC EXPERIMENTS, LABORATORY ANIMALS, PRODUCT, SPECIMENS, SAMPLES, AND/OR SCIENTIFIC, BUSINESS, ACCOUNTING AND OTHER RECORDS OF EVERY KIND AND DESCRIPTION KEPT AT THE PREMISES AND ANY AND ALL INCOME DERIVED OR DERIVABLE THEREFROM; (B) THERE SHALL BE NO PERSONAL RECOURSE TO LANDLORD FOR ANY ACT OR OCCURRENCE IN, ON OR ABOUT THE PREMISES OR ARISING IN ANY WAY UNDER THIS LEASE OR ANY OTHER AGREEMENT BETWEEN LANDLORD AND TENANT WITH RESPECT TO THE SUBJECT MATTER HEREOF AND ANY LIABILITY OF LANDLORD HEREUNDER SHALL BE STRICTLY LIMITED SOLELY TO LANDLORD'S INTEREST IN THE PROJECT OR ANY PROCEEDS FROM SALE OR CONDEMNATION THEREOF AND ANY INSURANCE PROCEEDS PAYABLE IN RESPECT OF LANDLORD'S INTEREST IN THE PROJECT OR IN CONNECTION WITH ANY SUCH LOSS; AND (C) IN NO EVENT SHALL ANY PERSONAL LIABILITY BE ASSERTED AGAINST LANDLORD IN CONNECTION WITH THIS LEASE NOR SHALL ANY RECOURSE BE HAD TO ANY OTHER PROPERTY OR ASSETS OF LANDLORD OR ANY OF LANDLORD'S OFFICERS, DIRECTORS, EMPLOYEES, AGENTS OR CONTRACTORS. UNDER NO CIRCUMSTANCES SHALL LANDLORD OR ANY OF LANDLORD'S OFFICERS, DIRECTORS, EMPLOYEES, AGENTS OR CONTRACTORS BE LIABLE FOR INJURY TO TENANTS BUSINESS OR FOR ANY LOSS OF INCOME OR PROFIT THEREFROM.

37. **Severability**. If any clause or provision of this Lease is illegal, invalid or unenforceable under present or future laws, then and in that event, it is the intention of the parties hereto that the remainder of this Lease shall not be affected thereby. It is also the intention of the parties to this Lease that in lieu of each clause or provision of this Lease that is illegal, invalid or unenforceable, there be added, as a part of this Lease, a clause or provision as similar in effect to such illegal, invalid or unenforceable clause or provision as shall be legal, valid and enforceable.

38. **Signs; Exterior Appearance**. Tenant shall not, without the prior written consent of Landlord, which may be granted or withheld in Landlord's reasonable discretion: (i) attach any awnings, exterior lights, decorations, balloons, flags, pennants, banners, painting or other projection to any outside wall of the Project, (ii) use any curtains, blinds, shades or screens other than Landlord's standard window coverings, (iii)coat or otherwise sunscreen the interior or exterior of any windows, (iv) place any bottles,

parcels, or other articles on the window sills, (v) place any equipment, furniture or other items of personal property on any exterior balcony, or (vi)paint, affix or exhibit on any part of the Premises or the Project any signs, notices, window or door lettering, placards, decorations, or advertising media of any type which can be viewed from the exterior of the Premises. Suite entry signage and signage on the Building lobby directory shall be inscribed, painted or affixed for Tenant by Landlord at the sole cost and expense of Tenant, and shall be of a size, color and type acceptable to Landlord. Nothing may be placed on the exterior of corridor walls or corridor doors other than Landlord's standard lettering. The directory tablet shall be provided exclusively for the display of the name and location of tenants.

39. **Shared Areas**.

(a) **License**. Commencing on the Commencement Date, Landlord hereby grants to Tenant, and Tenant hereby accepts, a non-exclusive license ("**Shared Areas License**") to use those certain areas located on the fourth floor of the Building described as the "**Shared Areas**" on **Exhibit G** attached hereto, subject to the terms and provisions of this Section 39.

(b) **Use**. Tenant shall exercise its rights under this Section 39 and use the Shared Areas in a manner that complies with all applicable Legal Requirements and any and all reasonable and non-discriminatory rules and regulations which may be adopted by Landlord from time to time including, without limitation, any schedule(s) which may be implemented by Landlord for the use of the Shared Areas by all parties entitled to use the same. Tenant agrees to cause its employees who will be using the Shared Areas to complete all training programs, if any, reasonably mandated by Landlord relating to the use of the Shared Areas.

Tenant shall use the Shared Areas in a manner that will not interfere with the rights of any other tenants, other licensees or Landlord's service providers. Landlord assumes no responsibility for enforcing Tenant's rights or for protecting the Shared Areas from interference or use from any person including, without limitation, other tenants or licensees of the Project. Landlord may terminate the Shared Areas License granted to Tenant hereunder at any time during the Term for Tenant's failure to comply with the terms of this Section 39 or any reasonable rules and regulations adopted by Landlord and delivered to Tenant in writing with respect to the Shared Areas, which failure is not cured within 10 days after Landlord's delivery to Tenant of written notice of such non-compliance. The expiration or earlier termination of this Lease shall automatically terminate the Shared Areas License hereby granted to Tenant to so use the Shared Areas.

(c) **Relocation and Modification of Shared Areas**. Tenant acknowledges and agrees that Landlord shall have the right at any time and from time to time, upon no less than 30 days' notice to Tenant, to reconfigure, relocate, modify or remove the Shared Areas and/or to revise, expand or discontinue any of the services (if any) provided therein, and to add, change, reconfigure, remove or relocate any of the Equipment (as hereinafter defined) located therein; provided, however, that in no event shall Landlord permanently remove the glasswash, autoclave or ice machine or all of the conference rooms or both breakrooms.

(d) **Waiver**.

(i) Landlord's sole obligation for providing any equipment, systems, furnishings or personal property to the Shared Areas whether or not affixed to the Building (collectively, "**Equipment**") shall be (i) to provide such Equipment as is determined by Landlord in its sole and absolute discretion, and (ii) to contract with a third party to maintain the Equipment that is deemed by Landlord (in its reasonable discretion) to need periodic maintenance per the manufacturer's standard maintenance guidelines. Landlord shall have no obligation to provide Tenant with operational Equipment, back-up Equipment or back-up utilities or to supervise, oversee or confirm that the third party maintaining the Equipment is maintaining the Equipment as per the manufacturer's standard guidelines or otherwise. During any period of replacement, repair or maintenance of the Equipment when such Equipment is not operational, including any delays

thereto due to the inability to obtain parts or replacements, Landlord shall have no obligation to provide Tenant with alternative or back-up Equipment. Tenant expressly acknowledges and agrees that Landlord does not guaranty that the Equipment will be operational at all times, will function or perform adequately and Landlord shall not be liable for any damages resulting from the failure of such Equipment.

(ii) Landlord makes no warranties of any kind, express or implied, with respect to the Shared Areas or the Equipment, and Landlord disclaims any such warranties. Without limiting the foregoing, Tenant expressly acknowledges and agrees that Landlord does not guaranty or warrant that that the Shared Areas of any Equipment will be operational at all times, will be of sufficient capacity to accommodate Tenant's use thereof, will be free of Hazardous Materials, or will function or perform adequately, and Landlord shall not be liable for any damages resulting from the failure of the Shared Areas and/or any Equipment.

(e) Tenant acknowledges and agrees that Landlord is under no obligation to provide any type of instruction or implement any training programs relating to the use of the Shared Areas for Tenant or any other parties entitled to use the Shared Areas.

40. **Miscellaneous**.

(a) **Notices**. All notices or other communications between the parties shall be in writing and shall be deemed duly given upon delivery or refusal to accept delivery by the addressee thereof if delivered in person, or upon actual receipt if delivered by reputable overnight guaranty courier, addressed and sent to the parties at their addresses set forth above. Landlord and Tenant may from time to time by written notice to the other designate another address for receipt of future notices.

(b) **Joint and Several Liability**. If and when included within the term **"Tenant,"** as used in this instrument, there is more than one person or entity, each shall be jointly and severally liable for the obligations of Tenant.

(c) **Financial Information**. Upon Landlord's request, Tenant shall furnish Landlord with true and complete copies of (i) Tenant's most recent audited annual financial statements within 90 days of the end of each of Tenant's fiscal years during the Term, (ii) Tenant's most recent unaudited quarterly financial statements within 45 days of the end of each of Tenant's first three fiscal quarters of each of Tenant's fiscal years during the Term, (iii) at Landlord's request from time to time, updated business plans, including cash flow projections and/or pro forma balance sheets and income statements, all of which shall be treated by Landlord as confidential information belonging to Tenant, (iv) corporate brochures and/or profiles prepared by Tenant for prospective investors, and (v) any other financial information or summaries that Tenant typically provides to its lenders or shareholders. So long as Tenant is a "public company" and its financial information is publicly available, then the foregoing delivery requirements of this Section 40(c) shall not apply. Landlord shall treat Tenant's financial information as confidential information belonging to Tenant and will not disclose the same other than on a need-to-know basis to Landlord's affiliates, legal, financial or tax advisors, consultants, potential lenders and potential purchasers and as required by Legal Requirements.

(d) **Recordation**. Neither this Lease nor a memorandum of lease shall be filed by or on behalf of Tenant in any public record. Landlord may prepare and file, and upon request by Landlord Tenant will execute, a memorandum of lease.

(e) **Interpretation**. The normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of this Lease or any exhibits or amendments hereto. Words of any gender used in this Lease shall be held and construed to include any other gender, and words in the singular number shall be held to include the plural, unless the context otherwise requires. The captions inserted in this Lease are for convenience only and in no way define, limit or otherwise describe the scope or intent of this Lease, or any provision hereof, or in any way affect the interpretation of this Lease.

(f) **Not Binding Until Executed**. The submission by Landlord to Tenant of this Lease shall have no binding force or effect, shall not constitute an option for the leasing of the Premises, nor confer any right or impose any obligations upon either party until execution of this Lease by both parties.

(g) **Limitations on Interest**. It is expressly the intent of Landlord and Tenant at all times to comply with applicable law governing the maximum rate or amount of any interest payable on or in connection with this Lease. If applicable law is ever judicially interpreted so as to render usurious any interest called for under this Lease, or contracted for, charged, taken, reserved, or received with respect to this Lease, then it is Landlord's and Tenant's express intent that all excess amounts theretofore collected by Landlord be credited on the applicable obligation (or, if the obligation has been or would thereby be paid in full, refunded to Tenant), and the provisions of this Lease immediately shall be deemed reformed and the amounts thereafter collectible hereunder reduced, without the necessity of the execution of any new document, so as to comply with the applicable law, but so as to permit the recovery of the fullest amount otherwise called for hereunder.

(h) **Choice of Law**. Construction and interpretation of this Lease shall be governed by the internal laws of the state in which the Premises are located, excluding any principles of conflicts of laws.

(i) **Time**. Time is of the essence as to the performance of Tenant's obligations under this Lease.

(j) **OFAC**. Tenant and, to Tenant's knowledge, all beneficial owners of Tenant are currently (a)in compliance with and shall at all times during the Term of this Lease remain in compliance with the regulations of the Office of Foreign Assets Control ("**OFAC**") of the U.S. Department of Treasury and any statute, executive order, or regulation relating thereto (collectively, the "**OFAC Rules**"), (b) not listed on, and shall not during the term of this Lease be listed on, the Specially Designated Nationals and Blocked Persons List, Foreign Sanctions Evaders List, or the Sectoral Sanctions Identification List, which are all maintained by OFAC and/or on any other similar list maintained by OFAC or other governmental authority pursuant to any authorizing statute, executive order, or regulation, and (c) not a person or entity with whom a U.S. person is prohibited from conducting business under the OFAC Rules.

(k) **Incorporation by Reference**. All exhibits and addenda attached hereto are hereby incorporated into this Lease and made a part hereof. If there is any conflict between such exhibits or addenda and the terms of this Lease, such exhibits or addenda shall control.

(l) **Entire Agreement**. This Lease, including the exhibits attached hereto, constitutes the entire agreement between Landlord and Tenant pertaining to the subject matter hereof and supersedes all prior and contemporaneous agreements, understandings, letters of intent, negotiations and discussions, whether oral or written, of the parties, and there are no warranties, representations or other agreements, express or implied, made to either party by the other party in connection with the subject matter hereof except as specifically set forth herein.

(m) **No Accord and Satisfaction**. No payment by Tenant or receipt by Landlord of a lesser amount than the monthly installment of Base Rent or any Additional Rent will be other than on account of the earliest stipulated Base Rent and Additional Rent, nor will any endorsement or statement on any check or letter accompanying a check for payment of any Base Rent or Additional Rent be an accord and satisfaction. Landlord may accept such check or payment without prejudice to Landlord's right to recover the balance of such Rent or to pursue any other remedy provided in this Lease.

(n) **Hazardous Activities**. Notwithstanding any other provision of this Lease, Landlord, for itself and its employees, agents and contractors, reserves the right to refuse to perform any repairs or services in any portion of the Premises which, pursuant to Tenant's routine safety guidelines, practices or custom or prudent industry practices, require any form of protective clothing or equipment other than safety glasses. In any such case, Tenant shall contract with parties who are acceptable to Landlord, in Landlord's reasonable discretion, for all such repairs and services, and Landlord shall, to the extent required, equitably adjust Tenant's Share of Operating Expenses in respect of such repairs or services to reflect that Landlord is not providing such repairs or services to Tenant.

(o) **EV Charging Stations**. Landlord shall not unreasonably withhold its consent to Tenant's written request to install 1 or more electric vehicle car charging stations ("**EV Stations**") in the parking area serving the Project; provided, however, that Tenant complies with all reasonable requirements, standards, rules and regulations which may be imposed by Landlord, at the time Landlord's consent is granted, in connection with Tenant's installation, maintenance, repair and operation of such EV Stations, which may include, without limitation, Landlord's designation of the location of Tenant's EV Stations, and Tenant's payment of all costs whether incurred by Landlord or Tenant in connection with the installation, maintenance, repair and operation of each Tenant's EV Station(s). Nothing contained in this paragraph is intended to increase the number of parking spaces which Tenant is otherwise entitled to use at the Project under Section 10 of this Lease nor impose any additional obligations on Landlord with respect to Tenant's parking rights at the Project.

(p) **California Accessibility Disclosure**. For purposes of Section 1938(a) of the California Civil Code, Landlord hereby discloses to Tenant, and Tenant hereby acknowledges, that the Project has not undergone inspection by a Certified Access Specialist (CASp). In addition, the following notice is hereby provided pursuant to Section 1938(e) of the California Civil Code: "A Certified Access Specialist (CASp) can inspect the subject premises and determine whether the subject premises comply with all of the applicable construction-related accessibility standards under state law. Although state law does not require a CASp inspection of the subject premises, the commercial property owner or lessor may not prohibit the lessee or tenant from obtaining a CASp inspection of the subject premises for the occupancy or potential occupancy of the lessee or tenant, if requested by the lessee or tenant. The parties shall mutually agree on the arrangements for the time and manner of the CASp inspection, the payment of the fee for the CASp inspection, and the cost of making any repairs necessary to correct violations of construction-related accessibility standards within the premises." In furtherance of and in connection with such notice: (i) Tenant, having read such notice and understanding Tenant's right to request and obtain a CASp inspection, hereby elects not to obtain such CASp inspection and forever waives its rights to obtain a CASp inspection with respect to the Premises, Building and/or Project to the extent permitted by Legal Requirements; and (ii) if the waiver set forth in clause (i) hereinabove is not enforceable pursuant to Legal Requirements, then Landlord and Tenant hereby agree as follows (which constitutes the mutual agreement of the parties as to the matters described in the last sentence of the foregoing notice): (A) Tenant shall have the one-time right to request for and obtain a CASp inspection, which request must be made, if at all, in a written notice delivered by Tenant to Landlord; (B) any CASp inspection timely requested by Tenant shall be conducted (1) at a time mutually agreed to by Landlord and Tenant, (2) in a professional manner by a CASp designated by Landlord and without any testing that would damage the Premises, Building or Project in any way, and (3) at Tenant's sole cost and expense, including, without limitation, Tenant's payment of the fee for such CASp inspection, the fee for any reports prepared by the CASp in connection with such CASp inspection (collectively, the "**CASp Reports**") and all other costs and expenses in connection therewith; (C) the CASp Reports shall be delivered by the CASp simultaneously to Landlord and Tenant; (D) Tenant, at its sole cost and expense, shall be responsible for making any improvements, alterations, modifications and/or repairs to or within the Premises to correct violations of construction-related accessibility standards including, without limitation, any violations disclosed by such CASp inspection; and (E) if such CASp inspection identifies any improvements, alterations, modifications and/or repairs necessary to correct violations of construction-related accessibility standards relating to those items of the Building and Project located outside the Premises that are Landlord's obligation to repair as set forth in this Lease, then Landlord shall perform such improvements, alterations, modifications and/or repairs as and to the extent required by Legal Requirements to correct such violations, and Tenant shall reimburse Landlord for the cost of such improvements, alterations, modifications and/or repairs within 10 business days after Tenant's receipt of an invoice therefor from Landlord. Landlord and Tenant expressly acknowledge and agree that the foregoing provisions of this Section 40(p) shall apply only in the event that Tenant elects to obtain a CASp inspection.

(q) **Counterparts**. This Lease may be executed in 2 or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Counterparts may be delivered via facsimile, electronic mail (including pdf or any electronic signature process complying with the U.S. federal ESIGN Act of 2000) or other transmission method and any counterpart so delivered shall be deemed to have been duly and validly delivered and be valid and effective for all purposes. Electronic signatures shall be deemed original signatures for purposes of this Lease and all matters related thereto, with such electronic signatures having the same legal effect as original signatures.

[**Signatures are on the next page**]

IN WITNESS WHEREOF, Landlord and Tenant have executed this Lease as of the day and year first above written.

TENANT:

INTEGRAL MEDICINES, INC.,
a Delaware corporation

By: /s/ Josh Lehrer
Its: CEO

LANDLORD:

ARE-SAN FRANCISCO NO. 12, LLC,
a Delaware limited liability company

By: ALEXANDRIA REAL ESTATE EQUITIES, L.P.,
a Delaware limited partnership,
its managing member

By: ARE-QRS CORP.,
a Maryland corporation,
its general partner

By: /s/ Kristen Childs
Its: VP Real Estate Legal Affairs

EXHIBIT A TO LEASE

DESCRIPTION OF PREMISES

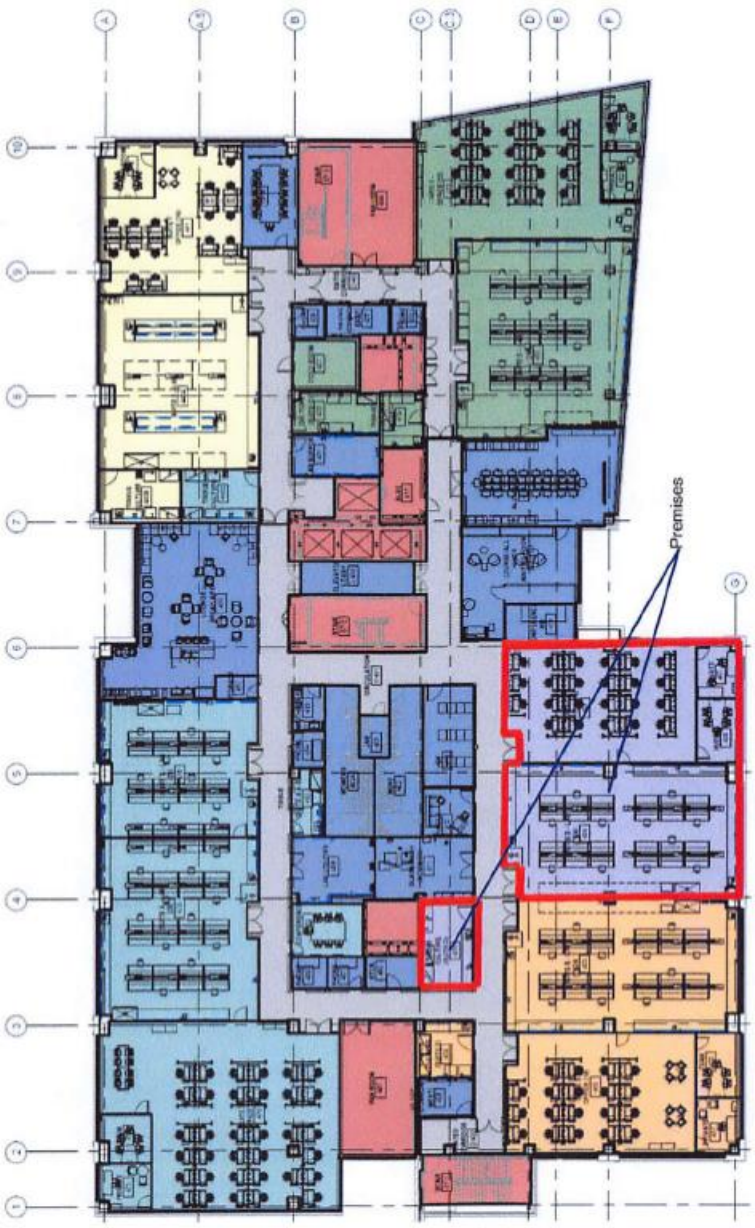


EXHIBIT B TO LEASE

DESCRIPTION OF PROJECT

EXHIBIT C TO LEASE

INTENTIONALLY OMITTED

EXHIBIT D TO LEASE

ACKNOWLEDGMENT OF COMMENCEMENT DATE

This **ACKNOWLEDGMENT OF COMMENCEMENT DATE** is made this ____ day of _____, ____, between **ARE-SAN FRANCISCO NO. 12, LLC**, a Delaware limited liability company ("**Landlord**"), and **INTEGRAL MEDICINES, INC**., a Delaware corporation ("**Tenant**"), and is attached to and made a part of the Lease dated _____, ____ (the "**Lease**"), by and between Landlord and Tenant. Any initially capitalized terms used but not defined herein shall have the meanings given them in the Lease.

Landlord and Tenant hereby acknowledge and agree, for all purposes of the Lease, that the Commencement Date of the Base Term of the Lease is _____, ____, and the termination date of the Base Term of the Lease shall be midnight on June 30, 2021. In case of a conflict between the terms of the Lease and the terms of this Acknowledgment of Commencement Date, this Acknowledgment of Commencement Date shall control for all purposes.

IN WITNESS WHEREOF, Landlord and Tenant have executed this ACKNOWLEDGMENT OF COMMENCEMENT DATE to be effective on the date first above written.

TENANT:

INTEGRAL MEDICINES, INC.,
a Delaware corporation

By: _____
Its: _____

LANDLORD:

ARE-SAN FRANCISCO NO. 12, LLC,
a Delaware limited liability company

By: ALEXANDRIA REAL ESTATE EQUITIES, L.P.,
a Delaware limited partnership,
its managing member

By: ARE-QRS CORP.,
a Maryland corporation,
its general partner

By: _____
Its: _____

EXHIBIT E TO LEASE

Rules and Regulations

1. The sidewalk, entries, and driveways of the Project shall not be obstructed by Tenant, or any Tenant Party, or used by them for any purpose other than ingress and egress to and from the Premises.

2. Except as otherwise expressly provided in the Lease, Tenant shall not place any objects, including antennas, outdoor furniture, etc., in the parking areas, landscaped areas or other areas outside of its Premises, or on the roof of the Project.

3. Except for animals assisting the disabled, no animals shall be allowed in the offices, halls, or corridors in the Project.

4. Tenant shall not disturb the occupants of the Project or adjoining buildings by the use of any radio or musical instrument or by the making of loud or improper noises.

5. If Tenant desires telegraphic, telephonic or other electric connections in the Premises, Landlord or its agent will direct the electrician as to where and how the wires may be introduced; and, without such direction, no boring or cutting of wires will be permitted. Any such installation or connection shall be made at Tenant's expense.

6. Tenant shall not install or operate any steam or gas engine or boiler, or other mechanical apparatus in the Premises, except as specifically approved in the Lease. The use of oil, gas or inflammable liquids for heating, lighting or any other purpose is expressly prohibited. Explosives or other articles deemed extra hazardous shall not be brought into the Project.

7. Parking any type of recreational vehicles is specifically prohibited on or about the Project. Except for the overnight parking of operative vehicles, no vehicle of any type shall be stored in the parking areas at any time. In the event that a vehicle is disabled, it shall be removed within 48 hours. There shall be no "For Sale" or other advertising signs on or about any parked vehicle. All vehicles shall be parked in the designated parking areas in conformity with all signs and other markings. All parking will be open parking, and no reserved parking, numbering or lettering of individual spaces will be permitted except as specified by Landlord.

8. Tenant shall maintain the Premises free from rodents, insects and other pests.

9. Landlord reserves the right to exclude or expel from the Project any person who, in the judgment of Landlord, is intoxicated or under the influence of liquor or drugs or who shall in any manner do any act in violation of the Rules and Regulations of the Project.

10. Tenant shall not cause any unnecessary labor by reason of Tenant's carelessness or indifference in the preservation of good order and cleanliness. Landlord shall not be responsible to Tenant for any loss of property on the Premises, however occurring, or for any damage done to the effects of Tenant by the janitors or any other employee or person.

11. Tenant shall give Landlord prompt notice of any defects in the water, lawn sprinkler, sewage, gas pipes, electrical lights and fixtures, heating apparatus, or any other service equipment affecting the Premises.

12. Tenant shall not permit storage outside the Premises, including without limitation, outside storage of trucks and other vehicles, or dumping of waste or refuse or permit any harmful materials to be placed in any drainage system or sanitary system in or about the Premises.

13. All moveable trash receptacles provided by the trash disposal firm for the Premises must be kept in the trash enclosure areas, if any, provided for that purpose.

14. No auction, public or private, will be permitted on the Premises or the Project.

15. No awnings shall be placed over the windows in the Premises except with the prior written consent of Landlord.

16. The Premises shall not be used for lodging, sleeping or cooking or for any immoral or illegal purposes or for any purpose other than that specified in the Lease. No gaming devices shall be operated in the Premises.

17. Tenant shall ascertain from Landlord the maximum amount of electrical current which can safely be used in the Premises, taking into account the capacity of the electrical wiring in the Project and the Premises and the needs of other tenants, and shall not use more than such safe capacity. Landlord's consent to the installation of electric equipment shall not relieve Tenant from the obligation not to use more electricity than such safe capacity.

18. Tenant assumes full responsibility for protecting the Premises from theft, robbery and pilferage.

19. Tenant shall not install or operate on the Premises any machinery or mechanical devices of a nature not directly related to Tenant's ordinary use of the Premises and shall keep all such machinery free of vibration, noise and air waves which may be transmitted beyond the Premises.

20. Tenant shall cause any vendors and other service providers hired by Tenant to perform services at the Premises or the Project to maintain in effect workers' compensation insurance as required by Legal Requirements and commercial general liability insurance with coverage amounts reasonably acceptable to Landlord. Tenant shall cause such vendors and service providers to name Landlord and Alexandria Real Estate Equities, Inc. as additional insureds under such policies and shall provide Landlord with certificates of insurance evidencing the required coverages (and showing Landlord and Alexandria Real Estate Equities, Inc. as additional insureds under such policies) prior to the applicable vendor or service provider providing any services to Tenant at the Project.

21. Neither Tenant nor any of the Tenant Parties shall have the right to photograph, videotape, film, digitally record or by any other means record, transmit and/or distribute any images, pictures or videos of all or any portion of the Premises or the Project that could identify the Project or the name of the Project, or that identify Landlord or any other tenants or any affiliates of Landlord or any other tenants. The foregoing is not meant to prohibit individual employees from taking and disseminating photos of themselves or other people within the Premises or at the Project so long as neither the Building nor any proprietary information, equipment or improvements of Landlord are included within such photos.

EXHIBIT F TO LEASE

TENANT'S PERSONAL PROPERTY

None.

EXHIBIT G TO LEASE

SHARED AREAS

FIRST AMENDMENT TO LEASE

THIS FIRST AMENDMENT TO LEASE (this "**First Amendment**") is made as of March 3, 2021, by and between **ARE-SAN FRANCISCO NO. 12, LLC**, a Delaware limited liability company ("**Landlord**"), and **GRAPHITE BIO, INC.**, a Delaware corporation ("**Tenant**"), formerly known as Integral Medicines, Inc.

RECITALS

A. Landlord and Tenant are now parties to that certain Lease Agreement dated as of April 24, 2020 (the "**Lease**"). Pursuant to the Lease, Tenant leases from Landlord certain premises consisting of approximately 6,340 rentable square feet (the "**Premises**") on a portion of the 4th floor in a building located at 279 East Grand Avenue, South San Francisco, California. The Premises are more particularly described in the Lease. Capitalized terms used herein without definition shall have the meanings defined for such terms in the Lease.

B. The Base Term of the Lease is scheduled to expire on June 30, 2021.

C. Landlord and Tenant desire, subject to the terms and conditions set forth below, to amend the Lease to, among other things, extend the Base Term through the earlier of (x) the date that is five (5) days after Landlord's affiliate Delivers (as defined in the new lease between ARE-San Francisco No. 65, LLC and Tenant dated as of February 26, 2021, the "**201 Haskins Lease**") to Tenant the new premises (the "**New Premises**"), located at 201 Haskins Way, South San Francisco, California, and (y) September 30, 2021 (the "**Expiration Date**").

NOW, THEREFORE, in consideration of the foregoing Recitals, which are incorporated herein by this reference, the mutual promises and conditions contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant hereby agree as follows:

1. **Base Term**. The Base Term of the Lease is hereby extended through the Expiration Date. Tenant's occupancy of the Premises through the Expiration Date shall be on an "as-is" basis and Landlord shall have no obligation to provide any tenant improvement allowance or make any alterations to the Premises. Tenant shall have no right to extend the Base Term of the Lease beyond the Expiration Date. Notwithstanding anything to the contrary contained herein, nothing in this paragraph shall limit Landlord's maintenance and repair obligations under Section 13 of the Lease.

Upon written request from Tenant, Landlord shall provide updates regarding the progress of construction of the New Premises and the anticipated date of substantial completion of the tenant improvements in the New Premises. If it is determined that the delivery of the New Premises under the 201 Haskins Lease will be delayed beyond October 1, 2021, then, upon written request from Tenant, Landlord shall endeavor to obtain approval from the prospective tenant of the Premises for Tenant to continue to occupy the Premises through the anticipated delayed delivery date of the New Premises at the rate of Base Rent provided for below and otherwise on substantially the same terms as the Lease, as amended by this First Amendment.

2. **Base Rent**. Tenant shall continue to pay Base Rent as provided under the Lease through June 30, 2021. Commencing on July 1, 2021, Tenant shall pay Base Rent in the amount of $5.67 per rentable square foot of the Premises per month.

3. **Services**. Tenant acknowledges having been advised and agrees that, commencing on July 1, 2021, Landlord shall no longer provide janitorial services, shared autoclave and glasswash, snacks, AV systems and Wi-Fi in the common areas, telephones in the conference rooms, service to operate the televisions in the kitchen and conference rooms, conference booking and IT third management for the risers with respect to the fourth floor of the Building (collectively, the

"**Services**"), and Tenant shall not look to Landlord for the provision of any of such Services. To the extent Tenant requires any of the foregoing Services, Tenant shall be required to contract directly with Verily Life Sciences LLC for the provision of such Services and, to the extent that Verily Life Sciences LLC provides any of such Services, Tenant shall be required to reimburse Verily Life Sciences LLC for the cost of the provision of any such Services pursuant to a separate agreement between Tenant and Verily Life Sciences LLC.

Tenant acknowledges and agrees that by no later than June 30, 2021, (i) Tenant shall be required to move Tenant's AV equipment off Landlord's network equipment, (ii) the conference room booking system, AV wireless presentation and guest Wi-Fi shall no longer be made available by Landlord, and (iii) Landlord shall remove and not replace its network equipment.

4. **Brokers**. Landlord and Tenant each represents and warrants that it has not dealt with any broker, agent or other person other than Newmark Knight Frank (collectively, "**Broker**") in connection with the transaction reflected in this First Amendment and that no other Broker brought about this transaction. Landlord and Tenant each hereby agrees to indemnify and hold the other harmless from and against any claims by any other Broker claiming a commission or other form of compensation by virtue of having dealt with Tenant or Landlord, as applicable, with regard to this leasing transaction.

5. **OFAC**. Tenant, and to Tenant's knowledge, and all beneficial owners of Tenant are currently (a) in compliance with and shall at all times during the Term of the Lease remain in compliance with the regulations of the Office of Foreign Assets Control ("**OFAC**") of the U.S. Department of Treasury and any statute, executive order, or regulation relating thereto (collectively, the "**OFAC Rules**"), (b) not listed on, and shall not during the term of the Lease be listed on, the Specially Designated Nationals and Blocked Persons List, Foreign Sanctions Evaders List or the Sectoral Sanctions Identifications List, which are all maintained by OFAC and/or on any other similar list maintained by OFAC or other governmental authority pursuant to any authorizing statute, executive order, or regulation, and (c) not a person or entity with whom a U.S. person is prohibited from conducting business under the OFAC Rules.

6. **California Accessibility Disclosure**. The terms of Section 40(p) of the Lease are hereby incorporated into this First Amendment by reference.

7. **Miscellaneous**.

a. This First Amendment is the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior and contemporaneous oral and written agreements and discussions. This First Amendment may be amended only by an agreement in writing, signed by the parties hereto.

b. This First Amendment is binding upon and shall inure to the benefit of the parties hereto, and their respective successors and assigns.

c. This First Amendment may be executed in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Counterparts may be delivered via facsimile, electronic mail (including pdf or any electronic signature process complying with the U.S. federal ESIGN Act of 2000) or other transmission method and any counterpart so delivered shall be deemed to have been duly and validly delivered and be valid and effective for all purposes. Electronic signatures shall be deemed original signatures for purposes of this First Amendment and all matters related thereto, with such electronic signatures having the same legal effect as original signatures.

d. Except as amended and/or modified by this First Amendment, the Lease is hereby ratified and confirmed and all other terms of the Lease shall remain in full force and effect, unaltered and unchanged by this First Amendment. In the event of any conflict between the provisions of this First Amendment and the provisions of the Lease, the provisions of this First Amendment shall prevail. Whether or not specifically amended by this First Amendment, all of the terms and provisions of the Lease are hereby amended to the extent necessary to give effect to the purpose and intent of this First Amendment. As of the date of this First Amendment, there is no existing Mortgage encumbering the Project.

[Signatures are on the next page.]

IN WITNESS WHEREOF, the parties hereto have executed this First Amendment as of the day and year first above written.

TENANT:

GRAPHITE BIO., INC.,
a Delaware corporation

By: /s/ Katherine Stultz
Its: COO
27-Jan-2021

By: _____
Its: _____

LANDLORD:

ARE-SAN FRANCISCO NO. 12, LLC,
a Delaware limited liability company

By: ALEXANDRIA REAL ESTATE EQUITIES, L.P.,
a Delaware limited partnership, managing member

By: ARE-QRS CORP.,
a Maryland corporation,
general partner

By: /s/ Kristen Childs
Its: Vice President RE Legal Affairs

LEASE AGREEMENT

THIS LEASE AGREEMENT (this "**Lease**") is made this 26th day of February, 2021, between **ARE-SAN FRANCISCO NO. 65, LLC**, a Delaware limited liability company ("**Landlord**"), and **GRAPHITE BIO, INC.**, a Delaware corporation ("**Tenant**")**.**

Building: That certain 5-story building commonly known as the "West Tower" at 201 Haskins Way, South San Francisco, California.

Premises: That certain space containing approximately 19,195 rentable square feet, consisting of (i) a portion of the first floor known as Suite 110, containing approximately 3,983 rentable square feet ("**Suite 110 Premises**"), and (ii) a portion of the second floor of the Building known as Suite 210, containing approximately 15,212 rentable square feet, as determined by Landlord, all as shown on **Exhibit A**.

Project: The real property on which the Building in which the Premises are located, together with all improvements thereon and appurtenances thereto as described on **Exhibit B**.

Base Rent: $5.95 per rentable square foot of the Premises per month, subject to adjustment pursuant to Section 4 hereof.

Rentable Area of Premises: 19,195 sq. ft.

Rentable Area of Building: 209,082 sq. ft.

Rentable Area of Project: 323,190 sq. ft.

Tenant's Share of Operating Expenses of Building: 9.18%

Building's Share of Operating Expenses of Project: 64.69%

Security Deposit: $114,210.25

Target Commencement Date: October 1, 2021

Rent Adjustment Percentage: 3%

Base Term: Beginning on the Commencement Date and ending 42 months from the first day of the first full month following the Commencement Date. For clarity, if the Commencement Date occurs on the first day of a month, the expiration of the Base Term shall be measured from that date. If the Commencement Date occurs on a day other than the first day of a month, the expiration of the Base Term shall be measured from the first day of the following month.

Permitted Use: Research and development laboratory, including process development, office and other related uses consistent with the character of the Project and otherwise in compliance with the provisions of Section 7 hereof.

Address for Rent Payment:
P.O. Box 975383
Dallas, TX 75397-5383

Landlord's Notice Address:
26 North Euclid Avenue
Pasadena, CA 91101
Attention: Corporate Secretary

Tenant's Notice Address
Prior to Commencement Date:
279 East Grand Avenue
South San Francisco, CA 94080
Attention: Chief Operating Officer

Tenant's Notice Address
Following Commencement Date:
201 Haskins Way, Suite 210
South San Francisco, California 94080
Attention: Chief Operating Officer

The following Exhibits are attached hereto and incorporated herein by this reference:

[X] **EXHIBIT A** - PREMISES DESCRIPTION
[X] **EXHIBIT B** - DESCRIPTION OF PROJECT
[X] **EXHIBIT C** - SPACE PLAN
[X] **EXHIBIT D** - COMMENCEMENT DATE
[X] **EXHIBIT E** - RULES AND REGULATIONS
[X] **EXHIBIT F** - TENANT'S PERSONAL PROPERTY
[X] **EXHIBIT G** - INTENTIONALLY OMITTED
[X] **EXHIBIT H** - SHARED AREAS

1. **Lease of Premises**. Upon and subject to all of the terms and conditions hereof, Landlord hereby leases the Premises to Tenant and Tenant hereby leases the Premises from Landlord. The portions of the Project which are for the non-exclusive use of tenants of the Project, including without limitation, public or common lobbies, the Project Amenities (as defined in Section 5), common chases and conduits, shared mechanical and utility rooms, hallways, stairways, elevators and common walkways, the common toilets, corridors and elevator lobbies of multi-tenant floors, access roads, driveways, parking areas, shared loading areas, pedestrian sidewalks, landscaped areas and trash enclosures, are collectively referred to herein as the "**Common Areas**." Tenant shall have the non-exclusive right during the Term to use the Common Areas along with others having the right to use the Common Areas. Landlord shall, in Landlord's sole and absolute discretion, have the right at any time and from time to time to reconfigure, relocate, and/or modify any of the Common Areas; provided, however, (i) such modifications do not materially adversely affect Tenant's use of the Premises for the Permitted Use, and (ii) that in no event shall Landlord permanently eliminate the Common Area breakroom on the second floor of the Building, the Common Areas rooftop deck, or the Common Area shipping and receiving area serving the Building. From and after the Commencement Date through the expiration of the Term, Tenant shall have access to the Building and the Premises 24 hours a day, 7 days a week, 365 days per year, except in the case of emergencies, as the result of Legal Requirements, the performance by Landlord of any installation, maintenance or repairs, or any other temporary interruptions, and otherwise subject to the terms of this Lease.

2. **Delivery; Acceptance of Premises; Commencement Date**. Landlord shall use reasonable efforts to deliver the Premises with the improvements reflected on the plan set forth on **Exhibit C** attached hereto ("**Landlord's Work**") Substantially Completed and in broom clean condition ("**Delivery**" or "**Deliver**"). If Landlord fails to timely Deliver the Premises, Landlord shall not be liable to Tenant for any loss or damage resulting therefrom, and this Lease shall not be void or voidable except as provided herein. Upon written request from Tenant, Landlord shall provide Tenant with updates regarding the progress of Landlord's Work and any anticipated delays in the Substantial Completion of Landlord's Work beyond the Target Commencement Date. If Landlord does not Deliver the Premises within 30 days of the Target Commencement Date for any reason other than Force Majeure (as defined in Section 34) delays, this Lease may be terminated by Tenant by written notice to Landlord, and if so terminated by Tenant: (a) the Security Deposit, or any balance thereof (i.e., after deducting therefrom all amounts to which Landlord is entitled under the provisions of this Lease), shall be returned to Tenant, and (b) neither Landlord nor Tenant shall have any further rights, duties or obligations under this Lease, except with respect to provisions which expressly survive termination of this Lease. Landlord shall Substantially Complete or cause Landlord's Work to be Substantially Completed, at its sole cost, in a good and workmanlike manner. Tenant shall have no right to make any changes to Landlord's Work. As used herein, "**Substantially Completed**" shall mean the substantial completion of Landlord's Work in a good and workmanlike manner, in accordance with the applicable permits subject to normal "punch list" items of a non-material nature that do not interfere with the use of the Premises and with a certificate or temporary certificate of occupancy (or an equivalent approval) having been issued permitting lawful occupancy of the Premises (but specifically excluding any permits, licenses or other governmental approvals required to be obtained in connection with Tenant's operations in the Premises). If Tenant does not elect to void this Lease within 5 business days of the lapse of such 30 day period, such right to void this Lease shall be waived and this Lease shall remain in full force and effect.

The "**Commencement Date**" shall be the date Landlord Delivers the Premises to Tenant; provided, however, that in no event shall the Commencement Date occur prior to the Target Commencement Date. Upon request of Landlord, Tenant shall execute and deliver a written acknowledgment of the Commencement Date and the expiration date of the Term when such are established in the form of the "Acknowledgement of Commencement Date" attached to this Lease as **Exhibit D**; provided, however, Tenant's failure to execute and deliver such acknowledgment shall not affect Landlord's or Tenant's rights hereunder. The "**Term**" of this Lease shall be the Base Term, as defined above on the first page of this Lease and the Extension Term which Tenant may elect pursuant to Section 39 hereof.

Landlord shall permit Tenant access to the Premises commencing on the date that is 30 days prior to the Commencement Date for Tenant's installation and set-up of its furniture, fixtures and equipment in the Premises (collectively, "**FF&E Installation**"), provided that such FF&E Installation is coordinated with Landlord, and Tenant complies with this Lease and all other reasonable restrictions and conditions Landlord may impose during the FF&E Installation. All such access shall be during normal business hours. Notwithstanding the foregoing, Tenant shall have no right to enter onto any portion of the Premises or the Project unless and until Tenant shall deliver to Landlord evidence reasonably satisfactory to Landlord demonstrating that the insurance required to be carried by Tenant pursuant to Section 17 is in full force and effect. Any access to the Premises by Tenant before the Commencement Date shall be subject to all of the terms and conditions of this Lease, excluding, except as otherwise expressly provided in the immediately following paragraph, the obligation to pay Base Rent and Operating Expenses.

Notwithstanding anything to the contrary contained herein, Tenant has requested and Landlord has agreed to use reasonable efforts to Substantially Complete Landlord's Work in the Suite 110 Premises by July 15, 2021, so that Tenant may commence occupying and operating in the Suite 110 Premises prior to the Commencement Date. If Landlord Substantially Completes Landlord's Work in the Suite 110 Premises prior to the Target Commencement Date, then Landlord shall Deliver to Tenant the Suite 110 Premises and Tenant shall commence paying Base Rent and Operating Expenses with respect to the Suite 110 Premises on the date that Landlord Delivers the Suite 110 Premises to Tenant.

Except as expressly set forth in this Lease: (i) Tenant shall accept the Premises in their condition as of the Commencement Date; (ii) Landlord shall have no obligation for any defects in the Premises; and (iii) Tenant's taking possession of the Premises shall be conclusive evidence that Tenant accepts the Premises and that the Premises were in good condition at the time possession was taken.

Prior to the Commencement Date, within 3 business days after request from Landlord to Tenant, Landlord and Tenant shall conduct a walk-through inspection of the Premises to create a punch list reasonably acceptable to Landlord and Tenant. Notwithstanding the foregoing, to the extent that Landlord's Delivers the Suite 110 Premises to Tenant prior to the Commencement Date as contemplated above, such walk-through inspection with respect to the Suite 110 Premises shall be conducted prior to the date Landlord Delivers the Suite 110 Premises to Tenant, within 3 business days after request from Landlord to Tenant. Landlord shall undertake and shall use reasonable efforts to complete, or cause to be completed, all punch list items identified during such walk-through inspection within 30 days after the Commencement Date (or, if applicable, with respect to the Suite 110 Premises, within 30 days after Delivery of the Suite 110 Premises to Tenant).

Landlord shall deliver the Premises to Tenant furnished with the furniture, fixtures and equipment reflected on the space plan attached hereto as **Exhibit C** ("**Landlord's FF&E**") for Tenant's use in the Premises during the Term. Tenant shall have no right to remove any of Landlord's FF&E from the Premises and Landlord's FF&E shall be returned to Landlord at the expiration or earlier termination of the Term in substantially the same condition as received by Tenant, except for ordinary wear and tear and casualty.

Notwithstanding anything to the contrary contained herein, for the period of 30 consecutive days after the Commencement Date, Landlord shall, at its sole cost and expense (which shall not constitute an Operating Expense), be responsible for any repairs that are required to be made to the Building or Building Systems (as defined in Section 13), unless Tenant or any Tenant Party was responsible for the cause of such repair, in which case Tenant shall pay the cost. In addition, Tenant shall have the benefit of any

existing warranties issued to Landlord with respect to the Building Systems serving the Premises and any warranties issued to Landlord in connection with Landlord's Work. If requested by Tenant, Landlord shall attempt to obtain extended warranties from manufacturers and suppliers of the equipment installed in the Premises as part of Landlord's Work, but the cost of any such extended warranties shall be borne solely by Tenant.

Tenant agrees and acknowledges that neither Landlord nor any agent of Landlord has made any representation or warranty with respect to the condition of all or any portion of the Premises or the Project, and/or the suitability of the Premises or the Project for the conduct of Tenant's business, and Tenant waives any implied warranty that the Premises or the Project are suitable for the Permitted Use. This Lease constitutes the complete agreement of Landlord and Tenant with respect to the subject matter hereof and supersedes any and all prior representations, inducements, promises, agreements, understandings and negotiations which are not contained herein. Landlord in executing this Lease does so in reliance upon Tenant's representations, warranties, acknowledgments and agreements contained herein.

3. **Rent**.

(a) **Base Rent**. The first month's Base Rent and the Security Deposit shall be due and payable concurrently with Tenant's delivery of an executed copy of this Lease to Landlord. Tenant shall pay to Landlord in advance, without demand, abatement, deduction or set-off, monthly installments of Base Rent on or before the first day of each calendar month during the Term hereof after the Commencement Date, in lawful money of the United States of America, at the office of Landlord for payment of Rent set forth above, or to such other person or at such other place as Landlord may from time to time designate in writing, or via federally insured wire transfer (including ACH) pursuant to the wire instructions provided by Landlord. Payments of Base Rent for any fractional calendar month shall be prorated. The obligation of Tenant to pay Base Rent and other sums to Landlord and the obligations of Landlord under this Lease are independent obligations. Tenant shall have no right at any time to abate, reduce, or set-off any Rent (as defined in Section 5) due hereunder except for any abatement as may be expressly provided in this Lease.

Notwithstanding anything to the contrary contained herein, so long as Tenant is not in default under this Lease beyond any applicable notice and cure periods, for the period commencing on the Commencement Date through the date that is 90 days after the Commencement Date (the "**Partial Abatement Period**"), Tenant shall only be required to pay Base Rent with respect to 50% of the Premises. Tenant shall commence paying Base Rent with respect to the entire Premises on the day immediately following the expiration of the Partial Abatement Period.

(b) **Additional Rent**. In addition to Base Rent, Tenant agrees to pay to Landlord as additional rent ("**Additional Rent**"): (i) commencing on the Commencement Date, Tenant's Share of "Operating Expenses" (as defined in Section 5), and (ii) any and all other amounts Tenant assumes or agrees to pay under the provisions of this Lease, including, without limitation, any and all other sums that may become due by reason of any default of Tenant or failure to comply with the agreements, terms, covenants and conditions of this Lease to be performed by Tenant, after any applicable notice and cure period.

4. **Base Rent Adjustments**. Base Rent shall be increased on each annual anniversary of the Commencement Date (provided, however, that if the Commencement Date occurs on a day other than the first day of a calendar month, then Base Rent shall be increased on each annual anniversary of the first day of the first full calendar month immediately following the Commencement Date) (each an "**Adjustment Date**") by multiplying the Base Rent payable immediately before such Adjustment Date by the Rent Adjustment Percentage and adding the resulting amount to the Base Rent payable immediately before such Adjustment Date. Base Rent, as so adjusted, shall thereafter be due as provided herein. Base Rent adjustments for any fractional calendar month shall be prorated.

5. **Operating Expense Payments**. Landlord shall endeavor to deliver to Tenant, at least 30 days prior to the beginning of each calendar year of the Term, a written estimate of Operating Expenses for each calendar year during the Term (the "**Annual Estimate**"), which may be revised by Landlord from time to time during such calendar year (but no more than quarterly). Commencing on the Commencement Date and continuing thereafter on the first day of each month during the Term, Tenant shall pay Landlord an amount equal to 1/12th of Tenant's Share of the Annual Estimate. Payments for any fractional calendar month shall be prorated.

The term "**Operating Expenses**" means all costs and expenses of any kind or description whatsoever incurred or accrued each calendar year by Landlord with respect to the Building (including the Building's Share of all costs and expenses of any kind or description incurred or accrued by Landlord with respect to the Project which are not specific to the Building or any other building located in the Project) including, without duplication, (u) Taxes (as defined in Section 9), (v) the cost of upgrades to the Building or Project or enhanced services provided at the Building and/or Project which are intended to encourage social distancing, promote and protect health and physical well-being and/or intended to limit the spread of communicable diseases and/or viruses of any kind or nature that are more virulent than the seasonal flu (collectively, "**Infectious Conditions**"), provided, however, to the extent the same constitutes a capital repair, improvement or replacement, the same shall be amortized in accordance with the following clause (y), (w) the cost (including, without limitation, any commercially reasonable subsidies which Landlord may provide in connection with the Project Amenities) of the common area amenities (the "**Project Amenities**") now or hereafter located at the Project, (x) costs related to any parking structure or parking areas serving the Project and costs for transportation services (including the Shuttle Service Costs (as defined in Section 40(q)), provided, however, to the extent the same constitutes a capital repair, improvement or replacement, the same shall be amortized in accordance with the following *clause (y),* (y) capital repairs, improvements and replacements amortized over the lesser of 10 years and the useful life of such capital repairs, improvements and replacements, and (z) the costs of Landlord's third party property manager (not to exceed 3% of Base Rent) or, if there is no third party property manager, administration rent in the amount of 3% of Base Rent (provided that during the Partial Abatement Period, Tenant shall nonetheless be required to pay administration rent each month equal to the amount of the administration rent that Tenant would have been required to pay in the absence of there being a Partial Abatement Period), excluding only:

(a) the original construction costs of the Project and renovation prior to or planned as of the Commencement Date and costs of correcting defects in such original construction or renovation;

(b) capital expenditures for expansion of the Project;

(c) interest, principal payments of Mortgage (as defined inSection 27) debts of Landlord, financing costs and amortization of funds borrowed by Landlord, whether secured or unsecured, and all payments of base rent (but not taxes or operating expenses) under any ground lease or other underlying lease of all or any portion of the Project;

(d) depreciation of the Project (except for capital improvements, the cost of which are includable in Operating Expenses);

(e) advertising, legal and space planning expenses and leasing commissions and other costs and expenses incurred in procuring and leasing space to tenants for the Project, including any leasing office maintained in the Project, free rent and construction allowances for tenants;

(f) legal and other expenses incurred in the negotiation or enforcement of leases;

(g) completing, fixturing, improving, renovating, painting, redecorating or other work, which Landlord pays for or performs for other tenants within their premises, and costs of correcting defects in such work;

(h) costs to be reimbursed by other tenants of the Project or Taxes to be paid directly by Tenant or other tenants of the Project, whether or not actually paid;

(i) salaries, wages, benefits and other compensation paid to officers and employees of Landlord who are not assigned in whole or in part to the operation, management, maintenance or repair of the Project;

(j) general organizational, administrative and overhead costs relating to maintaining Landlord's existence, either as a corporation, partnership, or other entity, including general corporate, legal and accounting expenses;

(k) costs (including attorneys' fees and costs of settlement, judgments and payments in lieu thereof) incurred in connection with disputes with tenants, other occupants, or prospective tenants, and costs and expenses, including legal fees, incurred in connection with negotiations or disputes with employees, consultants, management agents, leasing agents, purchasers or mortgagees of the Building;

(l) costs incurred by Landlord due to the violation by Landlord, its employees, agents or contractors or any tenant of the terms and conditions of any lease of space in the Project or any Legal Requirement (as defined in Section 7);

(m) penalties, fines or interest incurred as a result of Landlord's inability or failure to make payment of Taxes and/or to file any tax or informational returns when due, or from Landlord's failure to make any payment of Taxes required to be made by Landlord hereunder before delinquency;

(n) overhead and profit increment paid to Landlord or to subsidiaries or affiliates of Landlord for goods and/or services in or to the Project to the extent the same exceeds the costs of such goods and/or services rendered by unaffiliated third parties on a competitive basis;

(o) costs of Landlord's charitable or political contributions, or of fine art maintained at the Project;

(p) costs in connection with services (including electricity), items or other benefits of a type which are not standard for the Project and which are not available to Tenant without specific charges therefor, but which are provided to another tenant or occupant of the Project, whether or not such other tenant or occupant is specifically charged therefor by Landlord;

(q) costs incurred in the sale or refinancing of the Project;

(r) net income taxes of Landlord or the owner of any interest in the Project, franchise, capital stock, gift, estate or inheritance taxes or any federal, state or local documentary taxes imposed against the Project or any portion thereof or interest therein;

(s) any costs incurred to remove, study, test or remediate, or otherwise related to the presence of Hazardous Materials in or about the Building or the Project for which Tenant is not responsible under this Lease;

(t) reserves;

(u) costs occasioned by condemnation;

(v) any expenses otherwise includable within Operating Expenses to the extent actually reimbursed by insurance policies required to be maintained by Landlord in accordance with Section 17;

(w) costs of repairs or other work necessitated by fire, windstorm or other similar casualty (deductible amounts may be included by Landlord as part of Operating Expenses, but Tenant's Share (i.e., 9.18%) of any earthquake deductible in excess of $25,000 may be included as part of Operating Expenses provided they are amortized over a period of 15 years (with interest not to exceed 8% per annum));

(x) insurance deductibles in excess of deductibles that Tenant can demonstrate are in excess of customary deductible amounts carried by institutional owners of Class A laboratory/office buildings in the South San Francisco area; provided, however, that if Tenant's Share of any earthquake deductibles exceeds $25,000, the same shall be amortized as provided for in Section 5(w) above; and

(y) any expenses otherwise includable within Operating Expenses to the extent actually reimbursed by persons other than tenants of the Project under leases for space in the Project.

In addition, notwithstanding anything to the contrary contained in this Lease, Operating Expenses incurred or accrued by Landlord with respect to any capital improvements which are reasonably expected by Landlord to reduce overall Operating Expenses (for example, without limitation, by reducing energy usage at the Project) (the "**Energy Savings Costs**") shall be amortized over a period of years equal to the least of (A) 10 years, (B) the useful life of such capital items, or (C) the quotient of (i) the Energy Savings Costs, divided by (ii) the annual amount of Operating Expenses reasonably expected by Landlord to be saved as a result of such capital improvements.

Within 90 days after the end of each calendar year (or such longer period as may be reasonably required), Landlord shall furnish to Tenant a statement (an "**Annual Statement**") showing in reasonable detail: (a) the total and Tenant's Share of actual Operating Expenses for the previous calendar year, and (b) the total of Tenants payments in respect of Operating Expenses for such year. If Tenant's Share of actual Operating Expenses for such year exceeds Tenant's payments of Operating Expenses for such year, the excess shall be due and payable by Tenant as Rent within 30 days after delivery of such Annual Statement to Tenant. If Tenants payments of Operating Expenses for such year exceed Tenant's Share of actual Operating Expenses for such year Landlord shall pay the excess to Tenant within 30 days after delivery of such Annual Statement, except that after the expiration, or earlier termination of the Term or if Tenant is delinquent in its obligation to pay Rent, Landlord shall pay the excess to Tenant after deducting all other amounts due Landlord. Landlords and Tenants obligations to pay any overpayments or deficiencies due pursuant to this paragraph shall survive the expiration or earlier termination of this Lease.

The Annual Statement shall be final and binding upon Tenant unless Tenant, within 60 days after Tenants receipt thereof, shall contest any item therein by giving written notice to Landlord, specifying each item contested and the reason therefor. If, during such 60 day period, Tenant reasonably and in good faith questions or contests the accuracy of Landlord's statement of Tenants Share of Operating Expenses, Landlord will provide Tenant with access to Landlord's books and records relating to the operation of the Project and such information as Landlord reasonably determines to be responsive to Tenants questions (the "**Expense Information**"). If after Tenants review of such Expense Information, Landlord and Tenant cannot agree upon the amount of Tenant's Share of Operating Expenses, then Tenant shall have the right to have a regionally or nationally recognized independent public accounting firm selected by Tenant and approved by Landlord (which approval shall not be unreasonably withheld, conditioned or delayed), working pursuant to a fee arrangement other than a contingent fee (at Tenant's sole cost and expense), audit and/or review the Expense Information for the year in question (the "**Independent Review**"). The results of any such Independent Review shall be binding on Landlord and Tenant. If the Independent Review shows that the payments actually made by Tenant with respect to Operating Expenses for the calendar year in question exceeded Tenant's Share of Operating Expenses for such calendar year, Landlord shall at Landlord's option either (i) credit the excess amount to the next succeeding installments of estimated Operating Expenses or (ii) pay the excess to Tenant within 30 days after delivery of such statement, except that after the expiration or earlier termination of this Lease or if Tenant is delinquent in its obligation to pay Rent, Landlord shall pay the excess to Tenant after deducting all other amounts due Landlord. If the Independent Review shows that Tenant's payments with respect to Operating Expenses for such calendar year were less than Tenant's Share of Operating Expenses for the calendar year, Tenant shall pay the deficiency to Landlord within 30 days after delivery of such statement. If the Independent Review shows that Tenant has overpaid with respect to Operating Expenses by more than 5% then Landlord shall reimburse Tenant for all costs incurred by Tenant for the Independent Review. Operating Expenses for the calendar years in which Tenant's obligation to share therein begins and ends shall be prorated. Notwithstanding anything set forth herein to the contrary, if the Building is not at least 95% occupied on average during any year of the Term, Tenant's Share of Operating Expenses for such year shall be computed as though the Building had been 95% occupied on average during such year.

"**Tenant's Share**" (of Operating Expenses of Building) shall be the percentage set forth on the first page of this Lease as Tenant's Share as reasonably adjusted by Landlord for changes in the physical size of the Premises or the Project occurring thereafter. The rentable area of the Premises shall not be subject to re-measurement by either party during the Term. "**Building Share**" (of Operating Expenses of Project) shall be the percentage set forth on the first page of this Lease as Building's Share as reasonably adjusted by Landlord for changes in the physical size of the Building or the Project occurring thereafter. If Landlord has a reasonable basis for doing so, Landlord may equitably increase Tenant's Share for any item of expense or cost reimbursable by Tenant that relates to a repair, replacement, or service that benefits only the Premises or only a portion of the Project that includes the Premises or that varies with occupancy or use. Base Rent, Tenant's Share of Operating Expenses and all other amounts payable by Tenant to Landlord hereunder are collectively referred to herein as "**Rent.**"

6. **Security Deposit**. Tenant shall deposit with Landlord, upon delivery of an executed copy of this Lease to Landlord, a security deposit (the "**Security Deposit**") for the performance of all of Tenants obligations hereunder in the amount set forth on page 1 of this Lease, which Security Deposit shall be in the form of an unconditional and irrevocable letter of credit (the "**Letter of Credit**"): (i) in form and substance satisfactory to Landlord, (ii) naming Landlord as beneficiary, (iii) expressly allowing Landlord to draw upon it at any time from time to time by delivering to the issuer notice that Landlord is entitled to draw thereunder, (iv) issued by Silicon Valley Bank or another FDIC-insured financial institution satisfactory to Landlord, and (v) redeemable by presentation of a sight draft in the state of Landlord's choice. If Tenant does not provide Landlord with a substitute Letter of Credit complying with all of the requirements hereof at least 10 days before the stated expiration date of any then current Letter of Credit, Landlord shall have the right to draw the full amount of the current Letter of Credit and hold the funds drawn in cash without obligation for interest thereon as the Security Deposit until Tenant shall have replaced the expired Letter of Credit with a new Letter of Credit consistent with the requirements herein, at which time Landlord shall refund the amount of the previously drawn Letter of Credit to Tenant less any amounts applied under this Lease. The Security Deposit shall be held by Landlord as security for the performance of Tenants obligations under this Lease. The Security Deposit is not an advance rental deposit or a measure of Landlord's damages in case of Tenants default. Upon each occurrence of a Default (as defined in Section 20), Landlord may use all or any part of the Security Deposit to pay delinquent payments due under this Lease, future rent damages under California Civil Code Section 1951.2, and the cost of any damage, injury, expense or liability caused by such Default, without prejudice to any other remedy provided herein or provided by law. Landlord's right to use the Security Deposit under this Section 6 includes the right to use the Security Deposit to pay future rent damages following the termination of this Lease pursuant to Section 21(c) below. Upon any use of all or any portion of the Security Deposit, Tenant shall pay Landlord on demand the amount that will restore the Security Deposit to the amount set forth on Page 1 of this Lease. Tenant hereby waives the provisions of any law, now or hereafter in force, including, without limitation, California Civil Code Section 1950.7, which provide that Landlord may claim from a security deposit only those sums reasonably necessary to remedy defaults in the payment of Rent, to repair damage caused by Tenant or to clean the Premises, it being agreed that Landlord may, in addition, claim those sums reasonably necessary to compensate Landlord for any other loss or damage, foreseeable or unforeseeable, caused by the act or omission of Tenant or any officer, employee, agent or invitee of Tenant. Upon bankruptcy or other debtor-creditor proceedings against Tenant, the Security Deposit shall be deemed to be applied first to the payment of Rent and other charges due Landlord for periods prior to the filing of such proceedings. If Tenant shall fully perform every provision of this Lease to be performed by Tenant, the Security Deposit, or any balance thereof (i.e., after deducting therefrom all amounts to which Landlord is entitled under the provisions of this Lease), shall be returned to Tenant (or, at Landlord's option, to the last assignee of Tenant's interest hereunder) within 90 days after the expiration or earlier termination of this Lease.

If Landlord transfers its interest in the Project or this Lease, Landlord shall either (a) transfer any Security Deposit then held by Landlord to a person or entity assuming Landlord's obligations under this Section 6, or (b) return to Tenant any Security Deposit then held by Landlord and remaining after the deductions permitted herein. Upon such transfer to such transferee or the return of the Security Deposit to

Tenant, Landlord shall have no further obligation with respect to the Security Deposit, and Tenant's right to the return of the Security Deposit shall apply solely against Landlord's transferee. The Security Deposit is not an advance rental deposit or a measure of Landlord's damages in case of Tenant's default. Landlord's obligation respecting the Security Deposit is that of a debtor, not a trustee, and no interest shall accrue thereon.

7. **Use**. The Premises shall be used solely for the Permitted Use set forth in the basic lease provisions on page 1 of this Lease, and in compliance with all laws, orders, judgments, ordinances, regulations, codes, directives, permits, licenses, covenants and restrictions now or hereafter applicable to the Premises, and to the use and occupancy thereof, including, without limitation, the Americans With Disabilities Act, 42 U.S.C. § 12101, et seq. (together with the regulations promulgated pursuant thereto, "**ADA**") (collectively, "**Legal Requirements**" and each, a "**Legal Requirement**"). Tenant shall, upon 10 days' written notice from Landlord, discontinue any use of the Premises which is declared by any Governmental Authority (as defined in Section 9) having jurisdiction to be a violation of a Legal Requirement; unless Tenant is actively contesting any such determination in good faith and by appropriate legal proceedings, provided that Tenant first gives Landlord appropriate assurances reasonably satisfactory to Landlord against any loss, cost or expense on account thereof, and further provided such contest shall not subject Landlord to criminal penalties or civil sanctions, loss of property or civil liability. Tenant will not use or permit the Premises to be used for any purpose or in any manner that would void Tenant's or Landlord's insurance, increase the insurance risk, or cause the disallowance of any sprinkler or other credits. The Permitted Use as defined in this Lease will not result in the voidance of or an increased insurance risk or cause the disallowance of any sprinkler or other credits with respect to the insurance currently being maintained by Landlord. Tenant shall not permit any part of the Premises to be used as a "place of public accommodation", as defined in the ADA or any similar legal requirement. Tenant shall reimburse Landlord promptly upon demand for any additional premium charged for any such insurance policy by reason of Tenant's failure to comply with the provisions of this Section or otherwise caused by Tenant's use and/or occupancy of the Premises. Tenant will use the Premises in a careful, safe and proper manner and will not commit or permit waste, overload the floor or structure of the Premises, subject the Premises to use that would damage the Premises or obstruct or interfere with the rights of Landlord or other tenants or occupants of the Project, including conducting or giving notice of any auction, liquidation, or going out of business sale on the Premises, or using or allowing the Premises to be used for any unlawful purpose. Tenant shall cause any equipment or machinery to be installed in the Premises so as to reasonably prevent sounds or vibrations from the Premises from extending into Common Areas, or other space in the Project. Tenant shall not place any machinery or equipment which would overload the floor in or upon the Premises or transport or move such items through the Common Areas of the Project or in the Project elevators without the prior written consent of Landlord, which shall not be unreasonably withheld or delayed. Tenant shall not, without the prior written consent of Landlord, which shall not be unreasonably withheld or delayed, use the Premises in any manner which will require ventilation, air exchange, heating, gas, steam, electricity or water beyond the existing capacity of the Project as proportionately allocated to the Premises based upon Tenant's Share as usually furnished for the Permitted Use.

Landlord shall be responsible, at Landlord's cost and not as part of Operating Expenses, for the compliance of the Premises and the Common Areas of the Project with Legal Requirements (including the ADA) as of the Commencement Date. Following the Commencement Date, Landlord shall, as an Operating Expense (to the extent such Legal Requirement is generally applicable to similar buildings in the area in which the Project is located) and at Tenant's expense (to the extent such Legal Requirement is triggered by reason of Tenant's, as compared to other tenants of the Project, specific use of the Premises or Tenant's Alterations) make any alterations or modifications to the Common Areas or the exterior of the Building that are required by Legal Requirements. Except as otherwise expressly provided in the 2 immediately preceding sentences, Tenant, at its sole expense, shall make any alterations or modifications to the interior of the Premises that are required by Legal Requirements (including, without limitation, compliance of the Premises with the ADA) related to Tenant's particular use of the Premises or Tenant's Alterations. Notwithstanding any other provision herein to the contrary, subject to the terms of this paragraph, Tenant shall be responsible for any and all demands, claims, liabilities, losses, costs, expenses, actions, causes of action, damages or judgments, and all reasonable expenses incurred in investigating or resisting the same (including, without limitation, reasonable attorneys' fees, charges and disbursements and costs of

suit) (collectively, "**Claims**") arising out of or in connection with any failure of the Premises to comply with Legal Requirements to the extent related to Tenant's particular use of the Premises or Tenant's Alterations, and Tenant shall indemnify, defend, hold and save Landlord harmless from and against any and all Claims arising out of or in connection with any breach of this sentence.

Tenant acknowledges that Landlord may, but shall not be obligated to, seek to obtain Leadership in Energy and Environmental Design (LEED), WELL Building Standard, or other similar "green" certification with respect to the Project and/or the Premises, and Tenant agrees to reasonably cooperate with Landlord, and to provide such information and/or documentation as Landlord may reasonably request, in connection therewith.

8. **Holding Over**. If, with Landlord's express written consent, Tenant retains possession of the Premises after the termination of the Term, (i) unless otherwise agreed in such written consent, such possession shall be subject to immediate termination by Landlord at any time, (ii) all of the other terms and provisions of this Lease (including, without limitation, the adjustment of Base Rent pursuant to Section 4 hereof) shall remain in full force and effect (excluding any expansion or renewal option or other similar right or option) during such holdover period, (iii) Tenant shall continue to pay Base Rent in the amount payable upon the date of the expiration or earlier termination of this Lease or such other amount as Landlord may indicate, in Landlord's sole and absolute discretion, in such written consent, and (iv) all other payments shall continue under the terms of this Lease. If Tenant remains in possession of the Premises after the expiration or earlier termination of the Term without the express written consent of Landlord, (A) Tenant shall become a tenant at sufferance upon the terms of this Lease except that the monthly rental shall be equal to 150% of Base Rent in effect during the last 30 days of the Term, plus Operating Expenses, and (B) Tenant shall be responsible for all damages suffered by Landlord resulting from or occasioned by Tenant's holding over, including consequential damages. No holding over by Tenant, whether with or without consent of Landlord, shall operate to extend this Lease except as otherwise expressly provided, and this Section 8 shall not be construed as consent for Tenant to retain possession of the Premises. Acceptance by Landlord of Rent after the expiration of the Term or earlier termination of this Lease shall not result in a renewal or reinstatement of this Lease. Payments of Rent payable pursuant to this Section 8 for any fractional calendar month shall be prorated.

9. **Taxes**. Landlord shall pay, as part of Operating Expenses, all taxes, levies, fees, assessments and governmental charges of any kind, existing as of the Commencement Date or thereafter enacted (collectively referred to as "**Taxes**"), imposed by any federal, state, regional, municipal, local or other governmental authority or agency, including, without limitation, quasi-public agencies (collectively, "**Governmental Authority**") during the Term, including, without limitation, all Taxes: (i) imposed on or measured by or based, in whole or in part, on rent payable to (or gross receipts received by) Landlord under this Lease and/or from the rental by Landlord of the Project or any portion thereof, or (ii) based on the square footage, assessed value or other measure or evaluation of any kind of the Premises or the Project, or (iii) assessed or imposed by or on the operation or maintenance of any portion of the Premises or the Project, including parking, or (iv) assessed or imposed by, or at the direction of, or resulting from Legal Requirements, or interpretations thereof, promulgated by any Governmental Authority, or (v) imposed as a license or other fee, charge, tax, or assessment on Landlord's business or occupation of leasing space in the Project. Landlord may contest by appropriate legal proceedings the amount, validity, or application of any Taxes or liens securing Taxes. Notwithstanding anything to the contrary herein, Landlord shall only charge Tenant for assessments as if those assessments were paid by Landlord over the longest possible term which Landlord is permitted to pay for the applicable assessments without additional charge other than interest, if any, provided under the terms of the underlying assessments. Notwithstanding anything to the contrary contained in this Lease, Taxes shall not include any net income taxes, estate taxes or inheritance taxes imposed on Landlord except to the extent such net income taxes are in substitution for any Taxes payable hereunder, or any late penalties, interest or fines unless due to any late payment of Rent by Tenant. If any such Tax is levied or assessed directly against Tenant, then Tenant shall be responsible for and shall pay the same at such times and in such manner as the taxing authority shall require. Tenant shall pay, prior to delinquency, any and all Taxes levied or assessed against any personal property or trade fixtures placed by Tenant in the Premises, whether levied or assessed against Landlord or Tenant. If any Taxes on Tenant's personal property or trade fixtures are levied against Landlord or

Landlord's property, or if the assessed valuation of the Project is increased by a value attributable to improvements in or alterations to the Premises, whether owned by Landlord or Tenant and whether or not affixed to the real property so as to become a part thereof, higher than the base valuation on which Landlord from time-to-time allocates Taxes to all tenants in the Project, Landlord shall have the right, but not the obligation, to pay such Taxes. Landlord's determination of any excess assessed valuation shall be binding and conclusive, absent manifest error. The amount of any such payment by Landlord shall constitute Additional Rent due from Tenant to Landlord immediately upon demand.

10. **Parking**. Subject to all applicable Legal Requirements, Force Majeure, a Taking (as defined in Section 19 below) and the exercise by Landlord of its rights hereunder, Tenant shall have the right, in common with other tenants of the Project pro rata in accordance with the rentable area of the Premises and the rentable areas of the Project occupied by such other tenants, to park in those areas designated for non-reserved parking, subject in each case to Landlord's rules and regulations. Landlord shall not be responsible for enforcing Tenant's parking rights against any third parties, including other tenants of the Project.

If applicable to the Project, Tenant shall comply with the requirements of any transportation demand management plan and any other permit conditions (e.g. rider sharing and carpooling initiatives) which may be required by the City of South San Francisco or other Governmental Authority with respect to the parking areas at the Project which are binding on tenants in the Project or tenants using the parking lots or structures available at the Project.

11. **Utilities, Services**.

(a) Landlord shall provide, subject to the terms of this Section 11, water, electricity, heat, light, power, sewer, and other utilities (including gas and fire sprinklers to the extent the Project is plumbed for such services), and refuse and trash collection and janitorial services (collectively, "**Utilities**"). Landlord shall pay, as Operating Expenses or subject to Tenant's reimbursement obligation, for all Utilities used on the Premises, all maintenance charges for Utilities, and any storm sewer charges or other similar charges for Utilities imposed by any Governmental Authority or Utility provider, and any taxes, penalties, surcharges or similar charges thereon. Landlord may cause, at Landlord's expense, any Utilities to be separately metered or charged directly to Tenant by the provider. Tenant shall pay directly to the Utility provider, prior to delinquency, any separately metered Utilities and services which may be furnished to Tenant or the Premises during the Term. Tenant shall pay, as part of Operating Expenses, its share of all charges for jointly metered Utilities based upon consumption, as reasonably determined by Landlord. No interruption or failure of Utilities, from any cause whatsoever other than Landlord's willful misconduct, shall result in eviction or constructive eviction of Tenant, termination of this Lease or the abatement of Rent. Notwithstanding anything to the contrary contained herein, Tenant shall be responsible for obtaining and paying for its own janitorial services for the laboratory portions of the Premises.

Tenant agrees to provide Landlord with access to Tenant's water and/or energy usage data on a monthly basis, either by providing Tenant's applicable utility login credentials to Landlord's Measurable online portal, or by another delivery method reasonably agreed to by Landlord and Tenant. The reasonable costs and expenses incurred by Landlord in connection with receiving and analyzing such water and/or energy usage data (including, without limitation, as may be required pursuant to applicable Legal Requirements) shall be included as part of Operating Expenses.

(b) Landlord's sole obligation for either providing emergency generators or providing emergency back-up power to Tenant shall be: (i) to provide one or more emergency with not less than the capacity of the emergency generators serving the Building as of the Commencement Date (which, in the aggregate, shall have a design capacity of not less than 2,500 kVA), and (ii) to contract with a third party to maintain the emergency generators as per the manufacturer's standard maintenance guidelines. Except as otherwise provided in the immediately preceding sentence, Landlord shall have no obligation to provide Tenant with operational emergency generators or back-up power or to supervise, oversee or confirm that the third party maintaining the emergency generators is maintaining the generators as per the manufacturer's standard guidelines or otherwise. During any period of replacement, repair or maintenance

of the emergency generators when the emergency generators are not operational, including any delays thereto due to the inability to obtain parts or replacement equipment, Landlord shall have no obligation to provide Tenant with an alternative back-up generator or generators or alternative sources of back-up power. Tenant expressly acknowledges and agrees that Landlord does not guaranty that such emergency generators will be operational at all times or that emergency power will be available to the Premises when needed.

(c) Shared compressed air and vacuum systems are available for Tenant's use commencing on the Commencement Date within the Premises. Landlord's sole obligation for providing compressed air and vacuum systems to Tenant shall be to contract with a third party to maintain the components of the compressed air and vacuum systems located outside the Premises as per the manufacturer's standard maintenance guidelines. Except as otherwise provided in the immediately preceding sentence, Landlord shall have no obligation to supervise, oversee or confirm that the third party maintaining the compressed air and vacuum systems is maintaining the compressed air and vacuum systems as per the manufacturer's standard guidelines or otherwise. During any period of replacement, repair or maintenance of the compressed air and vacuum systems when the compressed air and vacuum systems are not operational, including any delays thereto due to the inability to obtain parts or replacement equipment, Landlord shall have no obligation to provide Tenant with an alternative compressed air and vacuum systems. Tenant expressly acknowledges and agrees that Landlord does not guaranty that such compressed air and vacuum systems will be operational at all times or that compressed air and vacuum systems will be available to the Premises when needed.

12. **Alterations and Tenant's Property**. Any alterations, additions, or improvements made to the Premises by or on behalf of Tenant, including additional locks or bolts of any kind or nature upon any doors or windows in the Premises, but excluding installation, removal or realignment of furniture systems (other than removal of furniture systems owned or paid for by Landlord) not involving any modifications to the structure or connections (other than by ordinary plugs or jacks) to Building Systems (as defined in Section 13) ("**Alterations**") shall be subject to Landlord's prior written consent, which may be given or withheld in Landlord's sole discretion if any such Alteration affects the structure or Building Systems and shall not be otherwise unreasonably withheld. If Landlord approves any Alterations, Landlord may impose such conditions on Tenant in connection with the commencement, performance and completion of such Alterations as Landlord may deem appropriate in Landlord's reasonable discretion. Any request for approval shall be in writing, delivered not less than 10 business days in advance of any proposed construction, and accompanied by plans, specifications, bid proposals, work contracts and such other information concerning the nature and cost of the alterations as may be reasonably requested by Landlord, including the identities and mailing addresses of all persons performing work or supplying materials. Landlord's right to review plans and specifications and to monitor construction shall be solely for its own benefit, and Landlord shall have no duty to ensure that such plans and specifications or construction comply with applicable Legal Requirements. Tenant shall cause, at its sole cost and expense, all Alterations to comply with insurance requirements and with Legal Requirements and shall implement at its sole cost and expense any alteration or modification required by Legal Requirements as a result of any Alterations. Tenant shall pay to Landlord, as Additional Rent, on demand, an amount equal to the reasonable out-of-pocket costs incurred by Landlord to review Tenant's plans with respect to each Alteration. Before Tenant begins any Alteration, Landlord may post on and about the Premises notices of non-responsibility pursuant to applicable law. Tenant shall reimburse Landlord for, and indemnify and hold Landlord harmless from, any expense incurred by Landlord by reason of faulty work done by Tenant or its contractors, delays caused by such work, or inadequate cleanup.

Tenant shall furnish security or make other arrangements reasonably satisfactory to Landlord to assure payment for the completion of all Alterations work free and clear of liens, and shall provide (and cause each contractor or subcontractor to provide) certificates of insurance for workers' compensation and other coverage in amounts and from an insurance company satisfactory to Landlord protecting Landlord against liability for personal injury or property damage during construction. Upon completion of any Alterations, Tenant shall deliver to Landlord: (i) sworn statements setting forth the names of all contractors and subcontractors who did the work and final lien waivers from all such contractors and subcontractors; and (ii) "as built" plans for any such Alteration.

Except for Removable Installations (as hereinafter defined), all Installations (as hereinafter defined) shall be and shall remain the property of Landlord during the Term and following the expiration or earlier termination of the Term, shall not be removed by Tenant at any time during the Term, and shall remain upon and be surrendered with the Premises as a part thereof. Notwithstanding the foregoing, Landlord may, at the time its approval of any such Installation is requested, notify Tenant that Landlord requires that Tenant remove such Installation upon the expiration or earlier termination of the Term, in which event Tenant shall remove such Installation in accordance with the immediately succeeding sentence. Upon the expiration or earlier termination of the Term, Tenant shall remove (i) all wires, cables or similar equipment which Tenant has installed in the Premises or in the risers or plenums of the Building, (ii) any Installations for which Landlord has given Tenant notice of removal in accordance with the immediately preceding sentence, and (iii) all of Tenant's Property (as hereinafter defined), and Tenant shall restore and repair any damage caused by or occasioned as a result of such removal, including, without limitation, capping off all such connections behind the walls of the Premises and repairing any holes. During any restoration period beyond the expiration or earlier termination of the Term, Tenant shall pay Rent to Landlord as provided herein as if said space were otherwise occupied by Tenant. If Landlord is requested by Tenant or any lender, lessor or other person or entity claiming an interest in any of Tenant's Property to waive any lien Landlord may have against any of Tenant's Property, and Landlord consents to such waiver, then Landlord shall be entitled to be paid as administrative rent a fee of $1,000 per occurrence for its time and effort in preparing and negotiating such a waiver of lien.

For purposes of this Lease, (x) "**Removable Installations**" means any items listed on Exhibit F attached hereto and any items agreed by Landlord in writing to be included on Exhibit F in the future, (y) "**Tenant's Property**" means Removable Installations and, other than Installations, any personal property, trade fixtures, machinery or equipment of Tenant that may be removed without material damage to the Premises, and (z) "**Installations**" means all property of any kind paid for by Landlord, all Alterations, all fixtures, and all partitions, hardware, built-in machinery, built-in casework and cabinets and other similar additions, equipment, property and improvements built into the Premises so as to become an integral part of the Premises, including, without limitation, fume hoods which penetrate the roof or plenum area, built-in cold rooms, built-in warm rooms, walk-in cold rooms, walk-in warm rooms, deionized water systems, glass washing equipment, autoclaves, chillers, built-in plumbing, electrical and mechanical equipment and systems, and any power generator and transfer switch.

13. **Landlord's Repairs**. Landlord, as an Operating Expense (except to the extent the cost thereof is excluded from Operating Expenses pursuant to Section 5 hereof), shall maintain all of the structural, exterior, parking and other Common Areas of the Project, including HVAC, plumbing, fire sprinklers, elevators and all other building systems serving the Premises and other portions of the Project ("**Building Systems**"), in good repair, reasonable wear and tear and uninsured losses and damages caused by Tenant, or by any of Tenant's assignees, sublessees, licensees, agents, servants, employees, invitees and contractors (or any of Tenant's assignees, sublessees and/or licensees respective agents, servants, employees, invitees and contractors) (collectively, "**Tenant Parties**") excluded. Subject to the provisions of the penultimate paragraph ofSection 17, losses and damages caused by Tenant or any Tenant Party shall be repaired by Landlord, to the extent not covered by insurance, at Tenant's sole cost and expense. Landlord reserves the right to stop Building Systems services when necessary (i) by reason of accident or emergency, or (ii) for planned repairs, alterations or improvements, which are, in the judgment of Landlord, desirable or necessary to be made, until said repairs, alterations or improvements shall have been completed. Landlord shall have no responsibility or liability for failure to supply Building Systems services during any such period of interruption; provided, however, that Landlord shall, except in case of emergency, make a commercially reasonable effort to give Tenant 24 hours advance notice of any planned stoppage of Building Systems services for routine maintenance, repairs, alterations or improvements. Landlord shall use reasonable efforts to minimize interference with Tenant's operations in the Premises in connection with the stoppage of Building Systems pursuant to this Section 13. Tenant shall promptly give Landlord written notice of any repair required by Landlord pursuant to this Section, after which Landlord shall make a commercially reasonable effort to effect such repair. Landlord shall not be liable for any failure to make any repairs or to perform any maintenance unless such failure shall persist for an unreasonable time after Tenant's written notice of the need for such repairs or maintenance. Tenant waives its rights under any state or local law to terminate this Lease or to make such repairs at Landlord's expense and agrees that the parties' respective rights with respect to such matters shall be solely as set forth herein. Repairs required as the result of fire, earthquake, flood, vandalism, war, or similar cause of damage or destruction shall be controlled by Section 18.

14. **Tenant's Repairs**. Subject to Section 13 hereof, Tenant, at its expense, shall repair, replace and maintain in good condition all portions of the Premises, including, without limitation, entries, doors, ceilings, interior windows, interior walls, and the interior side of demising walls. Should Tenant fail to make any such repair or replacement or fail to maintain the Premises, Landlord shall give Tenant notice of such failure. If Tenant fails to commence cure of such failure within 10 days of Landlord's notice, and thereafter diligently prosecute such cure to completion, Landlord may perform such work and shall be reimbursed by Tenant within 10 days after demand therefor; provided, however, that if such failure by Tenant creates or could create an emergency, Landlord may immediately commence cure of such failure and shall thereafter be entitled to recover the costs of such cure from Tenant. Subject to Sections 17 and 18, Tenant shall bear the full uninsured cost of any repair or replacement to any part of the Project that results from damage caused by Tenant or any Tenant Party and any repair that benefits only the Premises.

15. **Mechanic's Liens**. Tenant shall discharge, by bond or otherwise, any mechanic's lien filed against the Premises or against the Project for work claimed to have been done for, or materials claimed to have been furnished to, Tenant within 10 days after Tenant receives notice of the filing thereof, at Tenant's sole cost and shall otherwise keep the Premises and the Project free from any liens arising out of work performed, materials furnished or obligations incurred by Tenant. Should Tenant fail to discharge any lien described herein, Landlord shall have the right, but not the obligation, to pay such claim or post a bond or otherwise provide security to eliminate the lien as a claim against title to the Project and the cost thereof shall be immediately due from Tenant as Additional Rent. If Tenant shall lease or finance the acquisition of office equipment, furnishings, or other personal property of a removable nature utilized by Tenant in the operation of Tenant's business, Tenant warrants that any Uniform Commercial Code Financing Statement filed as a matter of public record by any lessor or creditor of Tenant will upon its face or by exhibit thereto indicate that such Financing Statement is applicable only to removable personal property of Tenant located within the Premises. In no event shall the address of the Project be furnished on the statement without qualifying language as to applicability of the lien only to removable personal property, located in an identified suite held by Tenant.

16. **Indemnification**. Tenant hereby indemnifies and agrees to defend, save and hold Landlord, its officers, directors, employees, managers, agents, sub-agents, constituent entities and lease signators (collectively, "**Landlord Indemnified Parties**") harmless from and against any and all Claims for injury or death to persons or damage to property occurring within or about the Premises or the Project arising directly or indirectly out of use or occupancy of the Premises or the Project by Tenant or any Tenant Parties (including, without limitation, any act, omission or neglect by Tenant or any Tenant's Parties in or about the Premises or at the Project) or the breach or default by Tenant in the performance of any of its obligations hereunder, except to the extent caused by (x) the willful misconduct or negligence of Landlord Indemnified Parties or (y) the default by Landlord in the performance of its obligations under this Lease. Landlord shall not be liable to Tenant for, and Tenant assumes all risk of damage to, personal property (including, without limitation, loss of records kept within the Premises). Tenant further waives any and all Claims for injury to Tenant's business or loss of income relating to any such damage or destruction of personal property (including, without limitation, any loss of records). Landlord Indemnified Parties shall not be liable for any damages arising from any act, omission or neglect of any tenant in the Project or of any other third party or Tenant Parties.

17. **Insurance**. Landlord shall maintain all risk property and, if applicable, sprinkler damage insurance covering the full replacement cost of the Project. Landlord shall further procure and maintain commercial general liability insurance with a single loss limit of not less than $2,000,000 for bodily injury and property damage with respect to the Project. Landlord may, but is not obligated to, maintain such other insurance and additional coverages as it may deem necessary, including, but not limited to, flood, environmental hazard and earthquake, loss or failure of building equipment, errors and omissions, rental loss during the period of repair or rebuilding, workers' compensation insurance and fidelity bonds for employees employed to perform services and insurance for any improvements installed by Tenant or which

are in addition to the standard improvements customarily furnished by Landlord without regard to whether or not such are made a part of the Project. All such insurance shall be included as part of the Operating Expenses. The Project may be included in a blanket policy (in which case the cost of such insurance allocable to the Project will be determined by Landlord based upon the insurer's cost calculations). Tenant shall also reimburse Landlord for any increased premiums or additional insurance which Landlord reasonably deems necessary as a result of Tenant's use of the Premises.

Tenant, at its sole cost and expense, shall maintain during the Term: special form property insurance with business interruption and extra expense coverage, covering the full replacement cost of all property and improvements installed or placed in the Premises by Tenant at Tenant's expense; workers' compensation insurance with no less than the minimum limits required by law; employer's liability insurance with employers liability limits of $1,000,000 bodily injury by accident - each accident, $1,000,000 bodily injury by disease - policy limit, and $1,000,000 bodily injury by disease - each employee; and commercial general liability insurance, with a minimum limit of not less than $2,000,000 per occurrence for bodily injury and property damage with respect to the Premises, which limits may be met with a combination of excess or umbrella policies. The commercial general liability insurance maintained by Tenant shall name Alexandria Real Estate Equities, Inc., and Landlord, its officers, directors, employees, managers, agents, sub-agents, constituent entities and lease signators (collectively, "**Landlord Insured Parties**"), as additional insureds; insure on an occurrence and not a claims-made basis; be issued by insurance companies which have a rating of not less than policyholder rating of A and financial category rating of at least Class X in "Best's Insurance Guide"; not contain a hostile fire exclusion, contain a contractual liability endorsement; and provide primary coverage to Landlord Insured Parties (any policy issued to Landlord Insured Parties providing duplicate or similar coverage shall be deemed excess over Tenant's policies, regardless of limits). Tenant shall (i) provide Landlord with 30 days advance written notice of cancellation of such commercial general liability policy, and (ii) request Tenant's insurer to endeavor to provide 30 days advance written notice to Landlord of cancellation of such commercial general liability policy (or 10 days in the event of a cancellation due to non-payment of premium). Certificates of insurance showing the limits of coverage required hereunder and showing Landlord as an additional insured, along with reasonable evidence of the payment of premiums for the applicable period, shall be delivered to Landlord by Tenant prior to (i) the earlier to occur of (x) the Commencement Date, or (y) the date that Tenant accesses the Premises under this Lease, and (ii) each renewal of said insurance. Tenant's policy may be a "blanket policy" with an aggregate per location endorsement which specifically provides that the amount of insurance shall not be prejudiced by other losses covered by the policy. Tenant shall, at least 5 days prior to the expiration of such policies, furnish Landlord with renewal certificates.

In each instance where insurance is to name Landlord as an additional insured, Tenant shall upon written request of Landlord also designate and furnish certificates so evidencing Landlord as additional insured to: (i) any lender of Landlord holding a security interest in the Project or any portion thereof, (ii) the landlord under any lease wherein Landlord is tenant of the real property on which the Project is located, if the interest of Landlord is or shall become that of a tenant under a ground or other underlying lease rather than that of a fee owner, and/or (iii) any management company retained by Landlord to manage the Project.

The property insurance obtained by Landlord and Tenant shall include a waiver of subrogation by the insurers and all rights based upon an assignment from its insured, against Landlord or Tenant, and their respective officers, directors, employees, managers, agents, invitees and contractors ("**Related Parties**"), in connection with any loss or damage thereby insured against. Notwithstanding anything to the contrary contained in this Lease, neither party nor its respective Related Parties shall be liable to the other for loss or damage caused by any risk insured against under property insurance required to be maintained hereunder regardless of the negligence of the party to this Lease receiving the benefit of the waiver, and each party waives any claims against the other party, and its respective Related Parties, for such loss or damage. The failure of a party to insure its property shall not void this waiver. Landlord and its respective Related Parties shall not be liable for, and Tenant hereby waives all claims against such parties for, business interruption and losses occasioned thereby sustained by Tenant or any person claiming through Tenant resulting from any accident or occurrence in or upon the Premises or the Project from any cause whatsoever. If the foregoing waivers shall contravene any law with respect to exculpatory agreements, the liability of Landlord or Tenant shall be deemed not released but shall be secondary to the other's insurer.

Landlord may require insurance policy limits to be raised to conform with requirements of Landlord's lender and/or to bring coverage limits to levels then being generally required of new tenants within the Project; provided, however, that the increased amount of coverage is consistent with coverage amounts then being required by institutional owners of similar projects with tenants occupying similar size premises in the geographical area in which the Project is located.

18. **Restoration**. If, at any time during the Term, the Building or the Premises are materially damaged or destroyed by a fire or other casualty, Landlord shall notify Tenant within 60 days after discovery of such damage as to the amount of time Landlord reasonably estimates it will take to restore the Building or the Premises, as applicable (the "**Restoration Period**"). If the Restoration Period is estimated to exceed 12 months (the "**Maximum Restoration Period**"), Landlord may, in such notice, elect to terminate this Lease as of the date that is 75 days after the date of discovery of such damage or destruction; provided, however, that notwithstanding Landlord's election to restore, Tenant may elect to terminate this Lease by written notice to Landlord delivered within 10 business days of receipt of a notice from Landlord estimating a Restoration Period for the Premises longer than the Maximum Restoration Period. Unless either Landlord or Tenant so elects to terminate this Lease, Landlord shall, subject to receipt of sufficient insurance proceeds (with any deductible to be treated as a current Operating Expense, but subject to the provisions of Section 5), promptly restore the Premises (including the Landlord's Work, but excluding any improvements installed by Tenant or by Landlord and paid for by Tenant), subject to delays arising from the collection of insurance proceeds, from Force Majeure events or as needed to obtain any license, clearance or other authorization of any kind required to enter into and restore the Premises issued by any Governmental Authority having jurisdiction over the use, storage, handling, treatment, generation, release, disposal, removal or remediation of Hazardous Materials (as defined in Section 30) in, on or about the Premises (collectively referred to herein as "**Hazardous Materials Clearances**"); provided, however, that if repair or restoration of the Premises is not substantially complete as of the end of the Maximum Restoration Period or, if longer, the Restoration Period, Landlord may, in its sole and absolute discretion, elect not to proceed with such repair and restoration, or Tenant may by written notice to Landlord delivered within 10 business days of the expiration of the Maximum Restoration Period or, if longer, the Restoration Period, elect to terminate this Lease, in which event Landlord shall be relieved of its obligation to make such repairs or restoration and this Lease shall terminate as of the date that is 75 days after the later of: (i) discovery of such damage or destruction, or (ii) the date all required Hazardous Materials Clearances are obtained, but Landlord shall retain any Rent paid and the right to any Rent payable by Tenant prior to such election by Landlord or Tenant. In the event that this Lease terminates pursuant to the provisions of this Section 18 as a result of an earthquake, Tenant shall not be required to pay any deductibles applicable thereto as part of Operating Expenses.

Tenant, at its expense, following the date that Landlord makes the Premises available to Tenant for Tenant's repairs and restoration, shall promptly perform, subject to delays arising from the collection of insurance proceeds, from Force Majeure (as defined in Section 34) events or to obtain Hazardous Material Clearances, all repairs or restoration not required to be done by Landlord. Thereafter, Tenant shall promptly re-enter the Premises and, at Tenant's election, commence doing business in accordance with this Lease; provided, however, that Tenant shall nonetheless (and even if Tenant does not recommence doing business in the Premises) continue to be responsible for all of its obligations under this Lease. Notwithstanding the foregoing, either Landlord or Tenant may terminate this Lease upon written notice to the other if the Premises are damaged during the last year of the Term and Landlord reasonably estimates that it will take more than 2 months to repair such damage; provided, however, that such notice is delivered within 10 business days after the date that Landlord provides Tenant with written notice of the estimated Restoration Period. Notwithstanding anything to the contrary contained herein, Landlord shall also have the right to terminate this Lease if insurance proceeds are not available for such restoration. Rent shall be abated from the date all required Hazardous Material Clearances are obtained until the Premises are repaired and restored, in the proportion which the area of the Premises, if any, which is not usable by Tenant bears to the total area of the Premises. In the event that no Hazardous Material Clearances are required to be obtained by Tenant with respect to the Premises, rent abatement shall commence on the date of discovery of the damage or destruction. Such abatement shall be the sole remedy of Tenant, and except as provided in this Section 18, Tenant waives any right to terminate the Lease by reason of damage or casualty loss.

The provisions of this Lease, including this Section 18, constitute an express agreement between Landlord and Tenant with respect to any and all damage to, or destruction of, all or any part of the Premises, or any other portion of the Project, and any statute or regulation which is now or may hereafter be in effect shall have no application to this Lease or any damage or destruction to all or any part of the Premises or any other portion of the Project, the parties hereto expressly agreeing that this Section 18 sets forth their entire understanding and agreement with respect to such matters.

19. **Condemnation**. If the whole or any material part of the Premises or the Project is taken for any public or quasi-public use under governmental law, ordinance, or regulation, or by right of eminent domain, or by private purchase in lieu thereof (a "**Taking**" or "**Taken**"), and the Taking would in Landlord's reasonable judgment, materially interfere with or impair Landlord's ownership or operation of the Project or would in the reasonable judgment of Landlord and Tenant either prevent or materially interfere with Tenant's use of the Premises (as resolved, if the parties are unable to agree, by arbitration by a single arbitrator with the qualifications and experience appropriate to resolve the matter and appointed pursuant to and acting in accordance with the rules of the American Arbitration Association), then upon written notice by Landlord or Tenant to the other this Lease shall terminate and Rent shall be apportioned as of said date. If part of the Premises shall be Taken, and this Lease is not terminated as provided above, Landlord shall promptly restore the Premises and the Project as nearly as is commercially reasonable under the circumstances to their condition prior to such partial Taking and the rentable square footage of the Building, the rentable square footage of the Premises, Tenant's Share of Operating Expenses and the Rent payable hereunder during the unexpired Term shall be reduced to such extent as may be fair and reasonable under the circumstances. Upon any such Taking, Landlord shall be entitled to receive the entire price or award from any such Taking without any payment to Tenant, and Tenant hereby assigns to Landlord Tenant's interest, if any, in such award. Tenant shall have the right, to the extent that same shall not diminish Landlord's award, to make a separate claim against the condemning authority (but not Landlord) for such compensation as may be separately awarded or recoverable by Tenant for moving expenses and damage to Tenant's trade fixtures, if a separate award for such items is made to Tenant. Tenant hereby waives any and all rights it might otherwise have pursuant to any provision of state law to terminate this Lease upon a partial Taking of the Premises or the Project.

20. **Events of Default**. Each of the following events shall be a default ("**Default**") by Tenant under this Lease:

(a) **Payment Defaults**. Tenant shall fail to pay any installment of Rent or any other payment hereunder when due; provided, however, that Landlord will give Tenant notice and an opportunity to cure any failure to pay Rent within 5 days of any such notice not more than once in any 12 month period.

(b) **Insurance**. Any insurance required to be maintained by Tenant pursuant to this Lease shall be canceled or terminated or shall expire or shall be reduced or materially changed, or Landlord shall receive a notice of nonrenewal of any such insurance and Tenant shall fail to obtain replacement insurance at least 20 days before the expiration of the current coverage.

(c) **Abandonment**. Tenant shall abandon the Premises. Tenant shall not be deemed to have abandoned the Premises if Tenant provides Landlord with reasonable advance notice prior to vacating and, at the time of vacating the Premises, (i) Tenant completes Tenant's obligations under the Decommissioning and HazMat Closure Plan in compliance with Section 28, (ii) Tenant has obtained the release of the Premises of all Hazardous Materials Clearances and the Premises are free from any residual impact from the Tenant HazMat Operations and provides reasonably detailed documentation to Landlord confirming such matters, (iii) Tenant has made reasonable arrangements with Landlord for the security of the Premises for the balance of the Term, and (iv) Tenant continues during the balance of the Term to satisfy and perform all of Tenant's obligations under this Lease as they come due.

(d) **Improper Transfer**. Tenant shall assign, sublease or otherwise transfer or attempt to transfer all or any portion of Tenant's interest in this Lease or the Premises except as expressly permitted herein, or Tenant's interest in this Lease shall be attached, executed upon, or otherwise judicially seized and such action is not released within 90 days of the action.

(e) **Liens**. Tenant shall fail to discharge or otherwise obtain the release of any lien placed upon the Premises in violation of this Lease within 10 days after Tenant receives notice that any such lien has been filed against the Premises.

(f) **Insolvency Events**. Tenant or any guarantor or surety of Tenant's obligations hereunder shall: (A) make a general assignment for the benefit of creditors; (B) commence any case, proceeding or other action seeking to have an order for relief entered on its behalf as a debtor or to adjudicate it a bankrupt or insolvent, or seeking reorganization, arrangement, adjustment, liquidation, dissolution or composition of it or its debts or seeking appointment of a receiver, trustee, custodian or other similar official for it or for all or of any substantial part of its property (collectively a "**Proceeding for Relief**"); (C) become the subject of any Proceeding for Relief which is not dismissed within 90 days of its filing or entry; or (D) die or suffer a legal disability (if Tenant, guarantor, or surety is an individual) or be dissolved or otherwise fail to maintain its legal existence (if Tenant, guarantor or surety is a corporation, partnership or other entity).

(g) **Estoppel Certificate or Subordination Agreement**. Tenant fails to execute any document required from Tenant under Sections 23 or 27 within 5 days after a second notice requesting such document.

(h) **Other Defaults**. Tenant shall fail to comply with any provision of this Lease other than those specifically referred to in this Section 20, and, except as otherwise expressly provided herein, such failure shall continue for a period of 30 days after written notice thereof from Landlord to Tenant.

Any notice given under Section 20(h) hereof shall: (i) specify the alleged default, (ii) demand that Tenant cure such default, (iii) be in lieu of, and not in addition to, or shall be deemed to be, any notice required under any provision of applicable law, and (iv) not be deemed a forfeiture or a termination of this Lease unless Landlord elects otherwise in such notice; provided that if the nature of Tenant's default pursuant to Section 20(h) is such that it cannot be cured by the payment of money and reasonably requires more than 30 days to cure, then Tenant shall not be deemed to be in default if Tenant commences such cure within said 30 day period and thereafter diligently prosecutes the same to completion; provided, however, that such cure shall be completed no later than 60 days from the date of Landlord's notice.

21. **Landlord's Remedies**.

(a) **Payment By Landlord; Interest**. Upon a Default by Tenant hereunder, Landlord may, without waiving or releasing any obligation of Tenant hereunder, make such payment or perform such act. All sums so paid or incurred by Landlord, together with interest thereon, from the date such sums were paid or incurred, at the annual rate equal to 12% per annum or the highest rate permitted by law (the "**Default Rate**"), whichever is less, shall be payable to Landlord on demand as Additional Rent. Nothing herein shall be construed to create or impose a duty on Landlord to mitigate any damages resulting from Tenant's Default hereunder.

(b) **Late Payment Rent**. Late payment by Tenant to Landlord of Rent and other sums due will cause Landlord to incur costs not contemplated by this Lease, the exact amount of which will be extremely difficult and impracticable to ascertain. Such costs include, but are not limited to, processing and accounting charges and late charges which may be imposed on Landlord under any Mortgage covering the Premises. Therefore, if any installment of Rent due from Tenant is not received by Landlord within 5 days after the date such payment is due, Tenant shall pay to Landlord an additional sum equal to 6% of the overdue Rent as a late charge. Notwithstanding the foregoing, before assessing a late charge the first time in any calendar year, Landlord shall provide Tenant written notice of the delinquency and will waive the right if Tenant pays such delinquency within 5 days thereafter. The parties agree that this late charge represents a fair and reasonable estimate of the costs Landlord will incur by reason of late payment by Tenant. In addition to the late charge, Rent not paid when due shall bear interest at the Default Rate from the 5th day after the date due until paid.

(c) **Remedies**. Upon the occurrence of a Default, Landlord, at its option, without further notice or demand to Tenant, shall have in addition to all other rights and remedies provided in this Lease, at law or in equity, the option to pursue any one or more of the following remedies, each and all of which shall be cumulative and nonexclusive, without any notice or demand whatsoever.

(i) Terminate this Lease, or at Landlord's option, Tenant's right to possession only, in which event Tenant shall immediately surrender the Premises to Landlord, and if Tenant fails to do so, Landlord may, without prejudice to any other remedy which it may have for possession or arrearages in rent, enter upon and take possession of the Premises and expel or remove Tenant and any other person who may be occupying the Premises or any part thereof, without being liable for prosecution or any claim for damages therefor;

(ii) Upon any termination of this Lease, whether pursuant to the foregoing Section 21(c)(i) or otherwise, Landlord may recover from Tenant the following:

(A) The worth at the time of award of any unpaid rent which has been earned at the time of such termination; plus

(B) The worth at the time of award of the amount by which the unpaid rent which would have been earned after termination until the time of award exceeds the amount of such rental loss that Tenant proves could have been reasonably avoided; plus

(C) The worth at the time of award of the amount by which the unpaid rent for the balance of the Term after the time of award exceeds the amount of such rental loss that Tenant proves could have been reasonably avoided; plus

(D) Any other amount necessary to compensate Landlord for all the detriment proximately caused by Tenant's failure to perform its obligations under this Lease or which in the ordinary course of things would be likely to result therefrom, specifically including, but not limited to, brokerage commissions and advertising expenses incurred, expenses of remodeling the Premises or any portion thereof for a new tenant, whether for the same or a different use, and any special concessions made to obtain a new tenant; and

(E) At Landlord's election, such other amounts in addition to or in lieu of the foregoing as may be permitted from time to time by applicable law.

The term "**rent**" as used in this Section 21 shall be deemed to be and to mean all sums of every nature required to be paid by Tenant pursuant to the terms of this Lease, whether to Landlord or to others. As used in Sections 21(c)(ii)(A) and (B), above, the "**worth at the time of award**" shall be computed by allowing interest at the Default Rate. As used in Section 21(c)(ii)(C) above, the "**worth at the time of award**" shall be computed by discounting such amount at the discount rate of the Federal Reserve Bank of San Francisco at the time of award plus 1%.

(iii) Landlord may continue this Lease in effect after Tenant's Default and recover rent as it becomes due (Landlord and Tenant hereby agreeing that Tenant has the right to sublet or assign hereunder, subject only to reasonable limitations). Accordingly, if Landlord does not elect to terminate this Lease following a Default by Tenant, Landlord may, from time to time, without terminating this Lease, enforce all of its rights and remedies hereunder, including the right to recover all Rent as it becomes due.

(iv) Following Landlord's termination of this Lease following a Default by Tenant, Landlord shall have the right to terminate any and all subleases, licenses, concessions or other consensual arrangements for possession entered into by Tenant and affecting the Premises or may, in Landlord's sole discretion, succeed to Tenant's interest in such subleases, licenses, concessions or arrangements. Upon Landlord's election to succeed to Tenant's interest in any such subleases, licenses, concessions or arrangements, Tenant shall, as of the date of notice by Landlord of such election, have no further right to or interest in the rent or other consideration receivable thereunder.

(v) Independent of the exercise of any other remedy of Landlord hereunder or under applicable law, Landlord may conduct an environmental test of the Premises as generally described in Section 30(d) hereof, at Tenant's expense.

(d) **Effect of Exercise**. Exercise by Landlord of any remedies hereunder or otherwise available shall not be deemed to be an acceptance of surrender of the Premises and/or a termination of this Lease by Landlord, it being understood that such surrender and/or termination can be effected only by the express written agreement of Landlord and Tenant. Any law, usage, or custom to the contrary notwithstanding, Landlord shall have the right at all times to enforce the provisions of this Lease in strict accordance with the terms hereof; and the failure of Landlord at any time to enforce its rights under this Lease strictly in accordance with same shall not be construed as having created a custom in any way or manner contrary to the specific terms, provisions, and covenants of this Lease or as having modified the same and shall not be deemed a waiver of Landlord's right to enforce one or more of its rights in connection with any subsequent default. A receipt by Landlord of Rent or other payment with knowledge of the breach of any covenant hereof shall not be deemed a waiver of such breach, and no waiver by Landlord of any provision of this Lease shall be deemed to have been made unless expressed in writing and signed by Landlord. To the greatest extent permitted by law, Tenant waives the service of notice of Landlord's intention to re-enter, re-take or otherwise obtain possession of the Premises as provided in any statute, or to institute legal proceedings to that end, and also waives all right of redemption in case Tenant shall be dispossessed by a judgment or by warrant of any court or judge. Notwithstanding the foregoing, nothing contained herein shall constitute Tenant's waiver of its rights under applicable Legal Requirements to receive a 3-day notice from Landlord to quit or pay rent prior to Landlord commencing an unlawful detainer action. Any reletting of the Premises or any portion thereof shall be on such terms and conditions as Landlord in its sole discretion may determine. Landlord shall not be liable for, nor shall Tenant's obligations hereunder be diminished because of, Landlord's failure to relet the Premises or collect rent due in respect of such reletting or otherwise to mitigate any damages arising by reason of Tenant's Default.

22. **Assignment and Subletting**.

(a) **General Prohibition**. Without Landlord's prior written consent subject to and on the conditions described in this Section 22, Tenant shall not, directly or indirectly, voluntarily or by operation of law, assign this Lease or sublease the Premises or any part thereof or mortgage, pledge, or hypothecate its leasehold interest or grant any concession or license within the Premises, and any attempt to do any of the foregoing shall be void and of no effect. If Tenant is a corporation, partnership or limited liability company, the shares or other ownership interests thereof which are not actively traded upon a stock exchange or in the over-the-counter market, a transfer or series of transfers whereby 50% or more of the issued and outstanding shares or other ownership interests of such corporation are, or voting control is, transferred (but excepting transfers upon deaths of individual owners) from a person or persons or entity or entities which were owners thereof at time of execution of this Lease to persons or entities who were not owners of shares or other ownership interests of the corporation, partnership or limited liability company at time of execution of this Lease, shall be deemed an assignment of this Lease requiring the consent of Landlord as provided in this Section 22. Notwithstanding the foregoing, Tenant shall have the right to obtain financing from institutional investors (including venture capital funding and corporate partners) which regularly invest in private biotechnology companies or undergo a public offering or become a publicly traded company which results in a change in control of Tenant without such change of control constituting an assignment under this Section 22 requiring Landlord consent, provided that (i) Tenant notifies Landlord in writing of the financing at least 5 business days prior to the closing of the financing, and (ii) provided that in no event shall such financing result in a change in use of the Premises from the use contemplated by Tenant at the commencement of the Term.

(b) **Permitted Transfers**. If Tenant desires to assign, sublease, hypothecate or otherwise transfer this Lease or sublet the Premises other than pursuant to a Permitted Assignment (as defined below), then at least 15 business days, but not more than 45 business days, before the date Tenant desires the assignment or sublease to be effective (the **"Assignment Date"**), Tenant shall give Landlord a notice (the "**Assignment Notice**") containing such information about the proposed assignee or sublessee, including the proposed use of the Premises and any Hazardous Materials proposed to be used, stored handled, treated, generated in or released or disposed of from the Premises, the Assignment Date, any relationship between Tenant and the proposed assignee or sublessee, and all material terms and conditions of the proposed assignment or sublease, including a copy of any proposed assignment or sublease in its final form, and such other information as Landlord may deem reasonably necessary or appropriate to its consideration whether to grant its consent. Landlord may, by giving written notice to Tenant within 15 business days after receipt of the Assignment Notice: (i) grant such consent (provided that Landlord shall further have the right to review and approve or disapprove the proposed form of sublease prior to the effective date of any such subletting), (ii) refuse such consent, in its reasonable discretion; or (iii) with respect to any assignment or any sublease that would result in more than 50% of the Premises being subleased for substantially the remainder of the Term, terminate this Lease with respect to the space described in the Assignment Notice as of the Assignment Date (an **"Assignment Termination"**). Among other reasons, it shall be reasonable for Landlord to withhold its consent in any of these instances: (1) the proposed assignee or subtenant is a governmental agency; (2) in Landlord's reasonable judgment, the use of the Premises by the proposed assignee or subtenant would entail any alterations that would materially lessen the value of the leasehold improvements in the Premises, or would require materially increased services by Landlord; (3) in Landlord's reasonable judgment, the proposed assignee or subtenant is engaged in areas of scientific research or other business concerns that are controversial in a manner that is inconsistent with other tenants in the Project such that they may (i) attract or cause negative publicity for or about the Building or the Project, (ii) negatively affect the reputation of the Building, the Project or Landlord, (iii) attract protestors to the Building or the Project, or (iv) lessen the attractiveness of the Building or the Project to any tenants or prospective tenants, purchasers or lenders; (4) in Landlord's reasonable judgment, the proposed assignee or subtenant lacks the creditworthiness to support the financial obligations it will incur under the proposed assignment or sublease; (5) in Landlord's reasonable judgment, the character, reputation, or business of the proposed assignee or subtenant is inconsistent with the desired tenant-mix or the quality of other tenancies in the Project or is inconsistent with the type and quality of the nature of the Building; (6) intentionally omitted; (7) Landlord has experienced previous defaults by or is in litigation with the proposed assignee or subtenant; (8) the use of the Premises by the proposed assignee or subtenant will violate any applicable Legal Requirement; (9) intentionally omitted; (10) the proposed assignee or subtenant is an entity with whom Landlord is negotiating to lease space in the Project; or (11) the assignment or sublease is prohibited by Landlord's lender. If Landlord delivers notice of its election to exercise an Assignment Termination, Tenant shall have the right to withdraw such Assignment Notice by written notice to Landlord of such election within 5 business days after Landlord's notice electing to exercise the Assignment Termination. If Tenant withdraws such Assignment Notice, this Lease shall continue in full force and effect. If Tenant does not withdraw such Assignment Notice, this Lease, and the term and estate herein granted, shall terminate as of the Assignment Date with respect to the space described in such Assignment Notice. No failure of Landlord to exercise any such option to terminate this Lease, or to deliver a timely notice in response to the Assignment Notice, shall be deemed to be Landlord's consent to the proposed assignment, sublease or other transfer. Tenant shall pay to Landlord a fee equal to Two Thousand Five Hundred Dollars ($2,500) in connection with its consideration of any Assignment Notice and/or its preparation or review of any consent documents. Notwithstanding the foregoing, Landlord's consent to an assignment of this Lease or a subletting of any portion of the Premises to any entity controlling, controlled by or under common control with Tenant (a "**Control Permitted Assignment**") shall not be required, provided that Landlord shall have the right to approve the form of any such sublease or assignment (which approval shall not be unreasonably withheld or delayed). In addition, Tenant shall have the right to assign this Lease, upon 30 days prior written notice to Landlord ((x) unless Tenant is prohibited from providing such notice by applicable Legal Requirements in which case Tenant shall notify Landlord promptly thereafter, and (y) if the transaction is subject to confidentiality requirements, Tenant's advance notification shall be subject to Landlord's execution of a non-disclosure agreement reasonably acceptable to Landlord and Tenant) but without obtaining Landlord's prior written consent, to a corporation or other entity which is a successor-in-interest to Tenant, by way of merger, consolidation or corporate reorganization, or by the purchase of all or substantially all of the assets or the ownership interests of Tenant, or as a result of a deemed assignment due to a change in control pursuant to Section 22(a), provided that (i) such merger or consolidation, or such acquisition or assumption, or deemed assignment,

as the case may be, is for a good business purpose and not principally for the purpose of transferring this Lease, and (ii) the net worth (as determined in accordance with generally accepted accounting principles ("**GAAP**")) of the assignee is not less than the net worth (as determined in accordance with GAAP) of Tenant as of the date of Tenant's most current quarterly or annual financial statements, and (iii) such assignee shall agree in writing to assume all of the terms, covenants and conditions of this Lease (a "**Corporate Permitted Assignment**"). Control Permitted Assignments and Corporate Permitted Assignments are hereinafter referred to as "**Permitted Assignments.**" Notwithstanding anything to the contrary contained herein, Landlord shall have no right to deliver an Assignment Termination as a result of a Permitted Assignment or any notice of a Permitted Assignment from Tenant.

(c) **Additional Conditions**. As a condition to any such assignment or subletting, whether or not Landlord's consent is required, Landlord may require:

(i) that any assignee or subtenant agree, in writing at the time of such assignment or subletting, that if Landlord gives such party notice that Tenant is in default under this Lease, such party shall thereafter make all payments otherwise due Tenant directly to Landlord, which payments will be received by Landlord without any liability except to credit such payment against those due under the Lease, and any such third party shall agree to attorn to Landlord or its successors and assigns should this Lease be terminated for any reason; provided, however, in no event shall Landlord or its successors or assigns be obligated to accept such attornment; and

(ii) A list of Hazardous Materials, certified by the proposed assignee or sublessee to be true and correct, which the proposed assignee or sublessee intends to use, store, handle, treat, generate in or release or dispose of from the Premises, together with copies of all documents relating to such use, storage, handling, treatment, generation, release or disposal of Hazardous Materials by the proposed assignee or subtenant in the Premises or on the Project, prior to the proposed assignment or subletting, including, without limitation: permits; approvals; reports and correspondence; storage and management plans; plans relating to the installation of any storage tanks to be installed in or under the Project (provided, said installation of tanks shall only be permitted after Landlord has given its written consent to do so, which consent may be withheld in Landlord's sole and absolute discretion); and all closure plans or any other documents required by any and all federal, state and local Governmental Authorities for any storage tanks installed in, on or under the Project for the closure of any such tanks. Neither Tenant nor any such proposed assignee or subtenant is required, however, to provide Landlord with any portion(s) of the such documents containing information of a proprietary nature which, in and of themselves, do not contain a reference to any Hazardous Materials or hazardous activities.

(d) **No Release of Tenant, Sharing of Excess Rents**. Notwithstanding any assignment or subletting, Tenant and any guarantor or surety of Tenant's obligations under this Lease shall at all times remain fully and primarily responsible and liable for the payment of Rent and for compliance with all of Tenant's other obligations under this Lease. Other than in connection with any assignment that constitutes a Permitted Assignment, if the Rent due and payable by a sublessee or assignee (or a combination of the rental payable under such sublease or assignment plus any bonus or other consideration therefor or incident thereto in any form attributable to the assignment or sublease) exceeds the sum of the rental payable under this Lease, (excluding however, any Rent payable under this Section) and actual and reasonable brokerage fees, legal costs and any design or construction fees directly related to and required pursuant to the terms of any such sublease ("**Excess Rent**"), then Tenant shall be bound and obligated to pay Landlord as Additional Rent hereunder 50% of such Excess Rent within 10 days following receipt thereof by Tenant. If Tenant shall sublet the Premises or any part thereof, Tenant hereby immediately and irrevocably assigns to Landlord, as security for Tenant's obligations under this Lease, all rent from any such subletting, and Landlord as assignee and as attorney-in-fact for Tenant, or a receiver for Tenant appointed on Landlord's application, may collect such rent and apply it toward Tenant's obligations under this Lease; except that, until the occurrence of a Default, Tenant shall have the right to collect such rent.

(e) **No Waiver**. The consent by Landlord to an assignment or subletting shall not relieve Tenant or any assignees of this Lease or any sublessees of the Premises from obtaining the consent of Landlord to any further assignment or subletting nor shall it release Tenant or any assignee or sublessee of Tenant from full and primary liability under the Lease. The acceptance of Rent hereunder, or the acceptance of performance of any other term, covenant, or condition thereof, from any other person or entity shall not be deemed to be a waiver of any of the provisions of this Lease or a consent to any subletting, assignment or other transfer of the Premises.

(f) **Prior Conduct of Proposed Transferee**. Notwithstanding any other provision of this Section 22, if (i) the proposed assignee or sublessee of Tenant has been required by any prior landlord, lender or Governmental Authority to take remedial action in connection with Hazardous Materials contaminating a property, where the contamination resulted from such party's action or use of the property in question, (ii) the proposed assignee or sublessee is subject to an enforcement order issued by any Governmental Authority in connection with the use, storage, handling, treatment, generation, release or disposal of Hazardous Materials (including, without limitation, any order related to the failure to make a required reporting to any Governmental Authority), or (iii) because of the existence of a pre-existing environmental condition in the vicinity of or underlying the Project, the risk that Landlord would be targeted as a responsible party in connection with the remediation of such pre-existing environmental condition would be materially increased or exacerbated by the proposed use of Hazardous Materials by such proposed assignee or sublessee, Landlord shall have the absolute right to refuse to consent to any assignment or subletting to any such party.

23. **Estoppel Certificate**. Tenant shall, within 10 business days of written notice from Landlord, execute, acknowledge and deliver a statement in writing in any form reasonably requested by a proposed lender or purchaser, (i) certifying that this Lease is unmodified and in full force and effect (or, if modified, stating the nature of such modification and certifying that this Lease as so modified is in full force and effect) and the dates to which the rental and other charges are paid in advance, if any, (ii) acknowledging that, to Tenant's knowledge, there are not any uncured defaults on the part of Landlord hereunder, or specifying such defaults if any are claimed, and (iii) setting forth such further information with respect to the status of this Lease or the Premises as may be requested thereon. Any such statement may be relied upon by any prospective purchaser or encumbrancer of all or any portion of the real property of which the Premises are a part. Tenant's failure to deliver such statement within such time shall be conclusive upon Tenant that the Lease is in full force and effect and without modification except as may be represented by Landlord in any certificate prepared by Landlord and delivered to Tenant for execution.

24. **Quiet Enjoyment**. So long as Tenant is not in Default under this Lease, Tenant shall, subject to the terms of this Lease, at all times during the Term, have peaceful and quiet enjoyment of the Premises against any person claiming by, through or under Landlord.

25. **Prorations**. All prorations required or permitted to be made hereunder shall be made on the basis of a 360 day year and 30 day months.

26. **Rules and Regulations**. Tenant shall, at all times during the Term and any extension thereof, comply with all reasonable rules and regulations at any time or from time to time established by Landlord covering use of the Premises and the Project. Such rules and regulations may include, without limitation, reasonable rules and regulations relating to the use of the Project Amenities and/or rules and regulations which are intended to encourage social distancing, promote and protect health and physical well-being within the Building and the Project and/or intended to limit the spread of Infectious Conditions. The current rules and regulations are attached hereto as **Exhibit E**. If there is any conflict between said rules and regulations and other provisions of this Lease, the terms and provisions of this Lease shall control. Landlord shall not have any liability or obligation for the breach of any rules or regulations by other tenants in the Project and shall not enforce such rules and regulations in a discriminatory manner.

27. **Subordination**. This Lease and Tenant's interest and rights hereunder are hereby made and shall be subject and subordinate at all times to the lien of any Mortgage now existing or hereafter created on or against the Project or the Premises, and all amendments, restatements, renewals, modifications, consolidations, refinancing, assignments and extensions thereof, without the necessity of any further instrument or act on the part of Tenant; provided, however that so long as there is no Default

hereunder, Tenant's right to possession of the Premises shall not be disturbed by the Holder of any such Mortgage. Tenant agrees, at the election of the Holder of any such Mortgage, to attorn to any such Holder. Tenant agrees upon demand to execute, acknowledge and deliver such instruments, confirming such subordination, and such instruments of attornment as shall be requested by any such Holder, provided any such instruments contain appropriate non-disturbance provisions assuring Tenant's quiet enjoyment of the Premises as set forth in Section 24 hereof. Notwithstanding the foregoing, any such Holder may at any time subordinate its Mortgage to this Lease, without Tenant's consent, by notice in writing to Tenant, and thereupon this Lease shall be deemed prior to such Mortgage without regard to their respective dates of execution, delivery or recording and in that event such Holder shall have the same rights with respect to this Lease as though this Lease had been executed prior to the execution, delivery and recording of such Mortgage and had been assigned to such Holder. The term "**Mortgage**" whenever used in this Lease shall be deemed to include deeds of trust, security assignments and any other encumbrances, and any reference to the "**Holder**" of a Mortgage shall be deemed to include the beneficiary under a deed of trust. As of the date of this Lease, there is no existing Mortgage encumbering the Project.

28. **Surrender**. Upon the expiration of the Term or earlier termination of Tenant's right of possession, Tenant shall surrender the Premises to Landlord in the same condition as received, subject to any Alterations or Installations permitted by Landlord to remain in the Premises, free of Hazardous Materials brought upon, kept, used, stored, handled, treated, generated in, or released or disposed of from, the Premises by any person other than a Landlord Party (collectively, "**Tenant HazMat Operations**") and released of all Hazardous Materials Clearances, broom clean, ordinary wear and tear and casualty loss and condemnation covered by Sections 18 and 19 excepted. At least 3 months prior to the surrender of the Premises or such earlier date as Tenant may elect to cease operations at the Premises, Tenant shall deliver to Landlord a narrative description of the actions proposed (or required by any Governmental Authority) to be taken by Tenant in order to surrender the Premises (including any Installations permitted by Landlord to remain in the Premises) at the expiration or earlier termination of the Term, free from any residual impact from the Tenant HazMat Operations and otherwise released for unrestricted use and occupancy (the "**Decommissioning and HazMat Closure Plan**"). Such Decommissioning and HazMat Closure Plan shall be accompanied by a current listing of (i) all Hazardous Materials licenses and permits held by or on behalf of any Tenant Party with respect to the Premises, and (ii) all Hazardous Materials used, stored, handled, treated, generated, released or disposed of from the Premises, and shall be subject to the review and approval of Landlord's environmental consultant, such approval not to be unreasonably withheld or delayed. In connection with the review and approval of the Decommissioning and HazMat Closure Plan, upon the request of Landlord, Tenant shall deliver to Landlord or its consultant such additional non-proprietary information concerning Tenant HazMat Operations as Landlord shall request. On or before such surrender, Tenant shall deliver to Landlord evidence that the approved Decommissioning and HazMat Closure Plan shall have been satisfactorily completed and Landlord shall have the right, subject to reimbursement at Tenant's expense as set forth below, to cause Landlord's environmental consultant to inspect the Premises and perform such additional procedures as may be deemed reasonably necessary to confirm that the Premises are, as of the effective date of such surrender or early termination of this Lease, free from any residual impact from Tenant HazMat Operations. Tenant shall reimburse Landlord, as Additional Rent, for the actual, reasonable out- of-pocket expense incurred by Landlord for Landlord's environmental consultant to review and approve the Decommissioning and HazMat Closure Plan and to visit the Premises and verify satisfactory completion of the same, which cost shall not exceed $5,000. Landlord shall have the unrestricted right to deliver such Decommissioning and HazMat Closure Plan and any report by Landlord's environmental consultant with respect to the surrender of the Premises to third parties.

If Tenant shall fail to prepare or submit a Decommissioning and HazMat Closure Plan approved by Landlord, or if Tenant shall fail to complete the approved Decommissioning and HazMat Closure Plan, or if such Decommissioning and HazMat Closure Plan, whether or not approved by Landlord, shall fail to adequately address any residual effect of Tenant HazMat Operations in, on or about the Premises, Landlord shall have the right to take such actions as Landlord may deem reasonable or appropriate to assure that the Premises and the Project are surrendered free from any residual impact from Tenant HazMat Operations, the cost of which actions shall be reimbursed by Tenant as Additional Rent, without regard to the limitation set forth in the first paragraph of this Section 28.

Tenant shall immediately return to Landlord all keys and/or access cards to parking, the Project, restrooms or all or any portion of the Premises furnished to or otherwise procured by Tenant. If any such access card or key is lost, Tenant shall pay to Landlord, at Landlord's election, either the reasonable cost of replacing such lost access card or key or the reasonable cost of reprogramming the access security system in which such access card was used or changing the lock or locks opened by such lost key. Any Tenant's Property, Alterations and property not so removed by Tenant as permitted or required herein shall be deemed abandoned and may be stored, removed, and disposed of by Landlord at Tenant's expense, and Tenant waives all claims against Landlord for any damages resulting from Landlord's retention and/or disposition of such property. All obligations of Tenant hereunder not fully performed as of the termination of the Term, including the obligations of Tenant under Section 30 hereof, shall survive the expiration or earlier termination of the Term, including, without limitation, indemnity obligations, payment obligations with respect to Rent and obligations concerning the condition and repair of the Premises.

29. **Waiver of Jury Trial**. TO THE EXTENT PERMITTED BY LAW, TENANT AND LANDLORD WAIVE ANY RIGHT TO TRIAL BY JURY OR TO HAVE A JURY PARTICIPATE IN RESOLVING ANY DISPUTE, WHETHER SOUNDING IN CONTRACT, TORT, OR OTHERWISE, BETWEEN LANDLORD AND TENANT ARISING OUT OF THIS LEASE OR ANY OTHER INSTRUMENT, DOCUMENT, OR AGREEMENT EXECUTED OR DELIVERED IN CONNECTION HEREWITH OR THE TRANSACTIONS RELATED HERETO.

30. **Environmental Requirements**.

(a) **Prohibition/Compliance/Indemnity**. Tenant shall not cause or permit any Hazardous Materials (as hereinafter defined) to be brought upon, kept, used, stored, handled, treated, generated in or about, or released or disposed of from, the Premises or the Project in violation of applicable Environmental Requirements (as hereinafter defined) by Tenant or any Tenant Party. If Tenant breaches the obligation stated in the preceding sentence, or if the presence of Hazardous Materials in the Premises during the Term or any holding over results in contamination of the Premises, the Project or any adjacent property or if contamination of the Premises, the Project or any adjacent property by Hazardous Materials brought into, kept, used, stored, handled, treated, generated in or about, or released or disposed of from, the Premises by anyone other than Landlord and Landlord's employees, agents and contractors otherwise occurs during the Term or any holding over, Tenant hereby indemnifies and shall defend and hold Landlord, its officers, directors, employees, agents and contractors harmless from any and all actions (including, without limitation, remedial or enforcement actions of any kind, administrative or judicial proceedings, and orders or judgments arising out of or resulting therefrom), costs, claims, damages (including, without limitation, punitive damages and damages based upon diminution in value of the Premises or the Project, or the loss of, or restriction on, use of the Premises or any portion of the Project), expenses (including, without limitation, attorneys', consultants' and experts' fees, court costs and amounts paid in settlement of any claims or actions), fines, forfeitures or other civil, administrative or criminal penalties, injunctive or other relief (whether or not based upon personal injury, property damage, or contamination of, or adverse effects upon, the environment, water tables or natural resources), liabilities or losses (collectively, "**Environmental Claims**") which arise during or after the Term as a result of such contamination. This indemnification of Landlord by Tenant includes, without limitation, costs incurred in connection with any investigation of site conditions or any cleanup, treatment, remedial, removal, or restoration work required by any federal, state or local Governmental Authority because of Hazardous Materials present in the air, soil or ground water above, on, or under the Premises. Without limiting the foregoing, if the presence of any Hazardous Materials on the Premises, the Building, the Project or any adjacent property caused or permitted by Tenant or any Tenant Party results in any contamination of the Premises, the Building, the Project or any adjacent property, Tenant shall promptly take all actions at its sole expense and in accordance with applicable Environmental Requirements as are necessary to return the Premises, the Building, the Project or any adjacent property to the condition existing prior to the time of such contamination, provided that Landlord's approval of such action shall first be obtained, which approval shall not unreasonably be withheld so long as such actions would not potentially have any material adverse long-term or short-term effect on the Premises, the Building or the Project. Notwithstanding anything to the contrary contained in Section 28 or this Section 30, Tenant shall not be responsible for or have any liability to Landlord, and the indemnification and hold harmless obligation set forth in this paragraph shall not apply to (i) contamination in the Premises

which Tenant can prove to Landlord's reasonable satisfaction existed in the Premises immediately prior to the Commencement Date, (ii) the presence of any Hazardous Materials in the Premises which Tenant can prove to Landlord's reasonable satisfaction migrated from outside of the Premises into the Premises, or (iii) any Hazardous Materials at the Project (outside the Premises) that Tenant can prove to Landlord's reasonable satisfaction were not brought upon, kept, used, stored, handled, treated, generated in or released or disposed of by Tenant or any Tenant Party, unless in any case, the presence of such Hazardous Materials (x) is the result of a breach by Tenant of any of its obligations under this Lease, or (y) was caused, contributed to or exacerbated by Tenant or any Tenant Party.

(b) **Business**. Landlord acknowledges that it is not the intent of this Section 30 to prohibit Tenant from using the Premises for the Permitted Use. Tenant may operate its business according to prudent industry practices so long as the use or presence of Hazardous Materials is strictly and properly monitored according to all then applicable Environmental Requirements. As a material inducement to Landlord to allow Tenant to use Hazardous Materials in connection with its business, Tenant agrees to deliver to Landlord prior to the Commencement Date a list identifying each type of Hazardous Materials to be brought upon, kept, used, stored, handled, treated, generated on, or released or disposed of from, the Premises and setting forth any and all governmental approvals or permits required in connection with the presence, use, storage, handling, treatment, generation, release or disposal of such Hazardous Materials on or from the Premises ("**Hazardous Materials List**"). Upon Landlord's request, or any time that Tenant is required to deliver a Hazardous Materials List to any Governmental Authority (e.g., the fire department) in connection with Tenant's use or occupancy of the Premises, Tenant shall deliver to Landlord a copy of such Hazardous Materials List. Tenant shall deliver to Landlord true and correct copies of the following documents (the "**Haz Mat Documents**") relating to the use, storage, handling, treatment, generation, release or disposal of Hazardous Materials prior to the Commencement Date, or if unavailable at that time, concurrent with the receipt from or submission to a Governmental Authority: permits; approvals; reports and correspondence; storage and management plans, notice of violations of any Legal Requirements; plans relating to the installation of any storage tanks to be installed in or under the Project (provided, said installation of tanks shall only be permitted after Landlord has given Tenant its written consent to do so, which consent may be withheld in Landlord's sole and absolute discretion); all closure plans or any other documents required by any and all federal, state and local Governmental Authorities for any storage tanks installed in, on or under the Project for the closure of any such tanks; and a Decommissioning and HazMat Closure Plan (to the extent surrender in accordance with Section 28 cannot be accomplished in 3 months). Tenant is not required, however, to provide Landlord with any portion(s) of the Haz Mat Documents containing information of a proprietary nature which, in and of themselves, do not contain a reference to any Hazardous Materials or hazardous activities. It is not the intent of this Section to provide Landlord with information which could be detrimental to Tenant's business should such information become possessed by Tenant's competitors.

(c) **Tenant Representation and Warranty**. Tenant hereby represents and warrants to Landlord that (i)neither Tenant nor any of its legal predecessors has been required by any prior landlord, lender or Governmental Authority at any time to take remedial action in connection with Hazardous Materials contaminating a property which contamination was permitted by Tenant of such predecessor or resulted from Tenants or such predecessor's action or use of the property in question, and (ii) Tenant is not subject to any enforcement order issued by any Governmental Authority in connection with the use, storage, handling, treatment, generation, release or disposal of Hazardous Materials (including, without limitation, any order related to the failure to make a required reporting to any Governmental Authority). If Landlord determines that this representation and warranty was not true as of the date of this Lease, Landlord shall have the right to terminate this Lease in Landlord's sole and absolute discretion.

(d) **Testing**. Landlord shall have the right to conduct annual tests of the Premises to determine whether any contamination of the Premises or the Project has occurred as a result of Tenant's use. Tenant shall be required to pay the cost of such annual test of the Premises only if there is violation of this Section 30 or if contamination for which Tenant is responsible under this Section 30 is identified; provided, however, that if Tenant conducts its own tests of the Premises using third party contractors and test procedures acceptable to Landlord which tests are certified to Landlord, Landlord shall accept such tests in lieu of the annual tests. In addition, at any time, and from time to time, prior to the expiration or earlier

termination of the Term, Landlord shall have the right to conduct appropriate tests of the Premises and the Project to determine if contamination has occurred as a result of Tenant's use of the Premises. In connection with such testing, upon the request of Landlord, Tenant shall deliver to Landlord or its consultant such non-proprietary information concerning the use of Hazardous Materials in or about the Premises by Tenant or any Tenant Party. If contamination has occurred for which Tenant is liable under this Section 30, Tenant shall pay all costs to conduct such tests. If no such contamination is found, Landlord shall pay the costs of such tests (which shall not constitute an Operating Expense). Landlord shall provide Tenant with a copy of all third party, non-confidential reports and tests of the Premises made by or on behalf of Landlord during the Term without representation or warranty and subject to a confidentiality agreement. Tenant shall, at its sole cost and expense, promptly and satisfactorily remediate any environmental conditions identified by such testing for which Tenant is responsible under this Lease, in accordance with all Environmental Requirements. Landlord's receipt of or satisfaction with any environmental assessment in no way waives any rights which Landlord may have against Tenant.

(e) **Control Areas**. Tenant shall be allowed to utilize up to its pro rata share of the Hazardous Materials inventory within any control area or zone (located within the Premises), as designated by the applicable building code, for chemical use or storage. As used in the preceding sentence, Tenant's pro rata share of any control areas or zones located within the Premises shall be determined based on the rentable square footage that Tenant leases within the applicable control area or zone. For purposes of example only, if a control area or zone contains 10,000 rentable square feet and 2,000 rentable square feet of a tenant's premises are located within such control area or zone (while such premises as a whole contains 5,000 rentable square feet), the applicable tenant's pro rata share of such control area would be 20%.

(f) **Storage Tanks**. If storage tanks storing Hazardous Materials located on the Premises or the Project are used by Tenant or are hereafter placed on the Premises or the Project by Tenant, Tenant shall install, use, monitor, operate, maintain, upgrade and manage such storage tanks, maintain appropriate records, obtain and maintain appropriate insurance, implement reporting procedures, properly close any storage tanks, and take or cause to be taken all other actions necessary or required under applicable state and federal Legal Requirements, as such now exists or may hereafter be adopted or amended in connection with the installation, use, maintenance, management, operation, upgrading and closure of such storage tanks. Notwithstanding anything to the contrary contained herein, Tenant shall have no right to use or install any underground storage tanks at the Project.

(g) **Tenant's Obligations**. Tenant's obligations under this Section 30 shall survive the expiration or earlier termination of this Lease. During any period of time after the expiration or earlier termination of this Lease required by Tenant or Landlord to complete the removal from the Premises of any Hazardous Materials (including, without limitation, the release and termination of any licenses or permits restricting the use of the Premises and the completion of the approved Decommissioning and HazMat Closure Plan), Tenant shall continue to pay the full Rent in accordance with this Lease for any portion of the Premises not relet by Landlord in Landlord's sole discretion, which Rent shall be prorated daily.

(h) **Definitions**. As used herein, the term "**Environmental Requirements**" means all applicable present and future statutes, regulations, ordinances, rules, codes, judgments, orders or other similar enactments of any Governmental Authority regulating or relating to health, safety, or environmental conditions on, under, or about the Premises or the Project, or the environment, including without limitation, the following: the Comprehensive Environmental Response, Compensation and Liability Act; the Resource Conservation and Recovery Act; and all state and local counterparts thereto, and any regulations or policies promulgated or issued thereunder. As used herein, the term "**Hazardous Materials**" means and includes any substance, material, waste, pollutant, or contaminant listed or defined as hazardous or toxic, or regulated by reason of its impact or potential impact on humans, animals and/or the environment under any Environmental Requirements, asbestos and petroleum, including crude oil or any fraction thereof, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas). As defined in Environmental Requirements, Tenant is and shall be deemed to be the "**operator**" of Tenant's "**facility**" and the "**owner**" of all Hazardous Materials brought on the Premises by Tenant or any Tenant Party, and the wastes, by-products, or residues generated, resulting, or produced therefrom.

(i) **Disclosure Regarding Hazardous Materials**. Section 25359.7 of the California Health and Safety Code requires owners of nonresidential property who know or have reasonable cause to believe that a release of Hazardous Materials have come to be located on or beneath real property to provide written notice of that condition to tenants. Accordingly, please be advised that Hazardous Materials including total petroleum hydrocarbons (TPH) as diesel, motor oil and gasoline, polychlorinated biphenyls (PCBs), phenol, volatile organic compounds (VOCs) including tetrachloroethene (PCE), benzene, toluene and xylenes, and metals including lead, chromium, nickel and arsenic are documented to be present in soil at the Property and toluene and total petroleum hydrocarbons as diesel (TPH-d) are found in groundwater (collectively, the "**Environmental Condition**"). The San Mateo County Environmental Health Department issued a "no further action" letter in 2002.

Tenant acknowledges and agrees that Tenant has been provided with an adequate opportunity to retain its own consultants and experts to conduct inspections and examinations of the Environmental Condition. Tenant also acknowledges that this information is a brief summary of the Environmental Condition at the Premises and is not comprehensive. By Tenant's execution of this Lease, Tenant acknowledges receipt of the foregoing notice given pursuant to Section 25359.7 of the California Health and Safety Code. The provisions of this Section shall survive the termination of this Lease.

31. **Tenant's Remedies/Limitation of Liability**. Landlord shall not be in default hereunder unless Landlord fails to perform any of its obligations hereunder within 30 days after written notice from Tenant specifying such failure (unless such performance will, due to the nature of the obligation, require a period of time in excess of 30 days, then after such period of time as is reasonably necessary). Upon any default by Landlord, Tenant shall give notice by registered or certified mail to any Holder of a Mortgage covering the Premises and to any landlord of any lease of property in or on which the Premises are located and Tenant shall offer such Holder and/or landlord a reasonable opportunity to cure the default, including time to obtain possession of the Project by power of sale or a judicial action if such should prove necessary to effect a cure; provided Landlord shall have furnished to Tenant in writing the names and addresses of all such persons who are to receive such notices. All obligations of Landlord hereunder shall be construed as covenants, not conditions; and, except as may be otherwise expressly provided in this Lease, Tenant may not terminate this Lease for breach of Landlord's obligations hereunder.

All obligations of Landlord under this Lease will be binding upon Landlord only during the period of its ownership of the Premises and not thereafter. The term "**Landlord**" in this Lease shall mean only the owner for the time being of the Premises. Upon the transfer by such owner of its interest in the Premises, such owner shall thereupon be released and discharged from all obligations of Landlord thereafter accruing, but such obligations shall be binding during the Term upon each new owner for the duration of such owner's ownership.

32. **Inspection and Access**. Landlord and its agents, representatives, and contractors may enter the Premises at any reasonable time to inspect the Premises and to make such repairs as may be required or permitted pursuant to this Lease and for any other business purpose. Landlord and Landlord's representatives may enter the Premises during business hours on not less than 48 hours advance written notice (except in the case of emergencies in which case no such notice shall be required and such entry may be at any time) for the purpose of effecting any such repairs, inspecting the Premises, showing the Premises to prospective purchasers and, during the last 9 months of the Term, to prospective tenants or for any other business purpose. Landlord may erect a suitable sign on the Premises stating that the Project is available for sale. Landlord may grant easements, make public dedications, designate Common Areas and create restrictions on or about the Premises, provided that no such easement, dedication, designation or restriction materially, adversely affects Tenant's use or occupancy of the Premises for the Permitted Use. At Landlord's request, Tenant shall execute such instruments as may be necessary for such easements, dedications or restrictions. Tenant shall at all times, except in the case of emergencies, have the right to escort Landlord or its agents, representatives, contractors or guests while the same are in the Premises, provided such escort does not materially and adversely affect Landlord's access rights hereunder. Landlord

shall use reasonable efforts to comply with Tenant's reasonable security, confidentiality and safety requirements with respect to entering the Premises; provided, however, that Tenant has notified Landlord of such security, confidentiality and safety requirements reasonably prior to Landlord's entry into the Premises and provided further that in no event shall Tenant bar or prohibit access by Landlord and its employees, agents and contractors for the performance of the obligations of Landlord or the exercise of the rights of Landlord under this Lease.

33. **Security**. Tenant acknowledges and agrees that security devices and services, if any, while intended to deter crime may not in given instances prevent theft or other criminal acts and that Landlord is not providing any security services with respect to the Premises. Tenant agrees that Landlord shall not be liable to Tenant for, and Tenant waives any claim against Landlord with respect to, any loss by theft or any other damage suffered or incurred by Tenant in connection with any unauthorized entry into the Premises or any other breach of security with respect to the Premises. Tenant shall be solely responsible for the personal safety of Tenant's officers, employees, agents, contractors, guests and invitees while any such person is in, on or about the Premises and/or the Project. Tenant shall at Tenant's cost obtain insurance coverage to the extent Tenant desires protection against such criminal acts.

34. **Force Majeure**. Except for the payment of Rent, neither Landlord nor Tenant shall be held responsible or liable for delays in the performance of its obligations hereunder when caused by, related to, or arising out of acts of God, sinkholes or subsidence, strikes, lockouts, or other labor disputes, embargoes, quarantines, weather, national, regional, or local disasters, calamities, or catastrophes, inability to obtain labor or materials (or reasonable substitutes therefor) at reasonable costs or failure of, or inability to obtain, utilities necessary for performance, governmental restrictions, orders, limitations, regulations, or controls, national emergencies, local, regional or national epidemic or pandemic, delay in issuance or revocation of permits, enemy or hostile governmental action, terrorism, insurrection, riots, civil disturbance or commotion, fire or other casualty, and other similar causes or events beyond their reasonable control ("**Force Majeure**").

35. **Brokers**. Landlord and Tenant each represents and warrants that it has not dealt with any broker, agent or other person (collectively, "**Broker**") in connection with this transaction and that no Broker brought about this transaction, other than CBRE, Inc. and Jones Lang LaSalle (representing Landlord) and Newmark Knight Frank (representing Tenant). Landlord and Tenant each hereby agree to indemnify and hold the other harmless from and against any claims by any Broker, other than CBRE, Inc., Jones Lang LaSalle and Newmark Knight Frank, claiming a commission or other form of compensation by virtue of having dealt with Tenant or Landlord, as applicable, with regard to this leasing transaction. Landlord shall be responsible for all commissions due to CBRE, Inc., Jones Lang LaSalle and Newmark Knight Frank arising out of the execution of this Lease in accordance with the terms of one or more separate written agreements between Landlord, on the one hand, and CBRE, Inc., Jones Lang LaSalle and Newmark Knight Frank, on the other hand.

36. **Limitation on Landlord's Liability**. NOTWITHSTANDING ANYTHING SET FORTH HEREIN OR IN ANY OTHER AGREEMENT BETWEEN LANDLORD AND TENANT TO THE CONTRARY: (A) LANDLORD SHALL NOT BE LIABLE TO TENANT OR ANY OTHER PERSON FOR (AND TENANT AND EACH SUCH OTHER PERSON ASSUME ALL RISK OF) LOSS, DAMAGE OR INJURY, WHETHER ACTUAL OR CONSEQUENTIAL TO: TENANT'S PERSONAL PROPERTY OF EVERY KIND AND DESCRIPTION, INCLUDING, WITHOUT LIMITATION TRADE FIXTURES, EQUIPMENT, INVENTORY, SCIENTIFIC RESEARCH, SCIENTIFIC EXPERIMENTS, LABORATORY ANIMALS, PRODUCT, SPECIMENS, SAMPLES, AND/OR SCIENTIFIC, BUSINESS, ACCOUNTING AND OTHER RECORDS OF EVERY KIND AND DESCRIPTION KEPT AT THE PREMISES AND ANY AND ALL INCOME DERIVED OR DERIVABLE THEREFROM; (B) THERE SHALL BE NO PERSONAL RECOURSE TO LANDLORD FOR ANY ACT OR OCCURRENCE IN, ON OR ABOUT THE PREMISES OR ARISING IN ANY WAY UNDER THIS LEASE OR ANY OTHER AGREEMENT BETWEEN LANDLORD AND TENANT WITH RESPECT TO THE SUBJECT MATTER HEREOF AND ANY LIABILITY OF LANDLORD HEREUNDER SHALL BE STRICTLY LIMITED SOLELY TO LANDLORD'S INTEREST IN THE PROJECT OR ANY PROCEEDS FROM SALE OR CONDEMNATION THEREOF AND ANY INSURANCE PROCEEDS PAYABLE IN RESPECT OF LANDLORD'S INTEREST IN THE PROJECT OR IN CONNECTION WITH ANY SUCH LOSS; AND (C) IN NO EVENT SHALL ANY PERSONAL LIABILITY BE ASSERTED AGAINST

LANDLORD IN CONNECTION WITH THIS LEASE NOR SHALL ANY RECOURSE BE HAD TO ANY OTHER PROPERTY OR ASSETS OF LANDLORD OR ANY OF LANDLORD'S OFFICERS, DIRECTORS, EMPLOYEES, AGENTS OR CONTRACTORS. UNDER NO CIRCUMSTANCES SHALL LANDLORD OR ANY OF LANDLORD'S OFFICERS, DIRECTORS, EMPLOYEES, AGENTS OR CONTRACTORS BE LIABLE FOR INJURY TO TENANT'S BUSINESS OR FOR ANY LOSS OF INCOME OR PROFIT THEREFROM.

Tenant acknowledges and agrees that measures and/or services implemented at the Project, if any, intended to encourage social distancing, promote and protect health and physical well-being and/or intended to limit the spread of Infectious Conditions, may not prevent the spread of such Infectious Conditions. Neither Landlord nor any Landlord Indemnified Parties shall have any liability and Tenant waives any claims against Landlord and the Landlord Indemnified Parties with respect to any loss, damage or injury in connection with (x) the implementation, or failure of Landlord or any Landlord Indemnified Parties to implement, any measures and/or services at the Project intended to encourage social distancing, promote and protect health and physical well-being and/or intended to limit the spread of Infectious Conditions, or (y) the failure of any measures and/or services implemented at the Project, if any, to limit the spread of any Infections Conditions.

37. **Severability**. If any clause or provision of this Lease is illegal, invalid or unenforceable under present or future laws, then and in that event, it is the intention of the parties hereto that the remainder of this Lease shall not be affected thereby. It is also the intention of the parties to this Lease that in lieu of each clause or provision of this Lease that is illegal, invalid or unenforceable, there be added, as a part of this Lease, a clause or provision as similar in effect to such illegal, invalid or unenforceable clause or provision as shall be legal, valid and enforceable.

38. **Signs; Exterior Appearance**. Tenant shall not, without the prior written consent of Landlord, which may be granted or withheld in Landlord's reasonable discretion: (i) attach any awnings, exterior lights, decorations, balloons, flags, pennants, banners, painting or other projection to any outside wall of the Project, (ii) use any curtains, blinds, shades or screens other than Landlord's standard window coverings, (iii)coat or otherwise sunscreen the interior or exterior of any windows, (iv) place any bottles, parcels, or other articles on the window sills, (v) place any equipment, furniture or other items of personal property on any exterior balcony, or (vi) paint, affix or exhibit on any part of the Premises or the Project any signs, notices, window or door lettering, placards, decorations, or advertising media of any type which can be viewed from the exterior of the Premises. Suite entry signage and signage on the Building lobby directory shall be inscribed, painted or affixed for Tenant by Landlord at the sole cost and expense of Tenant, and shall be of a size, color and type acceptable to Landlord. Nothing may be placed on the exterior of corridor walls or corridor doors other than Landlord's standard lettering. The directory tablet shall be provided exclusively for the display of the name and location of tenants.

39. **Right to Extend Term**. Tenant shall have the right to extend the Term of this Lease upon the following terms and conditions:

(a) **Extension Rights**. Tenant shall have 1 right (the "**Extension Right**") to extend the term of this Lease for 2 year (the "**Extension Term**") on the same terms and conditions as this Lease (other than with respect to Base Rent) by giving Landlord written notice of its election to exercise each Extension Right at least 9 months prior, and no earlier than 12 months prior, to the expiration of the Base Term of this Lease.

Upon the commencement of the Extension Term, Base Rent shall be payable at the Market Rate (as defined below). Base Rent shall thereafter be adjusted on each annual anniversary of the commencement of such Extension Term by a percentage as agreed to by Landlord and Tenant at the time the Market Rate is determined. As used herein, "**Market Rate**" shall mean the rate that comparable landlords of comparable buildings have accepted in current transactions from non-equity (i.e., not being offered equity in the buildings) and nonaffiliated tenants of similar financial strength for space of comparable size, quality (including all Landlord's Work, Alterations and other improvements) and floor height in Class A laboratory/office buildings in the South San Francisco area for a comparable term, with the determination of the Market Rate to take into account all relevant factors, including tenant inducements, views, the Project Amenities, parking costs, leasing commissions, allowances or concessions, if any.

If, on or before the date which is 210 days prior to the expiration of the Base Term of this Lease, Landlord and Tenant have not agreed upon the Market Rate and the rent escalations during the Extension Term after negotiating in good faith, Tenant shall be deemed to have elected arbitration as described in Section 39(b). Tenant acknowledges and agrees that, if Tenant has elected to exercise the Extension Right by delivering notice to Landlord as required in this Section 39(a), Tenant shall have no right thereafter to rescind or elect not to extend the term of this Lease for the Extension Term.

(b) **Arbitration**.

(i) Within 10 days of Tenants notice to Landlord of its election (or deemed election) to arbitrate Market Rate and escalations, each party shall deliver to the other a proposal containing the Market Rate and escalations that the submitting party believes to be correct ("**Extension Proposal**"). If either party fails to timely submit an Extension Proposal, the other party's submitted proposal shall determine the Base Rent and escalations for the Extension Term. If both parties submit Extension Proposals, then Landlord and Tenant shall meet within 7 days after delivery of the last Extension Proposal and make a good faith attempt to mutually appoint a single Arbitrator (and defined below) to determine the Market Rate and escalations. If Landlord and Tenant are unable to agree upon a single Arbitrator, then each shall, by written notice delivered to the other within 10 days after the meeting, select an Arbitrator. If either party fails to timely give notice of its selection for an Arbitrator, the other party's submitted proposal shall determine the Base Rent and escalations for the Extension Term. The 2 Arbitrators so appointed shall, within 5 business days after their appointment, appoint a third Arbitrator. If the 2 Arbitrators so selected cannot agree on the selection of the third Arbitrator within the time above specified, then either party, on behalf of both parties, may request such appointment of such third Arbitrator by application to any state court of general jurisdiction in the jurisdiction in which the Premises are located, upon 10 days prior written notice to the other party of such intent.

(ii) The decision of the Arbitrator(s) shall be made within 30 days after the appointment of a single Arbitrator or the third Arbitrator, as applicable. The decision of the single Arbitrator shall be final and binding upon the parties. The average of the two closest Arbitrators in a three Arbitrator panel shall be final and binding upon the parties. Each party shall pay the fees and expenses of the Arbitrator appointed by or on behalf of such party and the fees and expenses of the third Arbitrator shall be borne equally by both parties. If the Market Rate and escalations are not determined by the first day of the Extension Term, then Tenant shall pay Landlord Base Rent in an amount equal to the Base Rent in effect immediately prior to the Extension Term and increased by the Rent Adjustment Percentage until such determination is made. After the determination of the Market Rate and escalations, the parties shall make any necessary adjustments to such payments made by Tenant. Landlord and Tenant shall then execute an amendment recognizing the Market Rate and escalations for the Extension Term.

(iii) An "**Arbitrator**" shall be any person appointed by or on behalf of either party or appointed pursuant to the provisions hereof and: (i) shall be (A) a member of the American Institute of Real Estate Appraisers with not less than 10 years of experience in the appraisal of improved office and high tech industrial real estate in the San Francisco peninsula area, or (B) a licensed commercial real estate broker with not less than 15 years' experience representing landlords and/or tenants in the leasing of high tech or life sciences space in the San Francisco peninsula area, (ii) devoting substantially all of their time to professional appraisal or brokerage work, as applicable, at the time of appointment and (iii) be in all respects impartial and disinterested.

(c) **Rights Personal**. The Extension Right is personal to Tenant and is not assignable without Landlord's consent, which may be granted or withheld in Landlord's sole discretion separate and apart from any consent by Landlord to an assignment of Tenant's interest in this Lease, except that it may be assigned in connection with any Permitted Assignment of this Lease.

(d) **Exceptions**. Notwithstanding anything set forth above to the contrary, the Extension Right shall, at Landlord's option, not be in effect and Tenant may not exercise the Extension Right:

(i) during any period of time that Tenant is in Default under any provision of this Lease; or

(ii) if Tenant has been in Default under any provision of this Lease 3 or more times, whether or not the Defaults are cured, during the 12-month period immediately prior to the date that Tenant intends to exercise the Extension Right, whether or not the Defaults are cured.

(e) **No Extensions**. The period of time within which the Extension Right may be exercised shall not be extended or enlarged by reason of Tenant's inability to exercise the Extension Right.

(f) **Termination**. The Extension Right shall, at Landlord's option, terminate and be of no further force or effect even after Tenant's due and timely exercise of the Extension Right, if, after such exercise, but prior to the commencement date of the Extension Term, (i) Tenant fails to timely cure any default by Tenant under this Lease; or (ii) Tenant has Defaulted 3 or more times during the period from the date of the exercise of the Extension Right to the date of the commencement of the Extension Term, whether or not such Defaults are cured.

40. **Shared Lab Areas**.

(a) **License**. Commencing on the Commencement Date, Landlord hereby grants to Tenant, and Tenant hereby accepts, a non-exclusive license ("**Shared Lab Areas License**") to use those certain areas located in the Building described as the "**Shared Lab Areas**" on **Exhibit H** attached hereto, subject to the terms and provisions of this Section 40. The Shared Lab Areas may include a shared glassroom, a shared cold storage room, a shared hazardous materials storage room and ancillary laboratory areas. Prior to the Commencement Date, Landlord shall install within the Shared Lab Areas a shared glasswash, an autoclave and an ice machine. Tenant shall have the right to utilize (i) not more than its pro rata share of a cold storage room made available as part of the Shared Lab Areas for the purpose of placing Tenant's refrigerators and freezers (which refrigerators and freezers shall be of a size and dimension reasonably acceptable to Landlord) in the locations designated by Landlord, and (ii) not more than its pro rata share of a shared hazardous materials storage room made available as part of the Shared Lab Areas for the purpose of placing Tenant's hazardous materials storage units (which hazardous materials storage units shall be of a size and dimension reasonably acceptable to Landlord) in the locations designated by Landlord; provided, however, Tenant shall not bolt or otherwise affix any of the foregoing to the cold storage room or the hazardous materials storage area without Landlord's prior written consent (which may be provided or withheld in Landlord's sole discretion). Tenant shall have the right to install locks on Tenant's hazardous materials storage units and such refrigerators and freezers at its sole cost and expense. Upon the expiration of the Term or earlier termination of this Agreement, Tenant shall, at its sole cost and expense, promptly remove such hazardous materials storage units and such refrigerators and freezers from the cold storage room or the hazardous materials storage area and surrender the areas in which such hazardous materials storage units and such refrigerators and freezers were located in accordance with the requirements of Section 28 of this Lease.

(b) **Use**. Tenant shall exercise its rights under this Section 40 and use the Shared Lab Areas in a manner that complies with all applicable Legal Requirements and any and all reasonable and non-discriminatory rules and regulations which may be adopted by Landlord from time to time including, without limitation, any schedule(s) which may be implemented by Landlord for the use of the Shared Lab Areas by all parties entitled to use the same. Tenant agrees to cause its employees who will be using the Shared Lab Areas to complete all training programs, if any, reasonably mandated by Landlord relating to the use of the Shared Lab Areas.

Tenant shall use the Shared Lab Areas in a manner that will not interfere with the rights of any other tenants, other licensees or Landlord's service providers. Landlord assumes no responsibility for enforcing Tenant's rights or for protecting the Shared Lab Areas from interference or use from any person including, without limitation, other tenants or licensees of the Project. Landlord may terminate the License granted to Tenant hereunder at any time during the Term, upon 30 days' notice to Tenant of such non-compliance, for Tenant's failure to comply with the terms of thisSection 40 or any reasonable rules and regulations adopted by Landlord with respect to the Shared Lab Area if Tenant fails to correct such failure within such 30-day period. The expiration or earlier termination of this Lease shall automatically terminate the Shared Lab Areas License hereby granted to Tenant to so use the Shared Lab Areas.

(c) **Relocation and Modification of Shared Lab Areas**. Tenant acknowledges and agrees that Landlord shall have the right at any time and from time to time, upon no less than 30 days' notice to Tenant, to reconfigure, relocate, modify or remove the Shared Lab Areas and/or to revise, expand or discontinue any of the services (if any) provided therein, and to add, change, reconfigure, remove or relocate any of the Shared Lab Equipment (as hereinafter defined) located therein; provided, however, that in no event shall Landlord permanently remove the glasswash, autoclave or ice machine, nor shall Landlord permanently discontinue the availability to Tenant of a shared cold storage room or shared hazardous materials storage room with the capacity to accommodate hazardous materials storage units and refrigerators and freezers, respectively, of not less than the size and dimensions of the hazardous materials storage units and refrigerators and freezers reflected on the plans agreed upon by Landlord and Tenant prior the date of this Lease as available within the shared cold storage room or shared hazardous materials storage room, respectively, for Tenant's use (which size and dimensions Tenant acknowledges and agrees satisfy Tenant's requirements).

(d) **Waiver**.

(i) Landlord's sole obligation for providing any equipment, systems, furnishings or personal property to the Shared Lab Areas whether or not affixed to the Building (collectively, "**Shared Lab Equipment**") shall be (i) to provide such Shared Lab Equipment, subject toSection 40(c) above, as is determined by Landlord in its sole and absolute discretion, and (ii) to contract with a third party to maintain the Shared Lab Equipment that is deemed by Landlord (in its reasonable discretion) to need periodic maintenance per the manufacturer's standard maintenance guidelines. Landlord shall have no obligation to provide Tenant with operational Shared Lab Equipment, back-up Shared Lab Equipment or back-up utilities or to supervise, oversee or confirm that the third party maintaining the Shared Lab Equipment is maintaining the Shared Lab Equipment as per the manufacturer's standard guidelines or otherwise. During any period of replacement, repair or maintenance of the Shared Lab Equipment when such Shared Lab Equipment is not operational, including any delays thereto due to the inability to obtain parts or replacements, Landlord shall have no obligation to provide Tenant with alternative or back-up Shared Lab Equipment. Tenant expressly acknowledges and agrees that Landlord does not guaranty that the Shared Lab Equipment will be operational at all times, will function or perform adequately and Landlord shall not be liable for any damages resulting from the failure of such Shared Lab Equipment.

(ii) Landlord makes no warranties of any kind, express or implied, with respect to the Shared Lab Areas or the Shared Lab Equipment, and Landlord disclaims any such warranties. Without limiting the foregoing, Tenant expressly acknowledges and agrees that Landlord does not guaranty or warrant that that the Shared Lab Areas of any Shared Lab Equipment will be operational at all times, will be of sufficient capacity to accommodate Tenant's use thereof, will be free of Hazardous Materials, or will function or perform adequately, and Landlord shall not be liable for any damages resulting from the failure of the Shared Lab Areas and/or any Shared Lab Equipment.

(e) Tenant acknowledges and agrees that Landlord is under no obligation to provide any type of instruction or implement any training programs relating to the use of the Shared Lab Areas for Tenant or any other parties entitled to use the Shared Lab Areas.

41. **Shared Conference Areas**.

(a) **License**. Commencing on the Commencement Date, Landlord hereby grants to Tenant, and Tenant hereby accepts, a non-exclusive license ("**Shared Conference License**") to use that certain areas of the Building described as the "**Shared Conference Areas**" on **Exhibit H** attached hereto, subject to the terms and provisions of this Section 41.

(b) **Use**. Tenant shall exercise its rights under this Section 41 and use the Shared Conference Areas in a manner that complies with all applicable Legal Requirements and any and all reasonable rules and regulations which may be adopted by Landlord from time to time including, without limitation, any schedule(s) which may be implemented by Landlord for the use of the Shared Conference Areas by all parties entitled to use the same. Tenant agrees to cause its employees who will be using the Shared Conference Areas to complete all training programs, if any, mandated by Landlord relating to the use of the Shared Conference Areas.

Tenant shall use the Shared Conference Areas in a manner that will not interfere with the rights of any other tenants, other licensees or Landlord's service providers. Landlord assumes no responsibility for enforcing Tenant's rights or for protecting the Shared Conference Areas from interference or use from any person including, without limitation, other tenants or licensees of the Project. Landlord may terminate the License granted to Tenant hereunder at any time during the Term, upon 30 days' notice to Tenant of such non-compliance, for Tenant's failure to comply with the terms of this Section 41 or any reasonable rules and regulations adopted by Landlord with respect to the Shared Conference Areas if Tenant fails to correct such failure within such 30-day period. The expiration or earlier termination of this Lease shall automatically terminate the license hereby granted to Tenant to so use the Shared Conference Areas.

Use by Tenant of the Shared Conference Areas shall be in common with others entitled to use the Shared Conference Areas in accordance with scheduling procedures reasonably determined by Landlord. Landlord may impose limits on tenants with respect to the usage of the Shared Conference Areas if Landlord reasonably determines that there is excessive use of the Shared Conference Areas by Tenant or any other tenants having the right to use the Shared Conference Areas.

(c) **Relocation and Modification of Shared Conference Areas**. Tenant acknowledges and agrees that Landlord shall have the right at any time and from time to time, upon no less than 30 days' prior written notice to Tenant, to reconfigure, relocate or modify the Shared Conference Areas and/or to revise, expand or discontinue any of the services (if any) provided therein, and to add, change, reconfigure, remove or relocate any of the Equipment (as hereinafter defined) located therein.

(d) **Waiver**.

(i) Landlord's sole obligation for providing any equipment, systems, furnishings or personal property to the Shared Conference Areas whether or not affixed to the Building (collectively, "**Equipment**") shall be (i) to provide such Equipment as is determined by Landlord in its sole and absolute discretion, and (ii) to contract with a third party to maintain the Equipment that is deemed by Landlord (in its sole and absolute discretion) to need periodic maintenance per the manufacturer's standard maintenance guidelines. Landlord shall have no obligation to provide Tenant with operational Equipment, back-up Equipment or back-up utilities or to supervise, oversee or confirm that the third party maintaining the Equipment is maintaining the Equipment as per the manufacturer's standard guidelines or otherwise. During any period of replacement, repair or maintenance of the Equipment when such Equipment is not operational, including any delays thereto due to the inability to obtain parts or replacements, Landlord shall have no obligation to provide Tenant with alternative or back-up Equipment. Tenant expressly acknowledges and agrees that Landlord does not guaranty that the Equipment will be operational at all times, will function or perform adequately and Landlord shall not be liable for any damages resulting from the failure of such Equipment.

(ii) Landlord makes no warranties of any kind, express or implied, with respect to the Shared Conference Areas or the Equipment, and Landlord disclaims any such warranties. Without limiting the foregoing, Tenant expressly acknowledges and agrees that Landlord does not guaranty or warrant that that the Shared Conference Areas of any Equipment will be operational at all times, will be of sufficient capacity to accommodate Tenant's use thereof, will be free of Hazardous Materials, or will function or perform adequately, and Landlord shall not be liable for any damages resulting from the failure of the Shared Conference Areas and/or any Equipment.

(e) Tenant acknowledges and agrees that Landlord is under no obligation to provide any type of instruction or implement any training programs relating to the use of the Shared Conference Areas for Tenant or any other parties entitled to use the Shared Conference Areas.

42. **Miscellaneous.**

(a) **Notices**. All notices or other communications between the parties shall be in writing and shall be deemed duly given upon delivery or refusal to accept delivery by the addressee thereof if delivered in person, or upon actual receipt if delivered by reputable overnight guaranty courier, addressed and sent to the parties at their addresses set forth above. Landlord and Tenant may from time to time by written notice to the other designate another address for receipt of future notices.

(b) **Joint and Several Liability**. If and when included within the term "**Tenant**," as used in this instrument, there is more than one person or entity, each shall be jointly and severally liable for the obligations of Tenant.

(c) **Financial Information**. Tenant shall furnish to Landlord with true and complete copies of (i) upon Landlord's written request on an annual basis, Tenant's most recent audited annual financial statements, provided, however, that Tenant shall not be required to deliver to Landlord such annual financial statements for any particular year sooner than the date that is 90 days after the end of each of Tenant's fiscal years during the Term, (ii) upon Landlord's written request on a quarterly basis, Tenant's most recent unaudited quarterly financial statements; provided, however, that Tenant shall not be required to deliver to Landlord such quarterly financial statements for any particular quarter sooner that the date that is 45 days after the end of each of Tenant's fiscal quarters during the Term, (iii) upon Landlord's written request from time to time, updated business plans, including cash flow projections and/or pro forma balance sheets and income statements, all of which shall be treated by Landlord as confidential information belonging to Tenant, (iv) upon Landlord's written request from time to time, corporate brochures and/or profiles prepared by Tenant for prospective investors, and (v) upon Landlord's written request from time to time, any other financial information or summaries that Tenant typically provides to its lenders or shareholders. Notwithstanding anything to the contrary contained in this Lease, Landlord's written request for financial information pursuant to this Section 42(c) may delivered to Tenant via email. So long as Tenant is a "public company" and its financial information is publicly available, then the foregoing delivery requirements of this Section 42(c) shall not apply.

Landlord agrees to hold the financial statements and other financial information provided under this section in confidence using at least the same degree of care that Landlord uses to protect its own confidential information of a similar nature; provided, however, that Landlord may disclose such information to Landlord's auditors, attorneys, consultants, lenders, affiliates, prospective purchasers and investors and other third parties as reasonably required in the ordinary course of Landlord's operations, provided that Landlord shall request that such parties treat the information as confidential. The obligations of confidentiality hereunder shall not apply to information that was in the public domain at the time it was disclosed to Landlord, entered into the public domain subsequent to the time it was disclosed to Landlord through no fault of Landlord, or was disclosed by Tenant to a third party without any confidentiality restrictions. In addition, Landlord may disclose such information without violating this section to the extent that disclosure is reasonably necessary (x) for Landlord to enforce its rights or defend itself under this Lease; (y) for required submissions to any state or federal regulatory body; or (z) for compliance with a valid order of a court or other governmental body having jurisdiction, or any law, statute, or regulation, provided that, other than in an emergency, before disclosing such information, Landlord shall give Tenant 5 business days' prior notice of the same to allow Tenant to obtain a protective order or such other judicial relief.

(d) **Recordation**. Neither this Lease nor a memorandum of lease shall be filed by or on behalf of Tenant in any public record. Landlord may prepare and file, and upon request by Landlord Tenant will execute, a memorandum of lease.

(e) **Interpretation**. The normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of this Lease or any exhibits or amendments hereto. Words of any gender used in this Lease shall be held and construed to include any other gender, and words in the singular number shall be held to include the plural, unless the context otherwise requires. The captions inserted in this Lease are for convenience only and in no way define, limit or otherwise describe the scope or intent of this Lease, or any provision hereof, or in any way affect the interpretation of this Lease.

(f) **Not Binding Until Executed**. The submission by Landlord to Tenant of this Lease shall have no binding force or effect, shall not constitute an option for the leasing of the Premises, nor confer any right or impose any obligations upon either party until execution of this Lease by both parties.

(g) **Limitations on Interest**. It is expressly the intent of Landlord and Tenant at all times to comply with applicable law governing the maximum rate or amount of any interest payable on or in connection with this Lease. If applicable law is ever judicially interpreted so as to render usurious any interest called for under this Lease, or contracted for, charged, taken, reserved, or received with respect to this Lease, then it is Landlord's and Tenant's express intent that all excess amounts theretofore collected by Landlord be credited on the applicable obligation (or, if the obligation has been or would thereby be paid in full, refunded to Tenant), and the provisions of this Lease immediately shall be deemed reformed and the amounts thereafter collectible hereunder reduced, without the necessity of the execution of any new document, so as to comply with the applicable law, but so as to permit the recovery of the fullest amount otherwise called for hereunder.

(h) **Choice of Law**. Construction and interpretation of this Lease shall be governed by the internal laws of the state in which the Premises are located, excluding any principles of conflicts of laws.

(i) **Time**. Time is of the essence as to the performance of Tenant's obligations under this Lease.

(j) **OFAC**. Tenant and, to Tenant's knowledge, all beneficial owners of Tenant are currently in compliance with and shall at all times during the Term of this Lease remain in compliance with the regulations of the Office of Foreign Assets Control ("**OFAC**") of the U.S. Department of Treasury and any statute, executive order, or regulation relating thereto (collectively, the "**OFAC Rules**"), (b) not listed on, and shall not during the term of this Lease be listed on, the Specially Designated Nationals and Blocked Persons List, Foreign Sanctions Evaders List, or the Sectoral Sanctions Identification List, which are all maintained by OFAC and/or on any other similar list maintained by OFAC or other governmental authority pursuant to any authorizing statute, executive order, or regulation, and (c) not a person or entity with whom a U.S. person is prohibited from conducting business under the OFAC Rules.

(k) **Incorporation by Reference**. All exhibits and addenda attached hereto are hereby incorporated into this Lease and made a part hereof. If there is any conflict between such exhibits or addenda and the terms of this Lease, such exhibits or addenda shall control.

(l) **Entire Agreement**. This Lease, including the exhibits attached hereto, constitutes the entire agreement between Landlord and Tenant pertaining to the subject matter hereof and supersedes all prior and contemporaneous agreements, understandings, letters of intent, negotiations and discussions, whether oral or written, of the parties, and there are no warranties, representations or other agreements, express or implied, made to either party by the other party in connection with the subject matter hereof except as specifically set forth herein.

(m) **No Accord and Satisfaction**. No payment by Tenant or receipt by Landlord of a lesser amount than the monthly installment of Base Rent or any Additional Rent will be other than on account of the earliest stipulated Base Rent and Additional Rent, nor will any endorsement or statement on any check or letter accompanying a check for payment of any Base Rent or Additional Rent be an accord and satisfaction. Landlord may accept such check or payment without prejudice to Landlord's right to recover the balance of such Rent or to pursue any other remedy provided in this Lease.

(n) **Hazardous Activities**. Notwithstanding any other provision of this Lease, Landlord, for itself and its employees, agents and contractors, reserves the right to refuse to perform any repairs or services in any portion of the Premises which, pursuant to Tenant's routine safety guidelines, practices or custom or prudent industry practices, require any form of protective clothing or equipment other than safety glasses. In any such case, Tenant shall contract with parties who are acceptable to Landlord, in Landlord's reasonable discretion, for all such repairs and services, and Landlord shall, to the extent required, equitably adjust Tenant's Share of Operating Expenses in respect of such repairs or services to reflect that Landlord is not providing such repairs or services to Tenant.

(o) **EV Charging Stations**. Landlord shall not unreasonably withhold its consent to Tenant's written request to install 1 or more electric vehicle car charging stations ("**EV Stations**") in the parking area serving the Project; provided, however, that Tenant complies with all reasonable requirements, standards, rules and regulations which may be imposed by Landlord, at the time Landlord's consent is granted, in connection with Tenant's installation, maintenance, repair and operation of such EV Stations, which may include, without limitation, Landlord's designation of the location of Tenant's EV Stations, and Tenant's payment of all costs whether incurred by Landlord or Tenant in connection with the installation, maintenance, repair and operation of each Tenant's EV Station(s). Nothing contained in this paragraph is intended to increase the number of parking spaces which Tenant is otherwise entitled to use at the Project under Section 10 of this Lease nor impose any additional obligations on Landlord with respect to Tenant's parking rights at the Project.

(p) **California Accessibility Disclosure**. For purposes of Section 1938(a) of the California Civil Code, Landlord hereby discloses to Tenant, and Tenant hereby acknowledges, that the Project has not undergone inspection by a Certified Access Specialist (CASp). In addition, the following notice is hereby provided pursuant to Section 1938(e) of the California Civil Code: "A Certified Access Specialist (CASp) can inspect the subject premises and determine whether the subject premises comply with all of the applicable construction-related accessibility standards under state law. Although state law does not require a CASp inspection of the subject premises, the commercial property owner or lessor may not prohibit the lessee or tenant from obtaining a CASp inspection of the subject premises for the occupancy or potential occupancy of the lessee or tenant, if requested by the lessee or tenant. The parties shall mutually agree on the arrangements for the time and manner of the CASp inspection, the payment of the fee for the CASp inspection, and the cost of making any repairs necessary to correct violations of construction-related accessibility standards within the premises." In furtherance of and in connection with such notice: (i) Tenant, having read such notice and understanding Tenant's right to request and obtain a CASp inspection, hereby elects not to obtain such CASp inspection and forever waives its rights to obtain a CASp inspection with respect to the Premises, Building and/or Project to the extent permitted by Legal Requirements; and (ii) if the waiver set forth in clause (i) hereinabove is not enforceable pursuant to Legal Requirements, then Landlord and Tenant hereby agree as follows (which constitutes the mutual agreement of the parties as to the matters described in the last sentence of the foregoing notice): (A) Tenant shall have the one-time right to request for and obtain a CASp inspection, which request must be made, if at all, in a written notice delivered by Tenant to Landlord; (B) any CASp inspection timely requested by Tenant shall be conducted (1) at a time mutually agreed to by Landlord and Tenant, (2) in a professional manner by a CASp designated by Landlord and without any testing that would damage the Premises, Building or Project in any way, and (3) at Tenant's sole cost and expense, including, without limitation, Tenant's payment of the fee for such CASp inspection, the fee for any reports prepared by the CASp in connection with such CASp inspection (collectively, the "**CASp Reports**") and all other costs and expenses in connection therewith; (C) the CASp

Reports shall be delivered by the CASp simultaneously to Landlord and Tenant; (D) Tenant, at its sole cost and expense, shall be responsible for making any improvements, alterations, modifications and/or repairs to or within the Premises to correct violations of construction-related accessibility standards including, without limitation, any violations disclosed by such CASp inspection; and (E) if such CASp inspection identifies any improvements, alterations, modifications and/or repairs necessary to correct violations of construction-related accessibility standards relating to those items of the Building and Project located outside the Premises that are Landlord's obligation to repair as set forth in this Lease, then Landlord shall perform such improvements, alterations, modifications and/or repairs as and to the extent required by Legal Requirements to correct such violations, and Tenant shall reimburse Landlord for the cost of such improvements, alterations, modifications and/or repairs within 10 business days after Tenant's receipt of an invoice therefor from Landlord. Landlord and Tenant expressly acknowledge and agree that the foregoing provisions of this Section 42(p) shall apply only in the event that Tenant elects to obtain a CASp inspection.

(q) **Shuttle Services**. Landlord and affiliates of Landlord plan to provide a campus shuttle service for the Project and other buildings in the vicinity of the Project that are owned by affiliates of Landlord (the "**Shuttle Service**"); provided, however, that neither Landlord nor any affiliate of Landlord shall be obligated to provide the Shuttle Service (or, once the Shuttle Service has commenced, to continue providing the Shuttle Service for any specific period of time) or to cause the Shuttle Service to follow any specific route, make any specific stops, or adhere to any specific schedule or hours of operation. If Landlord and affiliates of Landlord actually commence operation of the Shuttle Service, (i) Landlord shall give Tenant written notice of the date such operation will commence ("**Shuttle Services Commencement Date**") and the planned route, stops, schedule, and hours of operation, (ii) Landlord shall permit Tenant's employees actually employed at the Project to use the Shuttle Service, and (iii) regardless of whether Tenant's employees use the Shuttle Services, commencing on later to occur of (x) the Shuttle Services Commencement Date, or the Commencement Date, through the earlier of the expiration of the Term or the date that Landlord permanently ceases to provide Shuttle Service, Operating Expenses shall include the cost of provision the Shuttle Service, subject to the terms of Section 5 (the "**Shuttle Service Costs**"). Tenant acknowledges and agrees that Landlord has not made any representations or warranties regarding the commencement or continued availability of the Shuttle Service and that Tenant is not entering into this Lease with an expectation that the Shuttle Service shall commence or continue to be available to Tenant throughout the Term.

(r) **Counterparts**. This Lease may be executed in 2 or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Counterparts may be delivered via facsimile, electronic mail (including pdf or any electronic signature process complying with the U.S. federal ESIGN Act of 2000) or other transmission method and any counterpart so delivered shall be deemed to have been duly and validly delivered and be valid and effective for all purposes. Electronic signatures shall be deemed original signatures for purposes of this Lease and all matters related thereto, with such electronic signatures having the same legal effect as original signatures.

(s) **Services**. Landlord has engaged the services of an operator (together with its successors and/or assigns, the "**Operator**") to provide certain services ("**Services**") in connection with the operation of the Project. Tenant shall enter into a separate agreement with the Operator on the Operator's standard form for such Services to be provided to Tenant at Project.

[Signatures on next page]

IN WITNESS WHEREOF, Landlord and Tenant have executed this Lease as of the day and year first above written.

TENANT:

GRAPHITE BIO, INC.,
a Delaware corporation

By: /s/ Katherine Stultz
Its: COO
27-Jan 2021

By: _____
Its: _____

LANDLORD:

ARE-SAN FRANCISCO NO. 65, LLC,
a Delaware limited liability company

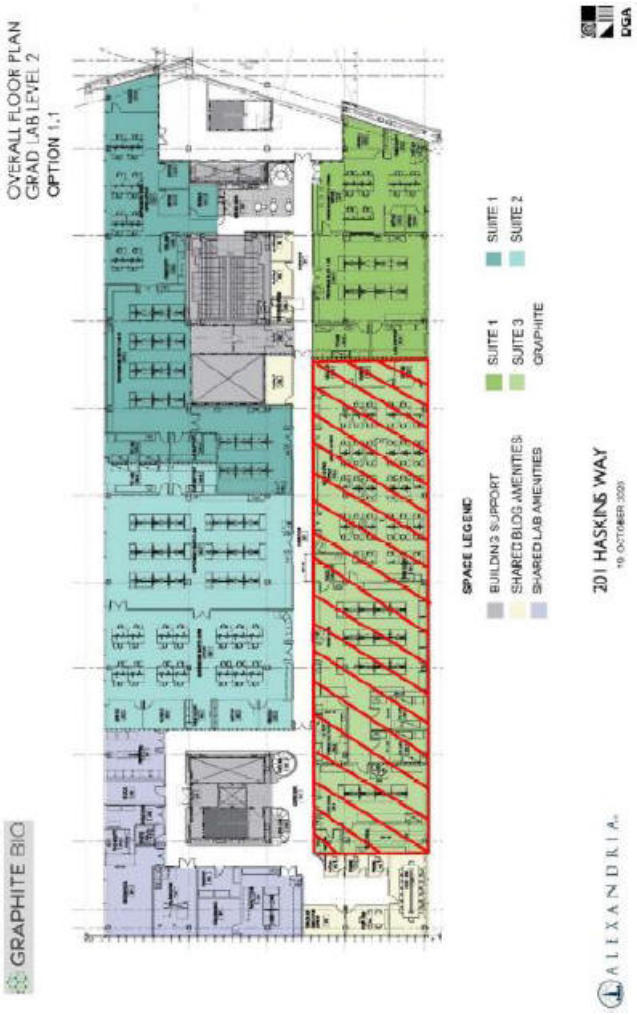
By: ALEXANDRIA REAL ESTATE EQUITIES, L.P.,
a Delaware limited partnership,
managing member

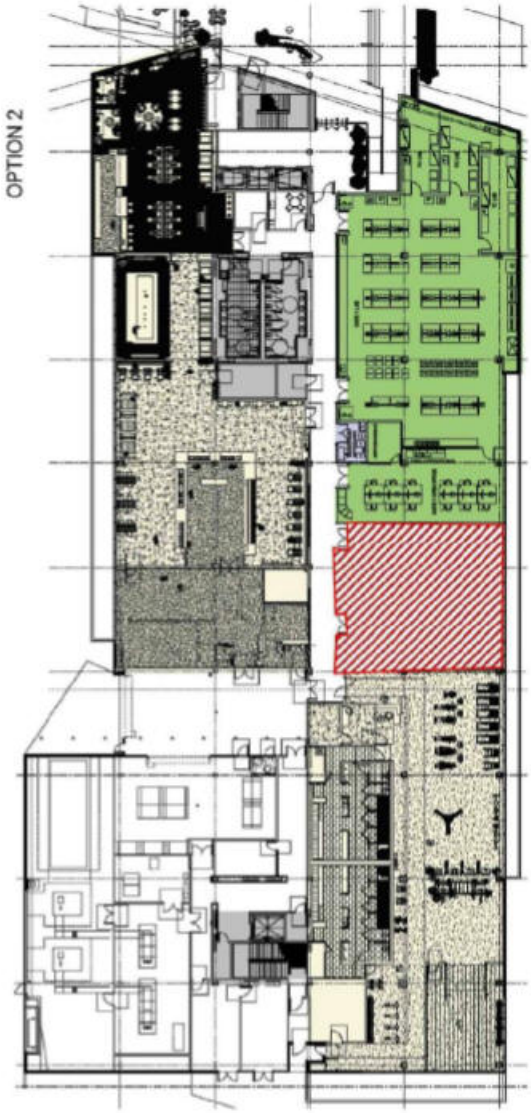
By: ARE-QRS CORP.,
a Maryland corporation,
general partner

By: /s/ Kristen Childs
Its: Vice President RE Legal Affairs

EXHIBIT A TO LEASE

DESCRIPTION OF PREMISES





ALEXANDRIA.

EXHIBIT B TO LEASE

DESCRIPTION OF PROJECT

Real property in the City of South San Francisco, County of San Mateo, State of California, described as follows:

Parcel 4, as shown on the Parcel Map filed on June 7, 1979 in Book 47 of Parcel Maps at Pages 4 and 5, San Mateo County Records.

APN: 015-102-230

EXHIBIT C TO LEASE

SPACE PLAN

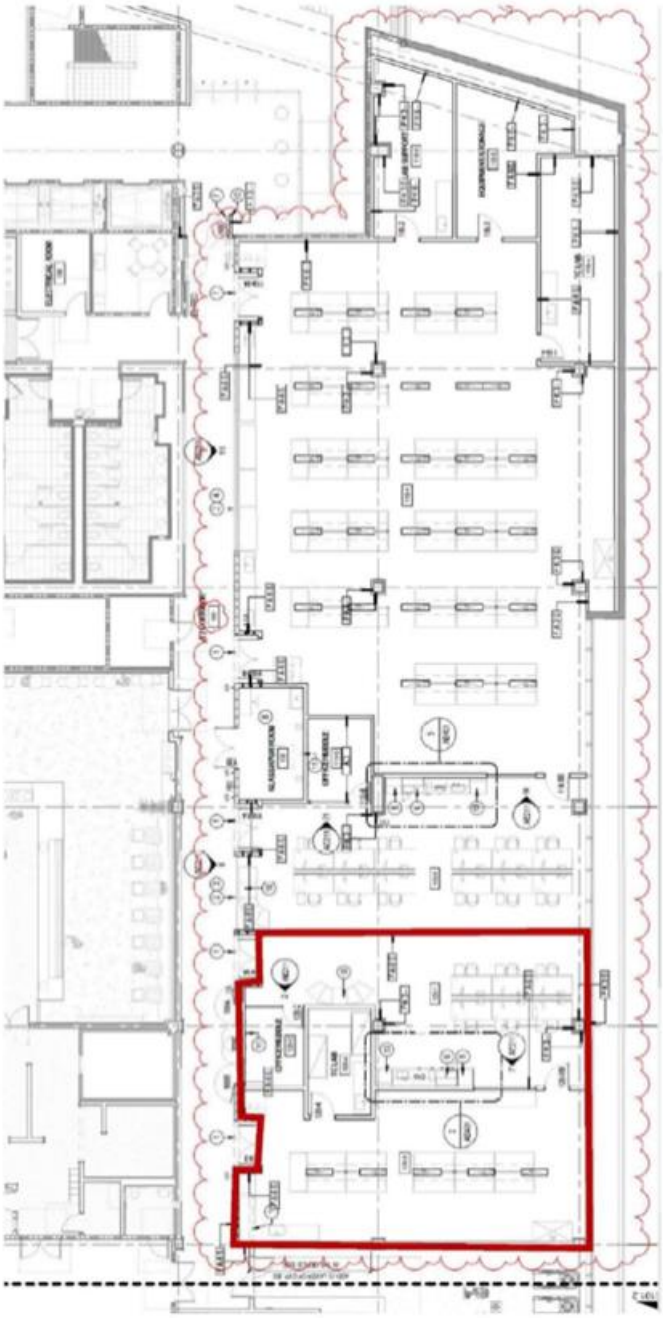


EXHIBIT D TO LEASE

ACKNOWLEDGMENT OF COMMENCEMENT DATE

This **ACKNOWLEDGMENT OF COMMENCEMENT DATE** is made this ____ day of _____, _____, between **ARE-SAN FRANCISCO NO. 65, LLC**, a Delaware limited liability company ("**Landlord**"), and **GRAPHITE BIO, INC.**, a Delaware corporation ("**Tenant**"), and is attached to and made a part of the Lease dated _____,_____ (the "**Lease**"), by and between Landlord and Tenant. Any initially capitalized terms used but not defined herein shall have the meanings given them in the Lease.

Landlord and Tenant hereby acknowledge and agree, for all purposes of the Lease, that the Commencement Date of the Base Term of the Lease is _____, _____, and the termination date of the Base Term of the Lease shall be midnight on _____, _____. In case of a conflict between the terms of the Lease and the terms of this Acknowledgment of Commencement Date, this Acknowledgment of Commencement Date shall control for all purposes.

IN WITNESS WHEREOF, Landlord and Tenant have executed this ACKNOWLEDGMENT OF COMMENCEMENT DATE to be effective on the date first above written.

TENANT:

GRAPHITE BIO, INC.,
a Delaware corporation

By:_____
Its:_____

By:_____
Its:_____

LANDLORD:

ARE-SAN FRANCISCO NO. 65, LLC,
a Delaware limited liability company

By: ALEXANDRIA REAL ESTATE EQUITIES, L.P.,
a Delaware limited partnership,
managing member

By: ARE-QRS CORP.,
a Maryland corporation,
general partner

By:_____
Its:_____

EXHIBIT E TO LEASE

Rules and Regulations

1. The sidewalk, entries, and driveways of the Project shall not be obstructed by Tenant, or any Tenant Party, or used by them for any purpose other than ingress and egress to and from the Premises.

2. Except as otherwise expressly provided in the Lease, Tenant shall not place any objects, including antennas, outdoor furniture, etc., in the parking areas, landscaped areas or other areas outside of its Premises, or on the roof of the Project.

3. Except for animals assisting the disabled or animals being trained to assist the disabled, no animals shall be allowed in the offices, halls, or corridors in the Project.

4. Tenant shall not disturb the occupants of the Project or adjoining buildings by the use of any radio or musical instrument or by the making of loud or improper noises.

5. If Tenant desires telegraphic, telephonic or other electric connections in the Premises, Landlord or its agent will direct the electrician as to where and how the wires may be introduced; and, without such direction, no boring or cutting of wires will be permitted. Any such installation or connection shall be made at Tenant's expense.

6. Tenant shall not install or operate any steam or gas engine or boiler, or other mechanical apparatus in the Premises, except as specifically approved in the Lease. The use of oil, gas or inflammable liquids for heating, lighting or any other purpose is expressly prohibited. Explosives or other articles deemed extra hazardous shall not be brought into the Project.

7. Parking any type of recreational vehicles is specifically prohibited on or about the Project. Except for the overnight parking of operative vehicles, no vehicle of any type shall be stored in the parking areas at any time. In the event that a vehicle is disabled, it shall be removed within 48 hours. There shall be no "For Sale" or other advertising signs on or about any parked vehicle. All vehicles shall be parked in the designated parking areas in conformity with all signs and other markings. All parking will be open parking, and no reserved parking, numbering or lettering of individual spaces will be permitted except as specified by Landlord.

8. Tenant shall maintain the Premises free from rodents, insects and other pests.

9. Landlord reserves the right to exclude or expel from the Project any person who, in the judgment of Landlord, is intoxicated or under the influence of liquor or drugs or who shall in any manner do any act in violation of the Rules and Regulations of the Project.

10. Tenant shall not cause any unnecessary labor by reason of Tenant's carelessness or indifference in the preservation of good order and cleanliness. Landlord shall not be responsible to Tenant for any loss of property on the Premises, however occurring, or for any damage done to the effects of Tenant by the janitors or any other employee or person.

11. Tenant shall give Landlord prompt notice of any defects in the water, lawn sprinkler, sewage, gas pipes, electrical lights and fixtures, heating apparatus, or any other service equipment affecting the Premises.

12. Tenant shall not permit storage outside the Premises, including without limitation, outside storage of trucks and other vehicles, or dumping of waste or refuse or permit any harmful materials to be placed in any drainage system or sanitary system in or about the Premises.

13. All moveable trash receptacles provided by the trash disposal firm for the Premises must be kept in the trash enclosure areas, if any, provided for that purpose.

14. No auction, public or private, will be permitted on the Premises or the Project.

15. No awnings shall be placed over the windows in the Premises except with the prior written consent of Landlord.

16. The Premises shall not be used for lodging, sleeping or cooking or for any immoral or illegal purposes or for any purpose other than that specified in the Lease. No gaming devices shall be operated in the Premises.

17. Tenant shall ascertain from Landlord the maximum amount of electrical current which can safely be used in the Premises, taking into account the capacity of the electrical wiring in the Project and the Premises and the needs of other tenants, and shall not use more than such safe capacity. Landlord's consent to the installation of electric equipment shall not relieve Tenant from the obligation not to use more electricity than such safe capacity.

18. Tenant assumes full responsibility for protecting the Premises from theft, robbery and pilferage.

19. Tenant shall not install or operate on the Premises any machinery or mechanical devices of a nature not directly related to Tenant's ordinary use of the Premises and shall keep all such machinery free of vibration, noise and air waves which may be transmitted beyond the Premises.

20. Tenant shall cause any vendors and other service providers hired by Tenant to perform services at the Premises or the Project to maintain in effect workers' compensation insurance as required by Legal Requirements and commercial general liability insurance with coverage amounts reasonably acceptable to Landlord. Tenant shall cause such vendors and service providers to name Landlord and Alexandria Real Estate Equities, Inc. as additional insureds under such policies and shall provide Landlord with certificates of insurance evidencing the required coverages (and showing Landlord and Alexandria Real Estate Equities, Inc. as additional insureds under such policies) prior to the applicable vendor or service provider providing any services to Tenant at the Project.

21. Neither Tenant nor any of the Tenant Parties shall have the right to photograph, videotape, film, digitally record or by any other means record, transmit and/or distribute any images, pictures or videos of all or any portion of the Premises or the Project that could identify the Project or the name of the Project, or that identify Landlord or any other tenants or any affiliates of Landlord or any other tenants. The foregoing is not meant to prohibit individual employees from taking and disseminating photos of themselves or other people within the Premises or at the Project or prohibit Tenant from taking pictures of its employees or work so long as neither the Building nor any proprietary information, equipment or improvements of Landlord are included within such photos.

22. Tenant shall regularly review the guidelines published by the Centers for Disease Control (CDC) and any state and/or local Governmental Agencies, and will implement the practices and procedures required thereby and, to the extent reasonably practicable, the practices and procedures suggested thereby, as well as industry standard best practices, to prevent the spread of Infectious Conditions, including, without limitation, COVID-19.

23. Landlord shall have the right, provided that such requirements to not contravene applicable Legal Requirements, to (a) require tenants to implement and enforce reasonable screening and tracking protocols intended to identify and track the activity at the Project of their employees, agents, contractors and visitors seeking access to or accessing the Premises and or the Project exhibiting flu-like symptoms or symptoms consistent with those associated with any currently known or unknown Infectious Conditions including, without limitation, COVID-19 (collectively, "**Symptoms**"), (b) require tenant employees, agents,

contractors and visitors to comply with reasonable screening and tracking protocols implemented by Landlord, Landlord's property manager and/or any operator of Project Amenities, intended to identify and track the activity at the Project of individuals seeking access to or accessing the Premises or the Project (including the Project Amenities) exhibiting Symptoms, (c) require tenants to implement and enforce protocols to prohibit employees, agents, contractors and visitors exhibiting Symptoms, from accessing the Premises and/or the Project, (d) require tenants to immediately report to Landlord incidences of (i) tenant employees, agents, contractors and visitors accessing the Premises or any portion of the Project while exhibiting Symptoms, and/or (ii) tenant employees, agents, contractors and visitors known to have accessed the Premises or the Project being diagnosed with an Infectious Condition including, without limitation, COVID-19.

24. Landlord may exclude or expel from the Project any person that has Symptoms associated with any currently known or unknown Infectious Condition including, without limitation, COVID-19.

25. Notwithstanding anything to the contrary contained herein, if, at any time during the Term, Landlord becomes aware that any Tenant Party exhibiting Symptoms (that is subsequently diagnosed with an Infectious Condition) and/or a Tenant Party diagnosed with an Infectious Condition accessed the Premises or any portion of the Project (including, without limitation, the Project Amenities), Tenant shall be responsible for any deep cleaning required within the Premises and any reasonable costs incurred by Landlord to perform additional or deep cleaning of the applicable portion of the Common Areas of the Project or to take other measures deemed reasonably necessary or prudent by Landlord which are intended to limit the spread of such Infectious Condition due to such Tenant Party's presence at the Project.

EXHIBIT F TO LEASE

TENANT'S PERSONAL PROPERTY

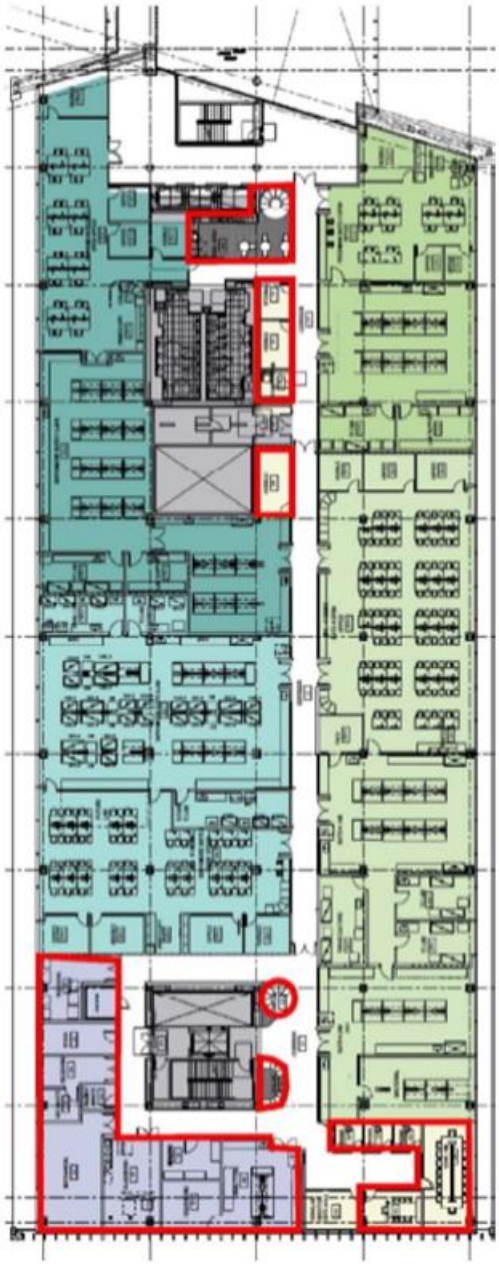
None.

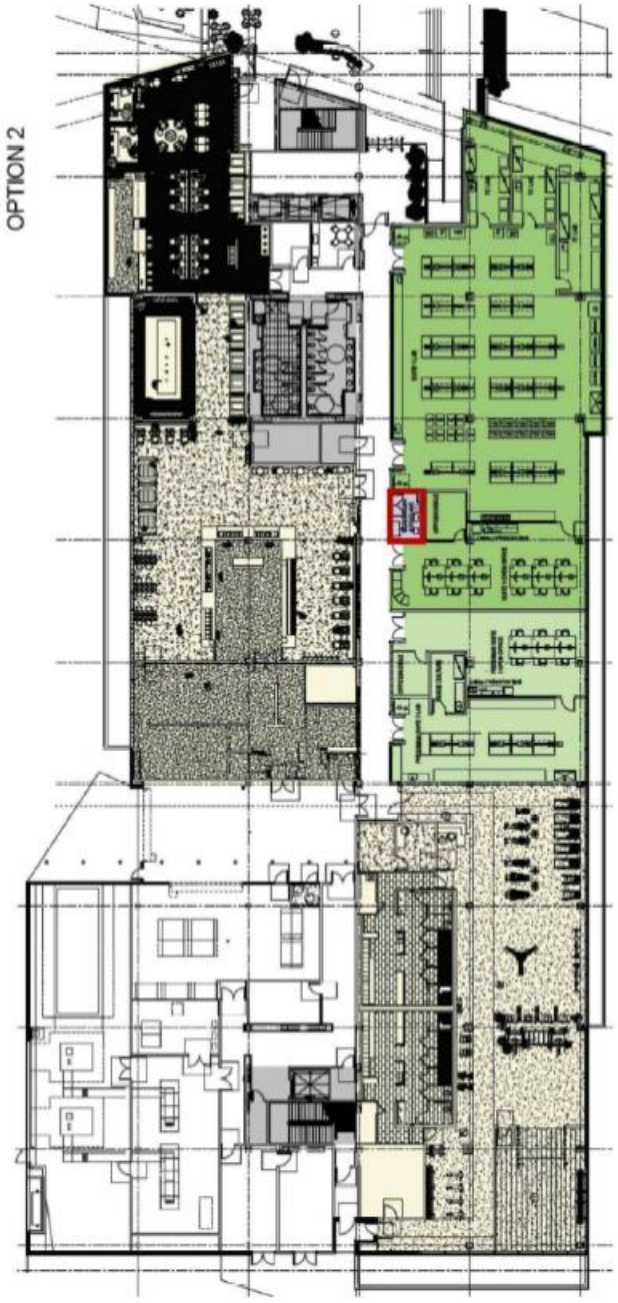
EXHIBIT G TO LEASE

INTENTIONALLY OMITTED

EXHIBIT H TO LEASE

SHARED LAB AREA





[***] Certain information in this document has been omitted from this exhibit pursuant to Item 601(b) of RegulationS-K because it is not material.

EXCLUSIVE LICENSE AGREEMENT

This Agreement ("**Agreement**") between THE BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY ("**Stanford**"), an institution of higher education having powers under the laws of the State of California, and Graphite Bio, Inc. ("**Graphite**"), a Delaware corporation having a principal place of business at 279 East Grand Ave., South San Francisco, CA 94080, is effective on the 7th day of December, 2020 ("**Effective Date**").

1. BACKGROUND

Stanford has an assignment of an invention entitled "[***]," which was invented in the laboratory of Professor Matthew Porteus (Principal Investigator) ("**Porteus Lab**") and is described in Stanford Docket [***].

The invention described in Stanford Docket [***] is co-owned by Stanford [***] and was made in the course of research supported by the National Institute of Health, Amon G. Carter Foundation, Danish Council for Independent Research, and Myotonic Dystrophy Foundation.

The development of know-how and data associated with Technology (as defined below) associated with Sickle cell andSCID-X indications was supported by the California Institute for Regenerative Medicine (CIRM).

Stanford wants to have the aforementioned invention perfected and marketed as soon as possible so that resulting products may be available for public use and benefit.

Concurrently with the execution of this Agreement, Graphite is obtaining an exclusive option to license certain additional inventions developed in the Porteus Lab (the "**Graphite Option**") and, upon the exercise of such Graphite Option, such inventions would be included in the Licensed Patents and Technology licensed to Graphite under this Agreement and the Parties would memorialize such inclusion via an amendment to this Agreement.

The aforementioned inventions are covered by the Licensed Patents and Technology and Graphite desires to obtain a commercial license to Stanford's rights in such Licensed Patents and Technology, and Stanford is willing to grant Graphite such a license in accordance with the terms and conditions of this Agreement.

2. DEFINITIONS

Whenever used in this Agreement with an initial capital letter, the following terms, whether used in the singular or the plural, shall have the meanings specified below.

2.1 "**Affiliate**" means any person, corporation, or other business entity which controls, is controlled by, or is under common control with Graphite; and for this purpose, "control" of a corporation means the direct or indirect ownership of more than fifty percent (50%) of its voting stock, and "control" of any other business entity means the direct or indirect ownership of greater than a fifty percent (50%) of the equity interests in such entity with the power to direct the management and policies of such entity. A person or entity shall be deemed an Affiliate only for so long as such control exists.

2.2 "**Change of Control**" means the first to occur of the following, as applied only to the entirety of that part of Graphite's business that exercises all of the rights granted under this Agreement:

(A) acquisition of ownership—directly or indirectly, beneficially or of record—by any person or group (within the meaning of the Exchange Act and the rules of the SEC or equivalent body under a different jurisdiction) of the capital stock of Graphite representing more than 50% of either the aggregate ordinary voting power or the aggregate equity value represented by the issued and outstanding capital stock of Graphite; and/or

(B) the sale conveyance or other disposition of all or substantially all Graphite's assets and/or business in one transaction or in a series of related transactions, in each case that triggers the liquidation preference of the preferred stock.

Notwithstanding the foregoing, any transaction or series of transactions effected for the primary purpose of financing Graphite's operations, changing the form or jurisdiction of organization of Graphite, or offering shares of the Graphite's stock for public trading on a securities exchange will not be treated as a "Change of Control" for purposes of this Agreement.

2.3 "**Exclusive**" means that, subject to Sections 3 and 5, Stanford will not grant further licenses to a commercial entity under the Licensed Patents and Technology in the Initial Field of Use in the Licensed Territory.

2.4 "**First Commercial Sale**" means, with respect to a Licensed Product, the first transfer or sale of such Licensed Product, for value, by Graphite, its Affiliates or a Sublicensee, to a Third Party for distribution to or use by an end user customer, after receipt of regulatory approval for such Licensed Product. Sales or transfers between and among Graphite and its Affiliates or Sublicensees unless the Affiliate or Sublicensee is the last entity in the distribution chain or end user of the Licensed Product and such sale or transfer is above cost, and sales or transfers at or below cost for *bona fide* (a) clinical studies, (b) experimental use, and (c) compassionate use exemptions or similar charitable purposes shall not be deemed a First Commercial Sale.

2.5 "**Fully-Diluted Basis**" means the total number of shares of Graphite's issued and outstanding common stock, assuming:

(A) the conversion of all issued and outstanding securities convertible into common stock;

(B) the exercise of all issued and outstanding warrants or options, regardless of whether then exercisable; and

(C) the issuance, grant, and exercise of all securities reserved for issuance pursuant to any Graphite stock or stock option plan then in effect.

2.6 "**Initial Field of Use**" means human prophylactics and therapeutics, specifically excluding commercialization of research reagents and research products, solely for the following indications:

(A) sickle cell disease (the "**Sickle Cell Disease Field of Use**");

(B) X-linked severe combined immunodeficiency (SCID-X) (the "**SCID-X Field of Use**");

(C) beta thalassemia (the "**Beta Thalassemia Field of Use**"); and

Stanford and Graphite acknowledge that the list of indications included in the Initial Field of Use may be expanded upon Graphite's exercise of the Graphite Option and a resulting amendment to this Agreement.

2.7 "**Licensed Patents**" means Stanford's rights in (a) the patent applications and patents set forth in Exhibit A, (b) any U.S. or foreign patent application corresponding to the applications listed in the preceding clause (a), and (c) any conversion, substitution, divisional, continuation, continuation-in-part, provisional, converted provisional, continued prosecution, reexamination or extension application of any of the applications listed in the preceding clauses (a) or (b), and (d) each patent that claims priority to or issues or reissues from any of the patent applications listed in the preceding clauses (a), (b) or (c), including utility models, petty patents, design patents and certificates of invention, and any reissue, renewal, restoration, reexamination, substitution, supplementary protection certificate or extension of such patent. For the purposes of this Section 2.7, "continuation-in-part" means those claims of a continuation-in-part patent application that are directed to subject matter specifically described in and supported by the parent application's original specification and entitled to the parent applications' priority date.

2.8 "**Licensed Product**" means a product, method or service in the Initial Field of Use:

(A) the making, having made, using, importing or selling of which, absent this license, infringes, induces infringement, or contributes to infringement of a Licensed Patent; or

(B) which is made with, uses or incorporates any Technology.

2.9 "**Licensed Territory**" means worldwide.

2.10 "**Net Sales**" means, with respect to a Licensed Product, the gross revenue derived by Graphite or its Affiliates or Sublicensees (each, a "**Selling Party**") on the sale, transfer or other disposition of such Licensed Product to Third Parties (including but not limited to any distributors), less the following items to the extent included in gross revenue and specifically allocated to such sale, transfer or other disposition of such Licensed Product and actually taken, paid, accrued, allowed, included or allocated consistent with such Selling Party's practice and applicable accounting standards, consistently applied:

(A) non-recoverable sales taxes, excise taxes, use taxes, VAT and duties and any other equivalent governmental charges imposed upon the importation, use or sale of Licensed Product(s), but expressly excluding taxes when assessed on income derived from sales;

(B) credits or allowances on account of retroactive price reductions, price adjustments, recalls, claims, damaged goods, rejections or returns (including in connection with recalls or withdrawals);

(C) amounts written off by reason of uncollectible debt, provided that reasonable and customary efforts were used to collect such debts and if the debt is thereafter paid, the corresponding amount shall be added to the Net Sales for the period during which it is collected;

(D) governmental and other rebates, refunds, and chargebacks (or equivalents thereof) granted to managed health care organizations, pharmacy benefit managers (or equivalents thereof), federal, state, provincial, local and other governments, their agencies and purchasers and reimbursers or to trade customers;

(E) freight or other transportation charges, insurance charges, inventory management fees, and additional special packaging charges;

(F) other governmental charges actually paid; and

(G) customary trade, cash, prompt payment or quantity discounts, and mandated discounts.

For the avoidance of doubt, if a single item falls into more than one of the categories set forth in clauses (A)—(G) above, such item may not be deducted more than once.

Net Sales will be determined from books and records maintained in accordance with applicable accounting standards (e.g., GAAP), consistently applied throughout the organization and across all products of the applicable Selling Party.

If a sale, transfer or other disposition with respect to a Licensed Product involves consideration other than cash or is not at arm's length, then the Net Sales from such sale, transfer or other disposition will be calculated based on the average Net Sales price of the Licensed Product in arm's length sales for cash in the relevant country during the same calendar quarter as such sale, transfer or other disposition.

Solely for purposes of calculating Net Sales, if the Selling Party sells a Licensed Product in the form of a combination product containing both the Licensed Product and one or more other active ingredients (whether combined in a single formulation or package, as applicable, or formulated separately but packaged under a single label and sold together for a single price) (a "**Combination Product**") (but not a excipient, coating, capsule or

other non-proprietary formulation or off-the shelf delivery system), Net Sales of such Combination Product for the purpose of determining the payments due to Stanford pursuant to this Agreement will be calculated by multiplying actual Net Sales of such Combination Product as determined above by the fraction A/(A+B) where A is the invoice price of such Licensed Product in a country, if sold separately, and B is the total of the invoice price(s) of the other active ingredient(s) in the Combination Product in such country, if sold separately.

In the event that the Selling Party sells the Licensed Product included in a Combination Product as a separate product in a country, but does not separately sell all of the other active ingredient(s), as the case may be, included in such Combination Product in such country, the calculation of Net Sales resulting from such sale shall be determined by multiplying the actual Net Sales of such Combination Product as determined above by the fraction A/C where A is the invoice price of such Licensed Product, if sold separately, and C is the invoice price charged by the Selling Party, in such country for the entire Combination Product.

In the event that a Selling Party does not sell the Licensed Product included in a Combination Product as a separate product in the country where such sale of Combination Product occurs, but does separately sell all of the other active ingredient(s), as the case may be, included in the sale of such Combination Product in such country, the calculation of Net Sales resulting from such sale shall be determined by multiplying the actual Net Sales of such Combination Product as determined above by the fraction (C-D)/C, where C is the invoice price of the entire Combination Product in such country, and D is the aggregate of the invoice price of such other active ingredient(s), as the case may be, included in the Combination Product if sold separately in such country by the Selling Party.

[***].

Notwithstanding any of the above, to be a Combination Product, the Combination Product and all its active ingredient(s) must be sold together as a single product and invoiced as one product and Graphite shall in all cases provide detailed information to Stanford to fully support the Net Sales calculations of Combination Products.

Sales of Licensed Product(s) between or among a Selling Party and its Affiliates or Sublicensees shall be excluded from the computation of Net Sales and no payments shall be payable on such sales except where such Affiliates or Sublicensees are end users. A Licensed Product will not be deemed to be sold if the Licensed Product is provided free of charge to a Third Party in reasonable and customary quantities as a sample consistent with industry standard promotional and sample practices. For the avoidance of doubt, sales of a Licensed Product at or below cost for use in conducting clinical trials shall be excluded from Net Sales calculations for all purposes. Also, notwithstanding anything to the contrary above, sales of a Licensed Product for any compassionate use, named patient sales, or treatment IND sales or pursuant to a pharmaceutical access program in non-OECD countries shall be excluded from Net Sales calculations (“Exempt Licensed Products”). Any such Exempt Licensed Products must have been provided at or below cost. In all cases, Exempt Licensed Products must be reported on the royalty report due to Stanford.

2.11 "**Nonroyalty Sublicensing Consideration**" means all consideration received by Graphite from any Sublicensee hereunder in consideration for a Sublicense, but excluding any consideration that is attributable to any of the following to the extent that each is *bona fide*:

(A) earned royalties on Licensed Product sales;

(B) investments in Graphite stock or other securities, other than any portion of such investments in excess of the fair market value of such securities (which portion shall be included in Nonroyalty Sublicensing Consideration);

(C) payments for documented research, development and manufacturing expenses incurred for research, development and/or manufacturing of Licensed Product after the effective date of the Sublicense, to the extent of Graphite's fully burdened costs;

(D) debt financing;

(E) reimbursement of costs and expenses incurred for the filing, prosecution, maintenance, enforcement and defense of intellectual property rights directly related to Licensed Patents;

(F) the portion of any payment made upon achievement of milestones that are the same or substantially the same as ones for which a payment is due under this Agreement up to the milestone payment amount due under this Agreement. However, the applicable Nonroyalty Sublicensing Consideration percentage shall apply in such case to any amount received by Graphite that exceeds the amount of the milestone payment required to be made to Stanford for the equivalent milestone. For example, [***];

(G) Profit Sharing Income received under a profit-sharing arrangement, where "**Profit Sharing Income**" means amounts received by Graphite under an agreement between Graphite and a Sublicensee under which Graphite or its Affiliate is funding a share of the development of the Licensed Product after a Sublicense has been granted and receives a reasonably proportionate share of net profit from such Sublicensee specifically resulting from any actual sales of Licensed Products but will include any milestone payments based on achievement of designated net sales levels; and

(H) payments in connection with a Change of Control of Graphite provided there's no Sublicense granted as part of the Change of Control transaction to the acquirer in such transaction or its Affiliates.

2.12 "**Rx Field of Use**" means human prophylactics and therapeutics outside the Initial Field of Use, excluding commercialization of research reagents and research products.

2.13 "**Stanford Indemnitees**" means Stanford, Stanford Health Care and Lucile Packard Children's Hospital at Stanford and their respective trustees, officers, employees, students, agents, faculty, representatives, and volunteers.

2.14 "**Sublicense**" means any agreement between Graphite and a Third Party or between any Sublicensee and a Third Party under which such Third Party is granted any rights to Stanford's interest in the Licensed Patents and/or Technology under the license granted by Stanford to Graphite under Article 3, regardless of the name given to the agreement by the parties.

2.15 "**Sublicensee**" means any Third Party which enters into a Sublicense, for so long as such Sublicense remains in effect.

2.16 "**Technology**" means Stanford's rights in the additional know-how, data and materials specifically listed in Appendix C or as appended by the mutual written agreement of the parties [***], as provided by Stanford to Graphite that: (a) was developed in the laboratory of Principal Investigator, (b) exists as of or is developed [***] and for which Stanford has received a consent in writing from Dr. Matthew Porteus and/or other lead contributors, (c) is necessary or useful for research, development or commercialization of Licensed Products, (d) is unpublished, and (e) is not covered by any Third Party rights that would prevent delivery to Graphite. Technology may or may not be confidential in nature.

2.17 "**Third Party**" means any person or entity other than Stanford, Graphite or Graphite's Affiliates.

2.18 "**Valid Claim**" means, with respect to a particular country, any claim of any pending Licensed Patent application or an issued and unexpired Licensed Patent in such country that (a) has not been revoked or held unenforceable or invalid by a decision of a court or governmental agency of competent jurisdiction, which decision is unappealable or unappealed within the time allowed for appeal and (b) has not been abandoned, disclaimed, denied or admitted to be invalid or unenforceable through reissue or disclaimer or otherwise in such country. Notwithstanding the foregoing, on a country-by-country basis, a claim of a pending Licensed Patent application pending for more than [***] from the date of receipt of first office action will not be considered a Valid Claim for purposes of this Agreement unless and until such claim issues after which it will be considered a Valid Claim.

3. GRANT

3.1 **Grant.** Subject to the terms and conditions of this Agreement, Stanford grants Graphite (a) a license to Stanford's rights in the Licensed Patents and Technology in the Initial Field of Use to make, have made, use, have used, sell, have sold, offer for sale, import, have imported and export Licensed Products in the Licensed Territory and (b) a license to Stanford's rights in the Technology in the Rx Field of Use to make, have made, use, have used, sell, have sold, offer for sale, import, have imported and export Licensed Products in the Licensed Territory. The Parties acknowledge and agree that "use" includes research and development.

3.2 **Exclusivity.** The license to the Licensed Patents, including the right to sublicense under Section 3.6 is Exclusive in the Initial Field of Use beginning on the Effective Date and ending, on a country-by-country basis, on the expiration of the last-to-expire Valid Claim included in the Licensed Patents in such country. The license to the Technology indicated as Exclusive under the heading "Exclusivity" in Appendix C, including the right to sublicense under Section 3.6, is (a) Exclusive in the Initial Field of Use beginning on the Effective Date and ending on the expiration of the Royalty Term for all Licensed Products in all countries of the Licensed Territory and (b) non-exclusive in the Rx Field of Use. The license to the Technology indicated as Non-Exclusive under the heading "Exclusivity" in Appendix C is non-exclusive in the Initial Field of Use and Rx Field of Use. After the expiration of the Royalty Term for all Licensed Products in all countries of the Licensed Territory but not upon Termination in accordance with Sections 15.2 and 15.3, the licenses granted under Section 3.1 shall be perpetual, irrevocable, non-exclusive, and fully paid up. Except as expressly provided in Section 3.1 and this Section 3.2, Graphite understands and agrees that no other rights are being granted to Licensed Patents, or any other intellectual property owned or controlled by Stanford, either expressly or by implication, estoppel or otherwise.

3.3 **Retained Rights.** Stanford retains the right, on behalf of itself, Stanford Health Care, Lucile Packard Children's Hospital at Stanford and all other non-profit research institutions, to practice the Licensed Patents and use Technology in the Initial Field of Use for anynon-profit purpose, including sponsored research and collaborations. Graphite agrees that, notwithstanding any other provision of this Agreement, it has no right to enforce the Licensed Patents or Technology against any such institution. Stanford and any such other institution have the right to publish any information included in the Technology or a Licensed Patent or any other information that may result from further research. For the avoidance of doubt, Stanford is free to exploit Licensed Patents and Technology outside the Initial Field of Use and allow others to do so subject to Graphite's exclusive rights under this Section 3.

3.4 **Specific Exclusion.** Stanford does not:

(A) grant to Graphite any other licenses, implied or otherwise, to any patents or other rights of Stanford other than those rights granted under the Licensed Patents and the Technology, regardless of whether the patents or other rights are dominant or subordinate to any Licensed Patent, or are required to exploit any Licensed Patent or Technology;

(B) commit to Graphite to bring suit against third parties for infringement, except as described in Section 14; and

(C) agree to furnish to Graphite any technology or technological information other than the Technology or to provide Graphite with any assistance.

3.5 **Affiliates**. Graphite may exercise its rights and fulfill all or any part of its obligations under this Agreement through its Affiliates, and Graphite's Affiliates shall have the same rights under this Agreement (including the right to grant Sublicenses, as set forth in Article IV) as the rights granted to Graphite. Any such Affiliates shall exercise such rights and perform such obligations in accordance with the terms and conditions of this Agreement, to the extent applicable to such exercise or performance, and Graphite shall be responsible and liable for the performance, or failure to perform, of its Affiliates under this Agreement.

3.6 **Technology Transfer**. During the [***], Stanford shall update Appendix C to add any additional Technology disclosed to its Office of Technology Licensing by Dr. Matthew Porteus in the form of an amended Appendix C to be signed by both parties. Stanford shall deliver such Technology to Graphite through physical transfer, communications by Dr. Matthew Porteus or members of the Porteus Lab or other means, as may be determined necessary or appropriate. Stanford and Graphite acknowledge and agree that certain of the Technology listed in Appendix C as of the Effective Date may have been disclosed to Graphite prior to the Effective Date by Matthew Porteus or members of the Porteus Lab, including former members [***] employed by Graphite as of the Effective Date. Stanford and Graphite agree that such prior disclosure shall be deemed a disclosure hereunder and shall satisfy the obligations of Stanford hereunder with respect to such Technology.

4. SUBLICENSING

4.1 **Permitted Sublicensing.**

(A) Graphite may grant Sublicenses, including through multiple tiers, in the Initial Field of Use and Licensed Territory only during the Exclusive term and only if Stanford has not notified Graphite of a breach of its diligence obligations under Section 6.1 or such breach has been cured. Graphite will remain responsible for its obligations under this Agreement, including but not limited to the diligence requirements listed in Appendix A, to the extent such obligations are not fulfilled by Graphite's Affiliate or a Sublicensee.

(B) Graphite also may grant Sublicenses, including through multiple tiers, in the Rx Field of Use and Licensed Territory. Such Sublicenses may be exclusive as to Graphite but shall only sublicense such non-exclusive rights as Graphite has been granted by Stanford hereunder.

(C) Any Sublicense must be entered into in an arms-length transaction. Graphite will be responsible for the acts or omissions of its Sublicensees in connection with their performance under any Sublicense as though such acts or omissions were those of Graphite under this Agreement. A grant of rights to a Third Party solely to enable such Third Party to perform services on behalf of Graphite or its Affiliate shall not be considered a Sublicense, and such Third Party shall not be considered a Sublicensee solely on account of receiving such grant of rights.

4.2 **Terms of Nonroyalty Sublicensing Consideration:** Nonroyalty Sublicensing Consideration shall be subject to apportionment in the event that the Licensed Patents and Technology are sublicensed along with patents, or other proprietary technology or intellectual property rights owned or controlled by Graphite. In the event that the geographic scope of a Sublicense includes both (a) countries in which there is a Valid Claim that covers a Licensed Product in such countries and (b) countries in which there is no Valid Claim that covers a Licensed Product, then in addition to the foregoing apportionment provision, Nonroyalty Sublicensing Consideration shall be subject to further apportionment to account for the fact that a Valid Claim exists only in certain countries within the geographic scope of such Sublicense taking into account the market size and importance of geographic scope both in terms of (a) where the Licensed Product is being manufactured and (b) where the Licensed Product is being sold. In order to exercise this apportionment, Graphite shall provide Stanford with the total amount of Nonroyalty Sublicensing Consideration received, the proposed apportionment of such amount, and a reasonably detailed written justification for such proposal within forty-five (45) days of execution of such Sublicense. If the parties are unable to come to an agreement on such apportionment to determine the amount used for the basis of calculating Nonroyalty Sublicensing Consideration sharing hereunder, then the determination of such apportionment shall be subject to the Dispute Resolution process as described in Section 17.

4.3 **Required Sublicensing.** Stanford would like licensees to address unmet needs, such as those of neglected patient populations or geographic areas, giving particular attention to improved therapeutics, diagnostics and agricultural technologies for the developing world.

If a third party notifies Stanford that it wishes to license any of the exclusively Licensed Patents and Technology to meet unmet patient needs in the Initial Field in a country in the developing world, in which country Graphite is unable or unwilling to develop and market a Licensed Product, Stanford will notify Graphite of such third party's wish to obtain such license, and Graphite will have initial, good faith discussions with such third party regarding the terms and conditions under which such Sublicense could be obtained. Graphite will not be obligated to continue such discussions nor to provide such sublicense.

4.4 **Sublicense Requirements.** Any Sublicense:

(A) shall be consistent with the terms of this Agreement;

(B) will require first-tier Sublicensees to provide Graphite with, and require subsequent-tier Sublicensees to provide to the prior-tier Sublicensee, royalty reports containing information sufficient to enable Graphite to fulfill its reporting obligations under Section 8;

(C) will contain disclaimers of representations and warranties on behalf of Stanford, consistent with those set forth in Section 9; and

(D) will contain obligations at least as protective of Stanford as those set forth in Section 10;

(E) will include provisions consistent with the provisions of Section 4.5; and

(F) shall terminate in the event this Agreement terminates in its entirety for any reason; subject to Section 15.5 (Effect of Termination on Sublicenses).

4.5 **[***] by Sublicensee.** Any Sublicense must include provisions that give effect to and are consistent with the following clauses:

(A) In the event Sublicensee [***]:

(1) Sublicensee will [***]; and

(2) Sublicensee will have [***].

(3) Sublicensee shall not have [***].

(B) Sublicensee will provide written notice to Stanford at least [***] prior to [***].

4.6 **Copy of Sublicenses and Sublicensee Royalty Reports.** Graphite will submit to Stanford copies of each Sublicense within 30 days of signing and within thirty 30 days after entering into any subsequent material amendments to any Sublicense, and all copies of Sublicensees' royalty reports, subject in each case to appropriate redactions of information not necessary to determine compliance with this Agreement.. Beginning with the first Sublicense, Graphite's Chief Financial Officer or equivalent will certify annually regarding the name and number of then-current Sublicensees.

4.7 **Sharing of Nonroyalty Sublicensing Consideration.** Graphite will pay to Stanford a portion of all Nonroyalty Sublicensing Consideration, as provided below:

(A) For Sublicenses granting rights under the Licensed Patents and Technology in the Sickle Cell Disease Field of Use:

(1) Prior to [***] – [***]%

(2) After [***], but prior to [***] – [***]%

(3) After [***] but prior to [***] – [***]%

(4) After [***] – [***]%

(B) For Sublicenses granting rights under the Licensed Patents and Technology in the SCID-X Field of Use:

(1) Prior to [***]– [***]%

(2) After [***], but prior to [***] – [***]%

(3) After [***] – [***]%

(C) For Sublicenses granting rights under the Licensed Patents and Technology in the Beta-Thalassemia Field of Use:

(1) Prior to [***] – [***]%

(2) After [***], but prior to [***] – [***]%

(3) After [***] but prior to [***] – [***]%

(4) After [***] – [***]%

(D) For Sublicenses granting rights under the Licensed Patents in more than one field of use within the Initial Field of Use, the applicable percentage of Nonroyalty Sublicense Income that is not explicitly related to a particular field of use shall be the greater of (A), (B), or (C), as applicable to the Sublicense granted.

(E) For Sublicenses granting rights under the Technology in the Rx Field of Use:

(1) Prior to [***] – [***]%

(2) After [***], but prior to [***] – [***]%

(3) After [***] – [***]%

5. GOVERNMENT RIGHTS

This Agreement is subject to Title 35 Sections 200-204 of the United States Code. Among other things, these provisions provide the United States Government with nonexclusive rights in the Licensed Patent. They also impose the obligation that Licensed Product sold or produced in the United States be "manufactured substantially in the United States." Graphite will ensure all obligations of these provisions are met. In addition, due to CIRM funding, this Agreement is subject to Title 17, California Code of Regulations and the provisions of section 100607 under Title 17 place requirements on Graphite for access to Licensed Product in California. Graphite will ensure all obligations of these provisions are met.

6. DILIGENCE

6.1 **Milestones.** Because the invention is not yet commercially viable as of the Effective Date, Graphite, directly or through its Affiliates or Sublicensees, will diligently develop, manufacture, market and sell Licensed Products in each Initial Field of Use. In addition, Graphite will meet the milestones shown in Appendix A, and notify Stanford in writing as each milestone is met.

6.2 **Progress Report.** By March 1 of each year until the First Commercial Sale, Graphite will submit a written annual report to Stanford covering the preceding calendar year. The report will use the template of Appendix D and will include information sufficient to enable Stanford to satisfy applicable reporting requirements of the U.S. Government and CIRM and for Stanford to ascertain progress by Graphite or its Sublicensee toward meeting this Agreement's diligence requirements. Each report will describe, where relevant: Graphite's or its Affiliates or Sublicensee's progress toward commercialization of Licensed Product, including work completed, summary of work-in-progress, current schedule of anticipated events or milestones, market plans for introduction of Licensed Product, and significant corporate transactions involving Licensed Products.

6.3 **Information Rights.** Graphite will deliver to Stanford such financial and other information that Graphite makes available to its other investors, provided that such information shall include, at a minimum:

(A) copies of annual financial statements for Graphite;

(B) any business plans or periodic internal reports of the financial condition of Graphite; and

(C) an annual capitalization table showing each stockholder's equity holdings in Graphite.

6.4 **Clinical Trial Notice.** Graphite will notify the Stanford University Office of Technology Licensing prior to commencing any clinical trials at Stanford. If Graphite does not notify Stanford University Office of Technology Licensing at least [***] prior to enrolling the first patient in a clinical trial at Stanford, Graphite agrees that it will pay $[***] to Stanford within 30 days of being invoiced.

6.5 **Failure to Meet Development Milestones**. If Graphite believes that, despite using commercially reasonable efforts, it will not achieve a milestone specified in Appendix A within the time period set forth therein, it may notify Stanford in writing in advance of the relevant deadline. Graphite shall include with such notice (a) an explanation of the reason(s) for such failure ("**Milestone Explanation**") and (b) a reasonably detailed, written plan for achieving an amended milestone within a reasonable time period thereafter ("**Milestone Plan**"). If Graphite so notifies Stanford and provides Stanford with a Milestone Explanation and Milestone Plan, but the Milestone Plan is not reasonably acceptable to Stanford, then Stanford shall provide Graphite with a detailed, written explanation as to why the Milestone Plan is not reasonably acceptable and shall provide Graphite with suggestions for a reasonably acceptable Milestone Plan. Graphite shall have an opportunity to provide Stanford with a Milestone Plan reasonably acceptable to Stanford within [***] after receipt of the notice from Stanford described in the previous sentence, during which time Stanford agrees to exercise good faith in working with Graphite to develop a mutually agreeable revised Milestone Plan. If, within such [***] period, Graphite provides Stanford with a Milestone Plan reasonably acceptable to Stanford, then Appendix A shall be amended automatically to incorporate the amended milestone(s) set forth in the Milestone Plan. If, within such [***] period, Graphite fails to provide a Milestone Plan reasonably acceptable to Stanford, then Graphite shall have an additional opportunity to provide Stanford with a Milestone Plan reasonably acceptable to Stanford within [***] after notice of rejection from Stanford, or until the original deadline

of the relevant Development Milestone, whichever is later, to meet such milestone. Graphite's failure to do so shall constitute a material breach of this Agreement and Stanford shall have the right to terminate this Agreement in accordance with Section 15.3. For each milestone the timeline may only be extended [***] times and by a maximum of [***] per diligence milestone event, unless otherwise agreed in writing by Stanford.

7. FINANCIAL TERMS-

7.1 **License Issue Fee.** Graphite will pay to Stanford a non-creditable, non-refundable license issue fee of $50,000 within thirty (30) days after the execution and delivery of this Agreement by both parties.

7.2 **Equity Interest.** As further consideration, Graphite will grant to Stanford 1,080,262 shares of common stock in Graphite. When issued, those shares will represent [***]% of the common stock in Graphite on a Fully-Diluted Basis as of the closing of the first tranche of Graphite's Series A preferred stock financing and as reflected in the pro forma capitalization table set forth in Exhibit B. Within [***] unless requested earlier in writing by Stanford, Graphite will provide Stanford with its current capitalization table and the [***]. Graphite will provide Stanford with the [***]. On the 3-month anniversary of the Effective Date, but not before, Graphite will issue [***]% of all shares granted to Stanford pursuant to this Section 7.2 and Section 7.3 directly to and in the name of the inventors or their heirs according to the inventor list that Stanford will provide prior to issuance.

7.3 **Anti-Dilution Protection.** Graphite will issue Stanford, without further consideration, 459,433 additional shares of common stock in Graphite at the second tranche of the Series A preferred stock financing of Graphite as of the closing of such tranche, as reflected in the pro forma capitalization table set forth in Exhibit B. In the event that Graphite closes a financing of a series of preferred stock other than Series A preferred stock prior to the closing of the second tranche of the Series A preferred stock financing, the number of shares issuable to Stanford pursuant to this Section 7.3 will be adjusted to maintain Stanford at [***]% of the common shares of Graphite issued and outstanding on a Fully-Diluted Basis as of the closing of such other preferred stock financing. The Anti-Dilution Protection under this Section 7.3 will continue until an amount of $[***], when aggregated with prior closings, has been raised by Graphite in a bona fide round of financing through the sale of securities or by conversion of instruments convertible into equity ("**Dilution Trigger**"). If the Dilution Trigger is reached or exceeded during a specific round of funding, Anti-Dilution Protection will extend to the total amount of funding raised through the Dilution Trigger only and shall not apply to any amounts raised by Graphite in such round of funding in excess of the Dilution Trigger.

7.4 **Purchase Right.**

(A) *Definitions*. For purposes of this Section 7.4 and Section 7.5:

(1) "Adjustment Event" means the first closing of the sale by Graphite of any series of preferred stock other than Series A Stock.

(2) "Board of Directors" means (i) if Graphite is organized as a corporation, its board of directors, and (ii) if Graphite is organized as a limited liability company, the Graphite manager(s) or member(s) or both that have the power to direct the principal management and activities of Graphite, whether through ownership of voting securities, by agreement, or otherwise.

(3) "Qualifying Offering" means a private offering of Graphite's equity securities (or securities convertible into or exercisable for Graphite's equity securities) for cash (or in satisfaction of debt issued for cash) having its final closing on or after the date of this Agreement and which is led by one or more venture capital, professional angel, or corporate or other similar institutional investors that either (i) have the industry expertise to perform appropriate due diligence on the company, its industry and technology and have performed such due diligence, or (ii) have retained an independent consultant with such expertise that has performed due diligence and reported its evaluation of Graphite to the lead investor. Notwithstanding the foregoing, "Qualifying Offering" shall exclude the sale of Graphite's Series A preferred stock ("Series A Stock") pursuant to the terms of a stock purchase agreement in effect as of the Effective Date and under which an initial purchase and sale of shares purchase and sale of Series A Stock has occurred prior to the Effective Date (the "SPA") unless such sale includes purchasers who did not purchase, and funds under common management with such purchasers did not purchase, shares of Series A Stock in the initial purchase and sale of shares of Series A Stock under the SPA. For the avoidance of doubt, if Graphite is a limited liability company, then "equity securities" means limited liability company interests in Graphite.

(4) "Share" means:

(i) [***]% with respect to any sale of Graphite's Series A Stock pursuant to the terms of the SPA that includes purchasers who did not purchase, and funds under common management with such purchasers did not purchase, shares of Series A Stock in the initial purchase and sale of shares of Series A Stock under the SPA.

(ii) [***]% with respect to any Qualifying Offering having a closing after the final closing of the sale by Graphite of Series A Stock pursuant to the SPA and on or prior to the date of an Adjustment Event; or

(ii) with respect to any Qualifying Offering having a closing after the date of an Adjustment Event, the percentage necessary for Stanford and the Osage Parties (as defined below) to maintain their respective pro rata ownership interests in Graphite on a Fully-Diluted Basis; provided, however, that for purposes of this clause (ii), the pro rata ownership interest of the Osage Parties shall be determined taking into account solely such portion of such ownership interest that derives from the exercise by the Osage Parties of the Purchase Right assigned by Stanford to the Osage Parties as provided in Section 7.4(B).

Notwithstanding the foregoing, Share will mean 0% following the occurrence of any Termination Event (as defined below).

(5) The parties shall construe the term "Fully-Diluted Basis" mutatis mutandis in the case where Graphite is organized as a limited liability company.

(B) *Grant of Right; Assignment.* Stanford shall have the right, but not the obligation, to purchase for cash up to its Share of the securities issued in any Qualifying Offering on the terms, and subject to the conditions, set forth in this Section 7.4 and Section 7.5 (the "Purchase Right"). Such right is assignable by Stanford to Osage University Partners or any of its affiliated investment funds (each, an "Osage Party" and collectively, the "Osage Parties"). Except to the extent that Stanford assigns its Purchase Right to one or more Osage Parties, no investment by an Osage Party in Graphite shall reduce or otherwise affect Stanford's right to participate in any Qualifying Offering under this Agreement. For the avoidance of doubt, if Graphite has entered into another Exclusive (Equity) Agreement or other agreement to license intellectual property from Stanford that includes a right equivalent to the Purchase Right, Stanford and the Osage Parties may only exercise their right(s) to purchase all or part of a Share under one agreement.

(C) *Termination of Right.* The Purchase Right shall terminate as to Stanford and the Osage Parties upon the earliest to occur of the following (each a "Termination Event"):

(1) Immediately prior to the closing of a firm commitment underwritten public offering of Graphite's common stock;

(2) Immediately prior to the closing of the sale of all or substantially all of Graphite's assets or voting stock (regardless of the form of transaction and expressly including a merger, combination, or purchase and sale of assets or stock) to a company that has a class of securities publicly traded or covered by an effective registration statement (including a general form for registration of securities or Form 10) under the applicable securities laws of the country of its domicile (including a shell company or other business entity organized primarily for the purpose of acquiring such assets or voting stock, such as a special purpose acquisition corporation or SPAC) for cash, securities of such company, contingent value rights or payments, or any combination thereof; or

(3) Immediately prior to the closing of an acquisition of all or substantially all of Graphite's assets or voting stock for cash, marketable securities, contingent value rights or payments, or any combination thereof by either:

(a) a private operating company (as opposed to a shell company or other business entity organized primarily for the purpose of acquiring such assets or voting stock); or

(b) an investment firm or other financial buyer in furtherance of a"roll-up" or other investment strategy in Graphite's current or prospective market(s);

provided that, in each case: (i) such acquisition is duly approved by (x) Graphite's board of directors in accordance with applicable law of Graphite's jurisdiction of organization and (y) Graphite's stockholders in accordance with the law of Graphite's jurisdiction of organization; and (ii) no person or entity that held Graphite securities as a financial investment immediately prior to the closing of such acquisition shall have any right, arrangement or understanding to purchase any direct or indirect interest in the acquiring entity unless Stanford is advised in writing of the terms thereof and is given a written offer to receive such right, arrangement or understanding and provided that a person who held Graphite securities pursuant to a compensatory or incentive equity plan, agreement or arrangement shall be deemed not to hold such securities as a "financial investment."

(D) *Excluded Issuances*. The Purchase Right shall not apply to the issuance of securities: (i) to employees, individuals who are members of Graphite's Board of Directors as of the time of issuance, and service providers to Graphite pursuant to a plan, agreement or arrangement approved by Graphite's Board of Directors; (ii) as additional consideration in lending or leasing transactions; (iii) to an entity pursuant to an arrangement that Graphite's Board of Directors determines in good faith is a strategic partnership or similar arrangement of Graphite (i.e., an arrangement in which the transaction in which such entity purchases securities is not primarily for the purpose of financing Graphite); or (iv) to owners of another entity in connection with the acquisition of that entity by Graphite.

(E) *Coordination with Sections 7.2 and 7.3*. For the avoidance of doubt: (i) any securities Stanford may acquire or have the right to acquire under Section 7.2 or 7.3 above shall not reduce the number of securities Stanford and the Osage Parties may collectively purchase under this Section 7.4 or under any rights agreement or similar agreement regarding Graphite entered into by Stanford (each, a "Rights Agreement"); and (ii) Stanford shall not be obligated to purchase under this Section 7.4 any Graphite securities it has the right to acquire under Section 7.2 or 7.3 above.

7.5 **Rights Agreements; Information Rights; Notice; Elections.**

(A) Graphite shall ensure that each Rights Agreement to which Stanford is a party will at all times grant it the same rights as all other investors that are parties to that Rights Agreement, including, without limitation: the same right to purchase additional securities in future offerings (but only if Stanford has agreed that such rights supersede the Purchase Right set forth in Section 7.4 and this Section 7.5); the same information rights; the same registration rights as are granted to other parties thereto; and all such rights granted to any investor designated as a "Major Investor" or other similar designation, even if Stanford is not so designated. Notwithstanding the foregoing, this Section 7.5(A) shall not be construed to limit any rights to which Stanford would otherwise be entitled under this Agreement.

(B) Notwithstanding any terms to the contrary contained in any applicable Rights Agreement:

(1) Neither Stanford nor the Osage Parties shall be entitled under any Rights Agreement to representation on the Board of Directors or to attend meetings of the Board of Directors;

(2) In connection with all Qualifying Offerings, Graphite shall give Stanford notice ("Notice") of the terms of the offering, including: (i) the names of the investors, the allocation of equity and equity-linked securities among them, and the total amounts to be invested by each of them in such offering; (ii) pre- and post- (projected) financing capitalization table; (iii) investor presentation(s) (if any) provided to other investors participating in the offering; and (iv) an introduction to the lead investor in such offering for the purpose of discussing the lead investor's due diligence process and evaluation of the investment opportunity. During the Notice Period (as defined below), Graphite shall give Stanford such other documents and information as Stanford may reasonably request for the purpose of making an investment decision or verifying the number of units of the equity or equity-linked security it is entitled to purchase in such offering; and

(3) Stanford will have a period of 15 Stanford business days (i.e., days other than Saturdays, Sundays, and holidays or other days on which Stanford is officially closed) after receiving Notice of a Qualifying Offering (the "Notice Period") to (i) elect to exercise its Purchase Right in whole or in part, (ii) decline to exercise its Purchase Right, or (iii) take no action (in which case Stanford will be deemed to have declined to exercise its Purchase Right). Graphite shall provide Stanford updated information promptly after any substantive information in the Notice becomes inaccurate, regardless of whether Stanford has previously elected or declined to exercise its Purchase Right. If the updated information constitutes a material change from the information included in the original Notice (as it may have been previously updated), a new Notice Period for the Qualifying Offering will commence and Stanford may within 15 Stanford business days from and including the date it received the updated

information either (x) modify or revoke a previous election, (y) make a new election if it had previously declined to exercise its Purchase Right, or (z) take no action (in which case Stanford's election in the immediately previous Notice Period will continue to apply). Notwithstanding the foregoing, if Stanford declines to exercise its Purchase Right within the Notice Period for a Qualifying Offering which has its final closing within 90 days after the date Graphite's most recent Notice is received by Stanford and which is closed on terms that are the same or less favorable to the investors as the terms stated such Notice, Graphite shall not have any obligation to provide Stanford a new or updated Notice, no new Notice Period shall have commenced and Stanford shall not have a new opportunity to exercise its Purchase Right with respect to such Qualifying Offering.

(C) If Stanford has no information rights under a Rights Agreement and to the extent that such information has been prepared by Graphite for other purposes, so long as Stanford holds Graphite securities, Graphite shall furnish to Stanford, upon request and as promptly as reasonably practicable, Graphite's annual consolidated financial statements and annual operating plan, including an annual report of the holders of Graphite's securities, and such other information as Stanford may reasonably request from time to time for the purpose of valuing its interest in Graphite.

(D) Notwithstanding any notice provision in this Agreement to the contrary, any notice given under this Agreement that refers or relates to any of Section 7.4 above or this Section 7.5 shall be copied concurrently to [***]; provided, however, that delivery of the copy will not by itself constitute notice for any purpose under this Agreement.

7.6 **License Maintenance Fee.** Beginning one (1) year from the Effective Date and each year thereafter, Graphite will pay Stanford a license maintenance fee according to the table below. Yearly maintenance payments shall be paid within thirty (30) days after the applicable anniversary of the Effective Date and are non-refundable, but are creditable against earned royalties payable during the twelve (12) month period immediately following such anniversary date.

Anniversary of the Effective Date	Amount of Fee
First	$ 5,000
Second through third	$ 10,000
Fourth through sixth	$ 25,000
Each subsequent anniversary until First Commercial Sale	$ 50,000
Each subsequent anniversary after First Commercial Sale until there is no Valid Claim within the Licensed Patents covering any Licensed Product in any country of the Licensed Territory	$ 200,000

7.7 **Milestone Payments.** Graphite will pay Stanford the following non-refundable and non-creditable milestone payments. No milestone consideration will be payable with respect to any Licensed Product from and after expiration of the last to expire Valid Claim within the Licensed Patents covering such Licensed Product in the US, EU and Japan.

(A) **R&D Milestone Payments.** Graphite will pay Stanford the following non-creditable, non-refundable milestone payments in connection with the first achievement by each Licensed Product of the respective milestones set forth below within thirty (30) days of achieving the corresponding milestone:

Milestone Event	Payment
Upon [***]	$ [***]
Upon [***]	$ [***]
Upon [***]	$ [***]
Upon [***]	$ [***]
Upon [***]	$ [***]
Upon [***]	$ [***]

*"[***]" means (a) [***] OR (b) [***].

Each milestone payment in the table above shall be payable upon the first occurrence of the corresponding milestone event for each Licensed Product to achieve such milestone event; provided, however, that the milestone payments set forth in the table above shall not be payable with respect to a subsequent achievement of the same milestone event by a Licensed Product that is a replacement or backup product for another Licensed Product the development of which has been discontinued after achievement of such milestone event and for which Stanford has already received the respective milestone payment; provided, further, however, that the milestone payments set forth in the table above shall not be payable with respect to a subsequent achievement of the same milestone event by a Licensed Product (1) for a new indication that only differs from such prior indication by

mode of delivery, line of therapy, stage of disease, population description (e.g., adult or pediatric) or additional therapies or (2) for a new indication where the underlying genetic defect being targeted or corrected by such Licensed Product is the same as a prior Licensed Product with respect to which such milestone payment has been paid (e.g., if the same gene locus is targeted for the same disease but with a more efficient DNA donor template).

(B) **Sales Milestone Payments**. Graphite will also pay Stanford the following milestone payments on a Licensed Product-by-Licensed Product basis in connection with the first achievement by such Licensed Product of the respective annual Net Sales milestones set forth below:

Milestone Event	Payment
Annual Net Sales of such Licensed Product first exceed $[***]	$[***]
Annual Net Sales of such Licensed Product first equal or exceed $[***]	$[***]

For clarity, the foregoing sales milestone payments are paid only once with respect to any particular Licensed Product and are not creditable against earned royalties.

7.8 **Earned Royalties.** In addition to the annual license maintenance fee (but subject to any credits permitted under Section 7.6), Graphite will pay Stanford earned royalties on Net Sales as follows:

(A) **Earned royalty rate:**

Category	Royalty
Licensed Products covered by a Valid Claim of Licensed Patents (each, a "**Patent Licensed Product**")	[***]%
Licensed Products covered by Technology but not covered by a Valid Claim of Licensed Patents ("**Non-Patent Licensed Product**")	[***]%

(B) **Royalty Term**: Graphite's obligation to pay royalties as set forth above shall commence, on a Licensed Product-by-Licensed Product and country-by-country basis on the First Commercial Sale of such Licensed Product in such country and shall expire on the latest to occur of (i) expiration of the last Valid Claim of a Licensed Patent that covers the sale or manufacture of the applicable Licensed Product in such country, (ii) expiration of any period of regulatory exclusivity

granted with respect to such Licensed Product in such country or (iii) ten (10) years after the First Commercial Sale of such Licensed Product in such country (the "**Royalty Term**"). In the event that during the Royalty Term for a Patent Licensed Product, earned royalties remain payable solely as a result of the application of clause (iii) of the immediately preceding paragraph, then royalties shall be subject to a [***]% reduction.

(C) **Royalty Stacking:** In the event Graphite determines it is reasonably necessary for Graphite or its Affiliate or a Sublicensee to obtain a license to patent rights of one or more unaffiliated Third Parties in order to practice for commercial purposes any Licensed Patents or Technology and/or make, have made, use, sell, offer to sell or import Licensed Products, and royalties on Net Sales of a Licensed Product are payable both to Stanford under this Agreement and to the unaffiliated Third Parties under such separate license agreement in order to practice any Licensed Patents or Technology and/or to make, have made, use, sell, offer to sell or import any Licensed Products, then the earned royalty percentage due to Stanford hereunder will be reduced as follows:

If the combined royalty due to Stanford and such third-party licensor(s) exceeds [***] percent ([***]%), then the royalty percentage due to Stanford (prior to the application of this reduction) will be reduced on a going forward basis by the amount determined by the following formula: [***]%)/[***]], where "A" equals the total royalty burden percentage due for the Licensed Product (including the royalty due to Stanford and any royalty due to a Third Party).

(D) **Earned Royalty Rate Floor:** Notwithstanding any royalty reductions taken above, in no event will the earned royalties payable to Stanford under this Agreement be reduced by more than [***] percent ([***]%) as a result of the reduction described in paragraph (D) in any given payment period.

(E) **[***]**.

(F) **Obligation to Pay Earned Royalties.** To the extent set forth in this Agreement, an earned royalty is due Stanford under this Agreement for any activity conducted during the Royalty Term under the licenses granted. For convenience's sake, the amount of that royalty is calculated using Net Sales. Nonetheless, if certain Licensed Products are made, used, imported, or offered for sale before the date this Agreement terminates or expires, and those Licensed Products are sold after the termination or expiration date Graphite and its Sublicensees will pay Stanford an earned royalty for their exercise of rights based on the Net Sales of those Licensed Products. Upon expiration or termination of this agreement, Graphite and its Sublicensees will provide to Stanford an inventory listing of all Licensed Products on hand that were manufactured prior to the expiration or termination date. Graphite and its Sublicensees will be responsible for paying royalties on sales of such Licensed Products in accordance with this Section 7.8.

7.9 **No Escrow.** Graphite shall not pay royalties owed to Stanford hereunder into any escrow or other similar account. Graphite may permit Sublicensees to pay royalties owed to Graphite (which may include those amounts thereof that are then owed by Graphite to Stanford) into an escrow or other similar account.

7.10 **Currency.** Graphite will calculate the royalty on sales in currencies other than U.S. Dollars using the appropriate foreign exchange rate for the currency quoted by the Wall Street Journal on the close of business on the last banking day of each calendar quarter. Graphite will make royalty payments to Stanford in U.S. Dollars.

7.11 **Non-U.S. Taxes.** Graphite will pay all non-U.S. taxes related to royalty payments. These payments are not deductible from any payments due to Stanford.

7.12 **Interest.** Any payments not made when due will bear interest at the lower of (a) [***] or (b) the maximum rate permitted by law.

8. ROYALTY REPORTS, PAYMENTS, AND ACCOUNTING

8.1 **Earned Royalty Payment and Report.** Beginning with First Commercial Sale by Graphite, its Affiliate or a Sublicensee, or with the first receipt of any Nonroyalty Sublicensing Consideration by Graphite, Graphite will submit to Stanford a written report, an earned royalty payment and/or Nonroyalty Sublicensing Consideration payment due Stanford within [***] after each calendar period, where the period is initially on a per-year basis, and changes to a per-quarter basis when annual earned royalty payments to Stanford exceed $[***]. This report will use the template of Appendix B and will state the number, description, and aggregate Net Sales of Licensed Product during the completed calendar time period and details about any Sublicenses entered into within such calendar time period. The report will include an overview of the process and documents relied upon to permit Stanford to understand how the earned royalties and Nonroyalty Sublicensing Consideration are calculated. With each report, Graphite will include any earned royalty payment and Nonroyalty Sublicensing Consideration payment due Stanford for the completed time period (as calculated under Section 7.8 and Section 4.7). Each report provided pursuant to this Section 8.1 and each milestone payment shall be accompanied by a description, made in good faith by Graphite or other Selling Party, of which Licensed Patents cover the applicable Licensed Product(s).

8.2 **No Refund.** In the event that a validity or non-infringement challenge of a Licensed Patent brought by Graphite is successful, Graphite will have no right to recoup any royalties paid before or during the period challenge.

8.3 **Termination Report.** Graphite will pay to Stanford all applicable royalties and submit to Stanford a written report within [***] after this Agreement terminates or expires. Graphite will continue to submit earned royalty payments and reports to Stanford after this Agreement terminates or expires, until all Licensed Products made or imported under the license, and for which an earned royalty would be due under Section 7.8 have been sold.

8.4 **Accounting.** Graphite will and will cause any Sublicensees to maintain records showing manufacture, importation, sale, and use of a Licensed Product for [***] from the date of sale of that Licensed Product. Records will include general-ledger records showing cash receipts and expenses, and records that include: production records, customers, invoices, serial numbers, and related information in sufficient detail to enable Stanford to determine the royalties payable under this Agreement.

8.5 **Audit by Stanford.** Graphite will allow Stanford to cause an independent auditor reasonably acceptable to Graphite to examine Graphite's financial records relevant to its payment obligations under this Agreement solely to verify the accuracy of payments made by Graphite under this Agreement. Any such audit shall be conducted upon at least [***] prior written notice, no more than once per calendar year during Graphite's normal business hours. The auditor shall be subject to the confidentiality obligations of Section 19 and shall provide Graphite with a copy of the audit report at the same time such report is delivered to Stanford. The results of the audit shall be the Confidential Information of Graphite provided Stanford is allowed to use the results internally in any way it deems necessary for its audit purposes.

8.6 **Paying for Audit.** Stanford will pay for any audit done under Section 8.5. But if the audit reveals an underreporting of earned royalties due Stanford of [***] for the period being audited, [***].

9. EXCLUSIONS AND NEGATION OF WARRANTIES

9.1 **Negation of Warranties.** Stanford provides Graphite the rights granted in this Agreement AS IS and WITH ALL FAULTS. Stanford makes no representations and extends no warranties of any kind, either express or implied. Among other things, Stanford disclaims any express or implied warranty:

(A) of merchantability, of fitness for a particular purpose;

(B) of non-infringement; or

(C) arising out of any course of dealing.

9.2 **No Representation of Licensed Patent.** Graphite also acknowledges that Stanford does not represent or warrant:

(A) the validity or scope of any Licensed Patent or Technology; or

(B) that the exploitation of the Licensed Patents or Technology will be successful.

10. INDEMNITY

10.1 **Indemnification.** Graphite will indemnify, hold harmless, and defend all Stanford Indemnitees against any Third Party claim of any kind arising out of or related to the exercise by Graphite, its Affiliates or Sublicensees of any rights granted Graphite under this Agreement or the breach of this Agreement by Graphite, except to the extent such Third Party claim results from the gross negligence or willful misconduct of a Stanford Indemnitee. Stanford agrees to inform Graphite promptly in writing of any claim or threatened claim that may give rise to an obligation of indemnity under this Agreement of which Stanford becomes aware. The failure to inform Graphite as described above shall not relieve Graphite of any liability or indemnification obligations hereunder unless Graphite is prejudiced as a result of such failure. Stanford will provide Graphite with the first right to defend and settle and exclusive control of the defense or settlement of each such claim, provided that (a) Graphite must do so in a manner that does not adversely affect Stanford's interests. (b) it must obtain Stanford's prior consent to any settlement (such consent not to be unreasonably withheld or delayed), (c) it must select legal counsel reasonably acceptable to Stanford, and (4) the defense activities to be taken by Graphite shall not materially impair the Stanford Indemnitee's reputation or admit or increase any criminal liability of the Stanford Indemnitees without consent from the affected Stanford Indemnitees.

10.2 **No Indirect Liability.** Stanford is not liable for any special, consequential, lost profit, expectation, punitive or other indirect damages in connection with any claim arising out of or related to this Agreement, whether grounded in tort (including negligence), strict liability, contract, or otherwise, and regardless of any notice of the possibility of such damages. Except for liability arising under its indemnification obligations under Section 10.1 or for any use by Graphite of the Licensed Patents and Technology that is outside the scope of the rights to such intellectual property granted to Graphite under this Agreement, Graphite is not liable for any special, consequential, lost profit, expectation, punitive or other indirect damages in connection with any claim arising out of or related to this Agreement, whether grounded in tort (including negligence), strict liability, contract, or otherwise, and regardless of any notice of the possibility of such damages.

10.3 **Workers' Compensation.** Graphite will comply with all statutory workers' compensation and employers' liability requirements for activities performed under this Agreement.

10.4 **Insurance.** During the term of this Agreement, Graphite will maintain Commercial General Liability Insurance with a reputable and financially secure insurance carrier to cover the activities of Graphite and its Affiliates and Sublicensees. The insurance will provide minimum limits of liability of $[***] per occurrence and will include all Stanford Indemnitees as additional insureds. No later than the first testing of a Licensed Product by Graphite in a human, and thereafter during the term of this Agreement, Graphite will maintain Commercial General Liability Insurance, including Product Liability Insurance, with a reputable and financially secure insurance carrier to cover the activities of Graphite and its Sublicensees. The insurance will provide minimum limits of liability of $[***] per occurrence and will include all Stanford Indemnitees as additional insureds. Insurance must cover claims incurred, discovered, manifested, or made during or after the expiration of this Agreement and must be placed with carriers with ratings of at least A- as rated by A.M. Best. Within [***], Graphite will furnish a Certificate of Insurance evidencing primary coverage and additional insured requirements. Graphite will provide to Stanford [***] prior written notice of cancellation or material change to this insurance coverage.

Graphite will advise Stanford in writing that it maintains a combination of excess liability coverage (following form) over primary insurance for at least the minimum limits set forth above. All insurance of Graphite will be primary coverage; insurance of Stanford Indemnitees will be excess and noncontributory.

11. EXPORT

Graphite and its Sublicensees will comply with all applicable United States laws and regulations controlling the export of licensed commodities and technical data relating to this Agreement. (For the purpose of this paragraph, "licensed commodities" means any article, material or supply but does not include information; and "technical data" means tangible or intangible technical information that is subject to U.S. export regulations, including blueprints, plans, diagrams, models, formulae, tables, engineering designs and specifications, manuals and instructions.) These laws and regulations may include, but are not limited to, the Export Administration Regulations (15 CFR 730-774), the International Traffic in Arms Regulations (22 CFR 120-130) and the various economic sanctions regulations administered by the U.S. Department of the Treasury (31 CFR500-600).

Among other things, these laws and regulations may prohibit or require a license for the export or retransfer of certain commodities and technical data to specified countries, entities and persons. Graphite hereby gives written assurance that it will comply with, and will cause its Sublicensees to comply with all applicable United States export control laws and regulations, that it understands it may be held responsible for any violation of such laws and regulations by itself or its Sublicensees, and that it will indemnify, defend and hold Stanford harmless for the consequences of any such violation.

12. MARKING

Before any Licensed Patent issues, Graphite will mark the packaging of Licensed Products covered by a Valid Claim of Licensed Patents with the words "Patent Pending." Thereafter, for so long as a Licensed Product is covered by a Valid Claim of Licensed Patents, Graphite will mark the packaging of Licensed Products with the number of any issued Licensed Patent.

13. STANFORD NAMES AND MARKS

Graphite will not use (i) Stanford's name or other trademarks, (ii) the name or trademarks of any organization related to Stanford, or (iii) the name of any Stanford faculty member, employee, student or volunteer. This prohibition includes, but is not limited to, use in press releases, advertising, marketing materials, other promotional materials, presentations, case studies, reports, websites, application or software interfaces, and other electronic media. Notwithstanding the foregoing, Graphite may include Stanford's name in factual statements in legal proceedings, patent applications, regulatory filings and, as applicable, in biographies of its officers, directors, employees and advisors. In addition, Graphite may make a short factual statement that identifies Stanford as the licensor of the rights granted under this Agreement to actual or potential investors or acquirers, as well as in the "About Graphite" or other similar section of the Graphite website.

14. PROSECUTION AND PROTECTION OF PATENTS

14.1 **Patent Prosecution.** Graphite acknowledges that, as of the Effective Date, [***] U.S. patent application serial number [***] claiming the invention disclosed in Stanford Case No. [***], which is included in the Licensed Patents, and [***].

(A) Stanford will be responsible for preparing, filing, prosecuting and maintaining the Licensed Patents in the United States. As long as Graphite is not delinquent on any undisputed, material reimbursement obligation under Section 14.2, Stanford agrees to (i) instruct Stanford's patent counsel to furnish to Graphite or its designee copies of all documents relevant to such filing, prosecution and maintenance prior to any deadlines and in sufficient time for Graphite to review and comment on such documents, and (ii) allow Graphite a reasonable opportunity to comment on documents to be filed with the United States patent office with respect to the Licensed Patents. Stanford shall reasonably consider any such comments.

(B) As of the Effective Date, [***]. Stanford agrees to (i) furnish to Graphite copies of documents that are relevant to [***], and (ii) will promptly convey to [***].

(C) In the event Graphite decides that it no longer desires to pay for Stanford's actual costs incurred in the filing, prosecution, or maintenance of one or more Licensed Patents, Graphite shall give Stanford written notice at least [***] in advance of any applicable deadline for that Licensed Patent. Stanford may in its discretion continue to prosecute and maintain such Licensed Patent(s) at its expense, in which case such Licensed Patent(s) will no longer be covered by the license granted under this Agreement. Graphite's obligation to pay patent expenses for such Licensed Patent(s) will terminate [***] after the date of such notice.

14.2 **Patent Costs.** Within 30 days after receiving a reasonably detailed statement of Stanford's actual costs incurred in the filing, prosecution or maintenance of the Licensed Patents in accordance with Stanford usual practice from Stanford provided Stanford will provide further details if Graphite requests such for a specific invoice, Graphite will reimburse Stanford:

(A) $[***] to offset Licensed Patent's patenting expenses, including but not limited to interference or reexamination matters, inventorship or ownership disputes and opposition proceedings incurred by Stanford before [***]; and

(B) for all Licensed Patent's patenting expenses, including but not limited to interference or reexamination matters, inventorship disputes and opposition proceedings, in each case, reasonably incurred by Stanford after [***], Stanford will pay the fees prescribed for large entities to the United States Patent and Trademark Office. If Graphite requests that Stanford pay fees prescribed for a small entity, then Graphite will bear all responsibility for notifying Stanford if its status changes to large entity. Graphite is herein notified that the determination of entity size for the United States Patent and Trademark Office depends not only on the size of Graphite, but also may depend on the size of any companies to which Graphite has granted licenses.

14.3 **Infringement Procedure.** Each party will promptly notify the other if it believes a Third Party infringes a Licensed Patent or if a Third Party files a declaratory judgment action with respect to any Licensed Patent. During the Exclusive Term, Graphite shall have the right to institute a claim or suit against or defend any declaratory judgment action initiated by this Third Party, but only within the Initial Field of Use, as provided in Section 14.4 through and including Section 14.8. Stanford and Graphite agree to consider the rights and interests of any Third party who may have additional license rights or ownership rights to any of the Licensed Patents with regards to the following Sections 14.4 through 14.7.

14.4 **Graphite Suit.** Graphite, itself or through a designee, has the first right to institute and prosecute a suit, or defend any declaratory judgment action relating to the Licensed Patents, but only within the Initial Field of Use

Graphite agrees to use reasonable efforts to settle with the third party without litigation. If reasonable efforts are unsuccessful and Graphite (A) provides claim chart evidence of the infringement to Stanford, and (B) is diligently developing, offering for sale, or selling Licensed Product, then Graphite may institute and prosecute a suit or defend any declaratory judgement action and so long as it conforms with the requirements of this Section.

If Graphite decides to institute suit, it will notify Stanford in writing and give Stanford the opportunity to institute suit jointly. If Stanford does not notify Graphite in writing that it desires to jointly prosecute the suit within [***] after the date of the notice, Graphite will diligently pursue the suit consistent with its business judgment and Graphite will bear the entire cost of the litigation, including expenses and counsel fees including those incurred by Stanford in good faith. Graphite will keep Stanford reasonably apprised of all developments in the suit and will make a good faith effort to incorporate Stanford's input on any substantive submissions or positions taken in the litigation regarding the scope, validity and enforceability of the Licensed Patent. Graphite will not initiate, prosecute, settle or otherwise compromise any such suit in a manner that it knows will adversely affect Stanford's interests without Stanford's prior written consent. Stanford may be named as a party only if:

(A) Graphite's and Stanford's respective counsel recommend that such action is necessary in their reasonable opinion to achieve standing or a court has required or will require such joinder to pursue the action;

(B) Stanford is not the first named party in the action; and

(C) the pleadings and any public statements about the action state that Graphite is pursuing the action and that Graphite has the right to join Stanford as a party.

14.5 **Joint Suit.** If Stanford and Graphite so agree, they may institute suit or defend the declaratory judgment action jointly. If so, they will:

(A) prosecute the suit in both their names;

(B) each bear their own out-of-pocket costs and expenses;

(C) share any recovery or settlement equally; and

(D) agree how they will exercise control over the action.

14.6 **Stanford Suit.** If Graphite does not initiate an enforcement action within [***] of a request by Stanford to do so or Graphite does not elect to control a declaratory judgment action within [***] of receiving notice that such action has been filed, Stanford has the right to institute and prosecute a suit or defend any declaratory judgment action, and may name Graphite as a party if required for standing purposes. If Stanford decides to institute suit, it will notify Graphite in writing Prior to deciding whether to institute suit, Stanford shall meet with Graphite and consider in good faith Graphite's comments regarding whether or not to institute a suit. If Graphite does not notify Stanford in writing that it desires to jointly prosecute the suit within [***] after the date of the notice, Graphite will assign and hereby does assign to Stanford all rights, causes of action, and damages resulting from the alleged infringement. Stanford will bear the entire cost of the litigation and will retain the entire amount of any recovery or settlement.

14.7 **Recovery.** Any recovery or settlement received in connection with any suit will first be allocated between the parties to cover the litigation costs each incurred. If such recovery or settlement amount is less than total litigation costs incurred by the parties, in the aggregate, then the amount will be distributed to the parties in proportion to the share of such total litigation costs that was borne by each party. In any suit initiated by Graphite, any recovery in excess of litigation costs will be shared between Graphite and Stanford as follows: i) for any recovery other than amounts paid for willful infringement: (A) Stanford will receive [***] percent ([***]%) of the recovery if Stanford was not a party in the litigation; (B) Stanford will receive [***] percent ([***]%) of the recovery if Stanford was a party in the litigation, or (C) Stanford will receive [***] percent ([***]%) of the recovery if Stanford incurred any litigation costs in connection with the litigation; and (ii) for any recovery for willful infringement, Stanford will receive [***] percent ([***]%) of the recovery; and all other amounts shall be retained by Graphite. In any suit initiated by Stanford, any recovery in excess of litigation costs will belong to Stanford. Stanford and Graphite agree to be bound by all determinations of patent infringement, validity, and enforceability (but no other issue) resolved by any adjudicated judgment in a suit brought in compliance with this Section 14.

Stanford and Graphite agree to be bound by all determinations of patent infringement, validity, and enforceability (but no other issue) resolved by any adjudicated judgment in a suit brought in compliance with this Section 14.]

14.8 **Abandonment of Suit.** If either Stanford or Graphite commences a suit and then wants to abandon the suit, it will give timely notice to the other party prior to abandoning it. The other party may continue prosecution of the suit after the parties agree on the sharing of expenses and any recovery in the suit.

15. TERM AND TERMINATION

15.1 **Term**. This Agreement shall be effective as of the Effective Date and will continue, unless earlier terminated in accordance with this Agreement, until the expiration, revocation or invalidation of the last to expire patent or the abandonment of the last patent application within the Licensed Patents, or Royalty Term whichever comes later.

15.2 **Termination by Graphite.** Graphite may terminate this Agreement, in its entirety or as to any particular patent application or patent with the Licensed Patents, on a country-by-country basis, by giving Stanford written notice at least 30 days in advance of the effective date of termination selected by Graphite.

15.3 **Termination by Stanford.**

(A) Stanford may also terminate this Agreement if Graphite:

(1) is delinquent on any report or payment;

(2) is in breach of its diligence obligations under Section 6.1, including its obligation to meet the milestones shown in Appendix A (as such Appendix A may be amended);

(3) is in breach of any material obligation under this Agreement; or

(4) intentionally provides any materially false report.

(B) Termination under this Section 15.3 will take effect [***] after written notice of termination by Stanford unless Graphite remedies the grounds for termination in that [***] period or, if such grounds for termination are not capable of remedy within such [***] period, commences substantial steps toward such remedy within such [***] period and uses best efforts to achieve such remedy until the grounds for termination are removed. In the event the grounds for termination relate solely to Graphite's obligations with respect to a particular indication within the Initial Field of Use, termination shall be effective solely with respect to that indication. In the event Graphite disputes Stanford's right to terminate this Agreement, this Agreement shall remain in full force and effect during the pendency of any such dispute in arbitration, before courts of law or pursuant to such other process as may be mutually agreed by both parties in writing.

15.4 **Surviving Provisions.** Surviving any termination or expiration are:

(A) Graphite's obligation to make all payments, accrued or accruable, including but not limited to fees, royalties and patent costs;

(B) any claim of Graphite or Stanford, accrued or to accrue, because of any breach or default by the other party; and

(C) the provisions of Sections 3.2 (solely with respect to the final sentence and any perpetual, irrevocable,non-exclusive, and fully paid up licenses granted thereby), 7.4, 7.5, 8.3, 8.4, 9, 10, 15.4, 15.5, 17, 19 and 20, and any other provision that by its nature is intended to survive.

15.5 **Effect of Termination on Sublicenses.** In the event of termination of this Agreement by Stanford under Section 15.3, all existing Sublicenses shall survive for a period [***] after such termination, and for each Sublicense, if the Sublicensee is not then in breach of its Sublicense agreement with Graphite such that Graphite would have the right to terminate such Sublicense, such Sublicensee shall have the right to request within such [***] period a direct license from Stanford having all the terms and conditions of this Agreement, modified, as applicable, with respect to field, geographic scope, etc., as may have been provided in such Sublicense. Promptly upon such request, Stanford shall provide such Sublicensee with such form of direct license, which shall be effective upon execution by such Sublicensee. Each such Sublicensee and Stanford agree to act in good faith with respect to this Section 15.5.

16. CHANGE OF CONTROL, ASSIGNMENT AND NON-ASSIGNABILITY

16.1 **Assignment Fee.** If this Agreement is assigned to a Third Party other than pursuant to a Change of Control, Graphite will pay Stanford aone-time assignment fee of $[***] ("**Assignment Fee**"). No Assignment Fee shall be payable for any subsequent assignment of this Agreement after the first assignment for which an Assignment Fee is payable. This fee is non-cancellable, non-refundable and non-creditable against any other payments due Stanford under this Agreement.

16.2 **Conditions of Assignment.** Graphite may assign this Agreement, subject to the following conditions:

(A) Graphite must give Stanford written notice of the assignment within 5 business days of the assignment, including the new assignee's contact information; and

(B) the new assignee must agree in writing to be bound by all provisions of this Agreement; and

(C) Stanford must receive the full Assignment Fee, if applicable, within thirty (30) days after the assignment.

16.3 **After the Assignment.** Upon a permitted assignment of this Agreement pursuant to Section 16, Graphite will be released of liability under this Agreement and the term "Graphite" in this Agreement refer solely to the applicable assignee.

16.4 **Bankruptcy.** In the event of a bankruptcy or insolvency, assignment is permitted only to a party that can provide adequate assurance of future performance, including diligent development and sales of Licensed Products.

16.5 **Non-assignability of Agreement.** Except in conformity with Section 16.2 and Section 16.4, this Agreement is not assignable by Graphite under any other circumstances and any attempt to assign this Agreement by Graphite is null and void.

17. DISPUTE RESOLUTION

17.1 **Dispute Resolution by Arbitration.** Any dispute between the parties regarding any payments made or required to be made under this Agreement will be settled by arbitration in accordance with the JAMS Arbitration Rules and Procedures, provided that in the case of a good faith dispute as to the amount due, the cure period under Section 15.3 will be tolled until the amount due has been finally determined in such an arbitration. The parties are not obligated to settle any other dispute that may arise under this Agreement by arbitration.

17.2 **Request for Arbitration.** Either party may request such arbitration. Stanford and Graphite will mutually agree in writing on a third-party arbitrator within 30 days of the arbitration request. The arbitrator's decision will be final and non-appealable and may be entered in any court having jurisdiction.

17.3 **Discovery.** The parties will be entitled to discovery as if the arbitration were a civil suit in the California Superior Court. The arbitrator may limit the scope, time, and issues involved in discovery.

17.4 **Place of Arbitration.** The arbitration will be held in Stanford, California unless the parties mutually agree in writing to another place.

17.5 **Patent Validity.** Any dispute between the parties regarding the validity of any Licensed Patent shall be litigated in the courts located in Santa Clara County, California, and the parties agree not to challenge personal jurisdiction in that forum.

18. NOTICES

18.1 **Legal Action.** Graphite will provide written notice to Stanford at least three months prior to bringing an action seeking to invalidate any Licensed Patent or a declaration of non-infringement. Graphite will include with such written notice an identification of all prior art it believes invalidates any claim of the Licensed Patent.

18.2 **All Notices.** All notices under this Agreement are deemed fully given when written, addressed, and sent as follows:

All general notices to Graphite are mailed or emailed to:

Graphite Medicines, Inc.

[***]

with a copy (which shall not constitute notice) to:

Goodwin Procter, LLP
Attn: Richard Hoffman
Email: rhoffman@goodwinlaw.com
100 Northern Avenue
Boston, MA 02210

All invoices to Graphite (i.e., accounting contact) aree-mailed to:

Accounts Payable
[***]

All general notices to Stanford are e-mailed or mailed to:

Office of Technology Licensing
[***]

All payments to Stanford are mailed to:

Stanford University
Office of Technology Licensing
[***]

All progress reports to Stanford are e-mailed or mailed to:

Office of Technology Licensing
[***]

Any notice related to Section 7.4 or Section 7.5 (Stanford Purchase Rights) shall be copied concurrently to [***]

Either party may change its address with written notice to the other party.

19. CONFIDENTIALITY

19.1 The following constitutes "Confidential Information" of Graphite under this Agreement:

(A) Any information contained in records to which Graphite provides Stanford (or its designee) access under the audit or inspection provisions in this Agreement;

(B) Any information contained in reports (whether technical, business, competitive or otherwise), copies of Sublicenses and royalty reports received from Sublicensees and provided by Graphite to Stanford under this Agreement; and

(C) Any information provided to Stanford under another section or paragraph of this Agreement.

19.2 "Confidential Information" does not include information that:

(A) At the time of disclosure is in the public domain or that after disclosure becomes part of the public domain through no fault of Stanford;

(B) Stanford can show was already in its possession at the time of disclosure;

(C) Stanford can prove was rightfully received from a Third Party under no duty of confidentiality to Graphite; or

(D) Stanford is legally required to disclose by applicable law, regulation, or agency or court order, provided that Stanford shall provide reasonable advance notice to Graphite to allow the Graphite to oppose such disclosure or to request confidential treatment of such information and provided further that this exception shall only apply to such portions of the Confidential Information that actually are disclosed publicly.

19.3 During and subsequent to the term of this Agreement, Stanford shall maintain in confidence and not disclose to any Third Party Graphite's Confidential Information, and may use such Confidential Information only for the purpose it is intended, or for determining Graphite's compliance with the terms of this Agreement or for satisfying Stanford's reporting obligations to not-for-profit entities that provided funding for the research that generated the inventions claimed in the Licensed Patents.

19.4 During and subsequent to the term of this Agreement, Graphite shall maintain in confidence any unpublished Technology provided to it by Stanford and shall not publicly disclose such unpublished Technology without Stanford's consent unless and until such unpublished Technology has become publicly disclosed or available other than as a result of a breach by Graphite of this Section 19.4.

20. MISCELLANEOUS

20.1 **Waiver.** No term of this Agreement can be waived except by the written consent of the party waiving compliance.

20.2 **Choice of Law.** This Agreement and any dispute arising under it is governed by the laws of the State of California, United States of America, applicable to agreements negotiated, executed, and performed within California.

20.3 **Entire Agreement.** The parties have read this Agreement and agree to be bound by its terms, and further agree that it constitutes the complete and entire agreement of the parties and supersedes all previous communications, oral or written, and all other communications between them relating to the license and to the subject hereof. In the event of conflict between the terms and conditions of this Agreement and any purchase orders, the terms and conditions of this Agreement shall prevail. This Agreement may not be amended except by writing executed by authorized representatives of both parties. No representations or statements of any kind made by either party, which are not expressly stated herein, will be binding on such party.

20.4 **Exclusive Forum.** The state and federal courts having jurisdiction over Stanford, California, United States of America, provide the exclusive forum for any court action between the parties relating to this Agreement. Graphite submits to the jurisdiction of such courts and waives any claim that such a court lacks jurisdiction over Graphite or constitutes an inconvenient or improper forum.

20.5 **Headings.** No headings in this Agreement affect its interpretation.

20.6 **Electronic Copy.** The parties to this document agree that a copy of the original signature (including an electronic copy) may be used for any and all purposes for which the original signature may have been used. The parties further waive any right to challenge the admissibility or authenticity of this document in a court of law based solely on the absence of an original signature.

[*Remainder of page intentionally left blank; signature page follows*]

The parties execute this Agreement in duplicate originals by their duly authorized officers or representatives.

THE BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY

Signature: /s/ Mona Wan
Name: Mona Wan
Title: Associate Director
Date: December 7, 2020

GRAPHITE BIO, INC.

Signature: /s/ Josh Lehrer
Name: Josh Lehrer
Title: CEO
Date: 4 December 2020

EXHIBIT A

Licensed Patents

[***]

EXHIBIT B

Pro Forma Capitalization Table

[***]

Appendix A - Milestones

1. Sickle Cell Disease

Milestone	Milestone Achievement Date
[***]	By [***]
[***]	By [***]
[***]	By [***]

2. SCID-X

Milestone	Milestone Achievement Date
[***]	By [***]
[***]	By [***]
[***]	By [***]

3. Beta-thalassemia

Milestone	Milestone Achievement Date
[***]	By [***]
[***]	By [***]
[***]	By [***]

Appendix B - Earned Royalty Report

[***]

Appendix C – Technology

Protocols regarding programs focused specifically on sickle cell disease (gcHBB-SCD) andSCID-X1 (gcIL2RG-SCID) and beta thalassemia and related know-how. In vitro and in vivo data, preclinical safety, efficacy and toxicology and other data, regulatory filings and communications, process development information, clinical trial designs, batch run data, etc. for the therapeutic programs. Regulatory filings, including any INDs, will be transferred upon mutually agreed timing consistent with Graphite plan to bring these potentially powerful new treatments to patients.

[***]

Appendix E – Materials Acknowledgment

[***]

[***] Certain information in this document has been omitted from this exhibit pursuant to Item 601(b) of RegulationS-K because it is not material.

AMENDMENT No 1

TO THE

EXCLUSIVE LICENSE AGREEMENT EFFECTIVE THE 7TH DAY OF DECEMBER 2020

BETWEEN

STANFORD UNIVERSITY

AND

GRAPHITE BIO, INC.

Effective the 4th day of March 2021, THE BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY ("Stanford"), an institution of higher education having powers under the laws of the State of California, and Graphite Bio, Inc. ("Graphite"), a Delaware corporation having a principal place of business at 279 East Grand Ave., South San Francisco, CA 94080, agree as follows:

1. BACKGROUND

Stanford and Graphite are parties to an Exclusive License Agreement effective the 7th day of December 2020 ("Original Agreement") covering modified guide RNAs for [***] disclosed in Stanford docket [***], from the laboratory of Professor Matthew Porteus.

Stanford and Graphite wish to amend the Original Agreement to change the date on which Graphite will issue equity to the inventors or their heirs according to the inventor list that Stanford will provide prior to issuance.

2. AMENDMENT

2.1 Paragraph 7.2 of Original Agreement is hereby deleted in its entirety and replaced with the following:

"7.2 **Equity Interest**. As further consideration, Graphite will grant to Stanford (or its designees as provided below) an aggregate of 1,080,262 shares of common stock in Graphite. When issued, those shares will represent [***]% of the common stock in Graphite on a Fully-Diluted Basis as of the closing of the first tranche of Graphite's Series A preferred stock financing and as reflected in the pro forma capitalization table set forth in Exhibit B. Within [***] unless requested earlier in writing by Stanford, Graphite will provide Stanford with its current capitalization table and the [***]. Graphite will provide Stanford with the [***]. On the 4-month anniversary of the Effective Date, but not before, Graphite will issue [***]% of all shares committed to Stanford pursuant to this Section 7.2 and Section 7.3 below directly to and in the name of the inventors or their heirs according to the inventor list that Stanford will provide prior to issuance."

2.2 Paragraph 7.3 of Original Agreement is hereby deleted in its entirety and replaced with the following:

"7.3 **Anti-Dilution Protection.** Graphite will issue Stanford (or its designees), without further consideration, an aggregate of 478,325 additional shares of common stock in Graphite based on the closing of the second tranche of the Series A preferred stock financing of Graphite, which occurred on December 28, 2020, which maintains Stanford at [***]% of the common shares of Graphite issued and outstanding on a Fully-Diluted Basis as of such closing. The Anti-Dilution Protection under this Section 7.3 will continue until an amount of $[***], when aggregated with prior closings, has been raised by Graphite in a bona fide round of financing through the sale of securities or by conversion of instruments convertible into equity ("**Dilution Trigger**"). If the Dilution Trigger is reached or exceeded during a specific round of funding, Anti-Dilution Protection will extend to the total amount of funding raised through the Dilution Trigger only and shall not apply to any amounts raised by Graphite in such round of funding in excess of the Dilution Trigger."

3. OTHER TERMS

3.1 All other terms of the Original Agreement remain in full force and effect.

3.2 The parties to this document agree that a copy of the original signature (including an electronic copy) may be used for any and all purposes for which the original signature may have been used. The parties further waive any right to challenge the admissibility or authenticity of this document in a court of law based solely on the absence of an original signature.

The parties execute this Amendment No 1 by their duly authorized officers or representatives.

THE BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY

Signature: /s/ Mona Wan
Name: Mona Wan
Title: Associate Director
Date: 3/4/2021

GRAPHITE BIO, INC.

Signature: /s/ Josh Lehrer
Name: Josh Lehrer
Title: Chief Executive Officer
Date: 3/4/2021

[***] Certain information in this document has been omitted from this exhibit pursuant to Item 601(b) of RegulationS-K because it is not material.

AMENDMENT No 2

TO THE

EXCLUSIVE LICENSE AGREEMENT EFFECTIVE THE 7TH DAY OF DECEMBER 2020

BETWEEN

STANFORD UNIVERSITY

AND

GRAPHITE BIO, INC.

Effective the 7th day of April 2021, THE BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY ("Stanford"), an institution of higher education having powers under the laws of the State of California, and Graphite Bio, Inc. ("Graphite"), a Delaware corporation having a principal place of business at 279 East Grand Ave., South San Francisco, CA 94080, agree as follows:

1. BACKGROUND

Stanford and Graphite are parties to an Exclusive License Agreement effective the 7th day of December 2020 and amended the 4th day of March 2021 ("Amended Original Agreement") covering modified guide RNAs for [***] disclosed in Stanford docket [***], from the laboratory of Professor Matthew Porteus.

Stanford and Graphite wish to amend the Amended Original Agreement to change the date on which Graphite will issue equity to the inventors or their heirs according to the inventor list that Stanford will provide prior to issuance.

2. AMENDMENT

2.1 Paragraph 7.2 of the Amended Original Agreement is hereby deleted in its entirety and replaced with the following:

"7.2 **Equity Interest**. As further consideration, Graphite will grant to Stanford (or its designees as provided below) an aggregate of 1,080,262 shares of common stock in Graphite. When issued, those shares will represent [***]% of the common stock in Graphite on a Fully-Diluted Basis as of the closing of the first tranche of Graphite's Series A preferred stock financing and as reflected in the pro forma capitalization table set forth in Exhibit B. Within [***] unless requested earlier in writing by Stanford, Graphite will provide Stanford with its current capitalization table and the [***]. Graphite will provide Stanford with the [***]. On the 5-month anniversary of the Effective Date, but not before, Graphite will issue [***]% of all shares committed to Stanford pursuant to this Section 7.2 and Section 7.3 below directly to and in the name of the inventors or their heirs according to the inventor list that Stanford will provide prior to issuance."

3. OTHER TERMS

3.1 All other terms of the Amended Original Agreement remain in full force and effect.

3.2 The parties to this document agree that a copy of the original signature (including an electronic copy) may be used for any and all purposes for which the original signature may have been used. The parties further waive any right to challenge the admissibility or authenticity of this document in a court of law based solely on the absence of an original signature.

The parties execute this Amendment No 2 by their duly authorized officers or representatives.

THE BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY

Signature: /s/ Sunita Rajdev
Name: Sunita Rajdev
Title: Senior Associate Director
Date: 08-Apr-2021

GRAPHITE BIO, INC.

Signature: /s/ Philip Gutry
Name: Philip Gutry
Title: CBO
Date: 08-Apr-2021

[***] Certain information in this document has been omitted from this exhibit pursuant to Item 601(b) of Regulation S-K because it is not material.

EXCLUSIVE OPTION AGREEMENT

This Option Agreement ("**Option**" or "**Agreement**") between THE BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY ("**Stanford**"), an institution of higher education having powers under the laws of the State of California, and Graphite Bio, Inc., a Delaware corporation ("**Graphite**"), having a principal place of business at 279 East Grand Ave., South San Francisco, CA 94080, is effective on the 22nd day of January, 2021 ("**Effective Date**").

1. BACKGROUND

Stanford and Graphite are parties to that certain Exclusive License Agreement effective December 7, 2020 (the "**License Agreement**").

Stanford has an assignment of a first invention that is entitled "[***]," which was invented in the laboratory of Matthew Porteus and is described in Stanford Docket [***]. The invention described in [***] and was made in the course of research supported by the National Institute of Health.

Stanford has an assignment of a second invention entitled "[***]," which was invented in the laboratory of Matthew Porteus and is described in the Stanford Docket [***]. The invention was made in the course of research supported by the National Institute of Health.

Stanford has an assignment of a third invention entitled "[***]," which was invented in the laboratory of Matthew Porteus and is described in the Stanford Docket [***]. The invention was made in the course of research supported by the National Institute of Allergy and Infectious Diseases and the California Institute of Regenerative Medicine.

The inventions described in Stanford Dockets [***], and [***] are collectively the "**Additional Inventions**".

Stanford wants to have the Additional Inventions perfected and marketed as soon as possible so that resulting products may be available for public use and benefit.

Under the terms of the License Agreement, Graphite is obtaining this exclusive option to license the Additional Inventions and upon exercise of this option, the Additional Inventions would be included in the Licensed Patents (as defined below) and Technology (as defined below) licensed to Graphite under the License Agreement in each case via an amendment to the License Agreement.

2. DEFINITIONS

2.1 Capitalized terms used in this Agreement and not otherwise defined herein shall have their respective meanings set forth in the License Agreement.

2.2 "**Amended License Agreement**" has the meaning set forth in Section 3.4.

2.3 "**License Agreement**" has the meaning set forth in the preamble.

2.4 "**Licensed Product**" means a product, method or service in the Optioned Field of Use:

(A) the making, having made, using, importing or selling of which, absent the rights granted in the Option Agreement, infringes, induces infringement or contributes to infringement of an Optioned Patent; or

(B) which is made with, uses or incorporates any Optioned Technology.

2.5 "**Licensed Territory**" means worldwide; provided, however, that to the extent Stanford does not have a right as of the Effective Date to grant the licenses contemplated by Section 3.1 below under any of the Licensed Patents in the Licensed Field of Use worldwide, the "Licensed Territory" with respect to such Licensed Patents shall exclude such jurisdictions in which Stanford does not have such right; and provided further, however, that Graphite shall have the right to reduce the Licensed Territory from worldwide to a list of specified jurisdictions upon written request to Stanford.

2.6 "**Negotiation Period**" has the meaning set forth in Section 3.4.

2.7 "**Option Period**" has the meaning set forth in Section 3.2.

2.8 "**Optioned Field of Use**" means human prophylactics and therapeutics, specifically excluding commercialization of research reagents and research products, solely for the following indications:

(A) sickle cell disease (the "**Sickle Cell Disease Field of Use**");

(B) X-linked severe combined immunodeficiency (SCID-X) (the "**SCID-X Field of Use**"); and

(C) beta thalassemia (the "**Beta Thalassemia Field of Use**").

2.9 "**Optioned Patents**" means Stanford's rights in the patent applications and patents set forth in Appendix A, and any divisionals, continuations, Continuations-in-Part (as defined below), or substitute applications; any patents issued or granted from any such patent applications; any reissues, renewals, reexamination, extension (including by virtue of any supplementary protection certificate) of any such patents; any confirmation patents, inventor's certificates, applications for inventor's certificate or registration patents or patents of addition based on any such patents; and all foreign counterparts or equivalents in any country or jurisdiction of any of the foregoing patent applications and patents. "Continuation-in-Part" means any claims of any continuation-in-part patent application to the extent the claims are entirely supported in the parent application's original specification and entitled to the parent application's priority date. For the avoidance of doubt, the patent owner(s) will retain control over filing and prosecution of the Licensed Patents, even if the fees are reimbursed by Graphite, as such filing and prosecution rights and obligations are set forth in the License Agreement.

2.10 "**Optioned Technology**" means Stanford's rights in the additional know-how, data and materials specifically listed in Appendix B to this Agreement or as amended by the mutual written agreement of the parties during the Option Period or for up to six (6) months after the effective date of the Amended License Agreement, provided that such Optioned Technology: (a) was developed in the laboratory of Principal Investigator, (b) exists as of or is developed within six (6) months after the effective date of the Amended License Agreement and for which Stanford has received a consent in writing from the Principal Investigator and/or other lead contributors, (c) is necessary or useful for research, development or commercialization of Licensed Products, (d) is unpublished, and (e) is not covered by any Third Party rights that would prevent delivery to Graphite. Optioned Technology may or may not be confidential in nature. The Optioned Technology identified as Exclusive under the heading "Exclusivity" in Appendix B shall be referred to herein as the "**Optioned Exclusive Technology**." The Optioned Technology identified as Non-Exclusive under the heading "Exclusivity" in Appendix B shall be referred to herein as the "**Optioned Nonexclusive Technology**."

2.11 "**Principal Investigator**" means Professor Matthew Porteus.

2.12 "**Stanford Indemnitees**" means Stanford, Stanford Health Care, Lucile Packard Children's Hospital at Stanford and their respective trustees, officers, employees, students, agents, faculty, representatives, and volunteers.

3. GRANT OF OPTION

3.1 **Grant**. Subject to the terms and conditions of this Agreement, Stanford grants Graphite an option, during the Negotiation Period (as defined below), to acquire an Exclusive license under Stanford's interest in the Optioned Patents and the Optioned Exclusive Technology in the Optioned Field of Use and a non-exclusive license under Stanford's interest in the Optioned Patents and the Optioned Technology in the Rx Field of Use, as well as a nonexclusive license to the Optioned Nonexclusive Technology in the Optioned Field of Use and Rx Field of Use (the "**Option**"). This Agreement also provides Graphite a right to make and use Licensed Products during the Option Period and Negotiation Period but does not give Graphite any right to sell or offer to sell Licensed Products prior to the exercise of this Option and the execution of an Amended License Agreement that includes a license to the Licensed Patents covering such Licensed Product. During the Option Period (and if Graphite exercises the Option, during the Negotiation Period), unless otherwise agreed to by Graphite in writing in its sole and absolute discretion, Stanford will not grant to any Third Party any right or license, or option to negotiate or acquire a right or license, under Stanford's interest in the Optioned Patents in the Optioned Field of Use to make, have made, use, import, offer to sell and sell or otherwise commercially exploit: (i) the Licensed Products in the Licensed Territory nor (ii) the Optioned Patents in any manner that diminishes the ability of Graphite to receive the full benefit of the Option. The parties hereby agree that [***]. Graphite agrees that it has no authority to make any decisions on behalf of Stanford regarding Licensed Patents and Optioned Patents without written approval from Stanford except for such authority that may be granted to Graphite with respect to Licensed Patents under the terms of the License Agreement.

3.2 **Term**. The term of the right to elect to exercise this Option shall commence on the Effective Date and expires on the earliest of (a) termination of the License Agreement, (b) Graphite's termination as provided in Section 8.1 below, or (c) the eighteen (18) month anniversary of the Effective Date, provided that such eighteen (18) month anniversary of the Effective Date may be extended, (i) upon written notice of Graphite provided no later than thirty (30) days prior to such eighteen (18) month anniversary for an additional one (1) year and (ii) upon written request of Graphite provided no later than thirty (30) days prior to the thirty (30) month anniversary of the Effective Date and mutual agreement of Stanford (not to be unreasonably withheld) for another additional one (1) year (such period, as it may be extended in accordance with this Section 3.2, the "**Option Period**"). Notwithstanding the provisions of Section 3.2(c)(i) or 3.2(c)(ii), no such request of Graphite as contemplated thereby shall be valid if upon the date of such request Stanford shall have provided Graphite with written notice of termination of the License Agreement pursuant to Section 15.2 of the License Agreement and neither Stanford has withdrawn such notice nor Graphite shall have remedied the grounds for termination in accordance with the terms of Section 15.2 of the License Agreement.

3.3 **Exercise**. Graphite may exercise the Option by providing a written notice to Stanford if [***] or Stanford otherwise agrees in writing. Graphite may exercise the Option at any time during the Option Period; provided, however, that no such exercise shall be valid if upon the date of such exercise Stanford shall have provided Graphite with written notice of termination of the License Agreement pursuant to Section 15.2 of the License Agreement and neither Stanford has withdrawn such notice nor Graphite shall have remedied the grounds for termination in accordance with the terms of Section 15.2 of the License Agreement. The Option is a series of options with respect to each of the Optioned Patents, such that Graphite may exercise the Option with respect to one or more of the Optioned Patents from time to time during the Option Period.

3.4 **Amendment of License Agreement**. If Graphite elects to exercise the Option under Section 3.3, Stanford and Graphite will promptly execute and deliver a written amendment to the License Agreement, as further described below, (such amended license agreement, an "**Amended License Agreement**"). An Amended License Agreement would provide as follows: (a) the term "Licensed Patents" as set forth in the License Agreement shall be amended by adding the Optioned Patents for which the Option was exercised to such definition; and (b) the term "Technology" as set forth in the License Agreement shall be amended by adding the Optioned Technology for which the Option was exercised to such definition, with the Optioned Exclusive Technology and Optioned Nonexclusive Technology being added to the applicable portions of Appendix C of the License Agreement. Graphite and Stanford will use good faith efforts to execute and deliver an Amended License Agreement within three (3) months after the date of exercise of the Option under Section 3.3 (the "**Negotiation Period**"). The parties acknowledge that absent any additional language related to [***] or any other third party obligations that Stanford may become aware of during the Option Period and/or Negotiation Period, the terms of the Amended License Agreement will remain the same as those in the License Agreement in all material respects except as outlined in Sections 3.5 and 6 of this Agreement. The parties will negotiate the definitive terms of such Amended License Agreement in good faith.

3.5 **Additional Equity Grants**.

(A) Within sixty (60) days after the execution and delivery of the first Amended License Agreement, Graphite will grant to Stanford 222,735 shares of common stock in Graphite. For clarity, there is a single grant of 222,735 shares of common stock whether or not the Option is exercised once in its entirety or in a series of exercises, and if the Option is exercised in a series of exercises, such grant shall be made upon the delivery of the Amended License Agreement resulting from the first of such exercises (such Amended License Agreement, the "**First Amended Agreement**").

(B) Provided that the First Amended Agreement has been executed and delivered, Graphite will issue Stanford, without further consideration, 98,623 additional shares of common stock in Graphite at the second tranche of the Series A preferred stock financing of Graphite as of the closing of such tranche, as reflected in the pro forma capitalization table set forth in Exhibit B to the License Agreement. For clarity, there is a single grant of 98,623 shares of common stock whether or not the Option is exercised once in its entirety or in a series of exercises. In the event that such second tranche closing has occurred prior to the execution and delivery of the First Amended Agreement, such additional shares shall be issued at the same time as the shares being issued under Section 3.5(A). In the event that Graphite closes a financing of a series of preferred stock other than Series A preferred stock prior to the closing of the second tranche of the Series A preferred stock financing, the number of shares issuable to Stanford pursuant to this Section 3.5(B) will be adjusted so that such number equals [***]% of the common shares of Graphite issued and outstanding on a Fully-Diluted Basis as of the closing of such other preferred stock financing. The anti-dilution protection under this Section 3.5(B) will continue until the Dilution Trigger has been achieved. If the Dilution Trigger is reached or exceeded during a specific round of funding, the anti-dilution protection under this Section 3.5(B) will extend to the total amount of funding raised through the Dilution Trigger only and shall not apply to any amounts raised by Graphite in such round of funding in excess of the Dilution Trigger.

(C) After the first exercise of the Option but not later than the start of the Negotiation Period and pursuant to Section 3.5(A) or Section 3.5(B), Graphite will provide Stanford with its current capitalization table and [***]. Upon written request of Stanford, Graphite will issue [***]% of all shares granted to Stanford pursuant to this Section 3.5 directly to and in the name of the inventors or their heirs according to the inventor list that Stanford will provide prior to issuance.

3.6 **Materials Transfer**. To the extent Stanford has legal rights to do so, the exercise of the Option would also include materials transfer of any materials included in the Option Technology as is provided in the License Agreement for the programs licensed thereunder in the Initial Field of Use.

3.7 **Retained Rights**. Stanford retains the right, on behalf of itself, Stanford Health Care, Lucile Packard Children's Hospital at Stanford and all other non-profit research institutions, to practice the Optioned Patents and use Optioned Technology in the Optioned Field of Use for anynon-profit purpose, including sponsored research and collaborations. Graphite agrees that, notwithstanding any other provision of this Agreement, it has no right to enforce the Optioned Patents or Optioned Technology against any such institution. Stanford and any such other institution have the right to publish any information included in the Optioned Technology or an Optioned Patent or any other information that may result from further research.

3.8 **Specific Exclusion**. Stanford does not:

(A) grant to Graphite any other licenses, implied or otherwise, to any patents or other rights of Stanford other than those rights granted under Optioned Patents, regardless of whether the patents or other rights are dominant or subordinate to any Optioned Patent or are required to exploit any Optioned Patent or Optioned Technology;

(B) agree to furnish to Graphite any technology or technological information other than the Optioned Technology or to provide Graphite with any assistance; or

(C) make any representation or warranty, and expressly disclaims any such representation or warranty, express or implied, that it is the sole-owner of the Additional Inventions.

4. GOVERNMENT RIGHTS

This Agreement is subject to Title 35 Sections 200-204 of the United States Code. Among other things, these provisions provide the United States Government with nonexclusive rights in the Optioned Patents. They also impose the obligation that Licensed Product sold or produced in the United States be "manufactured substantially in the United States." Graphite will ensure all obligations of these provisions are met.

5. DILIGENCE

Graphite agrees to exercise due diligence in conducting research on potential commercial applications for Optioned Patents and Optioned Technology on terms substantially similar to those provided in the License Agreement.

6. CONSIDERATION

A. No separate consideration shall be due for the grant or upon exercise of the Option. Parties agree that the License Issue Fee and the Total Equity Interest (equity grant under the License Agreement and this Option Agreement) is in consideration for the Licensed Patents and Optioned Patents. An additional $10,000 will be included as part of the License Issue Fee once S19-501B case is included in the License Agreement via an amendment per Section 3.4.

B. Patent Costs: Within 30 days after receiving a reasonably detailed statement of Stanford's actual costs incurred in the filing, prosecution or maintenance of the Optioned Patents in accordance with Stanford's usual practice, provided Stanford will provide further details if Graphite requests such for a specific invoice, Graphite will reimburse Stanford:

a. $[***] to offset Optioned Patent's patenting expenses (specifically for Stanford Docket [***]), including but not limited to interference or reexamination matters, inventorship or ownership disputes and opposition proceedings incurred by Stanford before the Effective Date; and

b. for all Optioned Patent's patenting expenses after the Effective Date and during the term of the Option and any Negotiation Period, including but not limited to interference or reexamination matters, inventorship disputes and opposition proceedings, in each case, reasonably incurred by Stanford after the Effective Date, Stanford will pay the fees prescribed for large entities to the United States Patent and Trademark Office. If Graphite requests that Stanford pay fees prescribed for a small entity, then Graphite will bear all responsibility for notifying Stanford if its status changes to large entity. Graphite is herein notified that the determination of entity size for the United States Patent and Trademark Office depends not only on the size of Graphite, but also may depend on the size of any companies to which Graphite has granted licenses.

7. INDEMNITY

7.1 **Indemnification**. Graphite will indemnify, hold harmless, and defend all Stanford Indemnitees against any claim of any kind arising out of or related to the exercise of any rights granted Graphite under this Agreement, reliance upon this Agreement or the execution of the License Agreement, or the breach of this Agreement by Graphite.

7.2 **No Indirect Liability**. Stanford is not liable for any special, consequential, lost profit, expectation, punitive or other indirect damages in connection with any claim arising out of or related to this Agreement, whether grounded in tort (including negligence), strict liability, contract, or otherwise, and regardless of any notice of the possibility of such damages. Except for liability arising under its indemnification obligations under Section 7.1 or for any use by Graphite of the Optioned Patents and Optioned Technology that is outside the scope of the rights to such intellectual property granted to Graphite under this Agreement, Graphite is not liable for any special, consequential, lost profit, expectation, punitive or other indirect damages in connection with any claim arising out of or related to this Agreement, whether grounded in tort (including negligence), strict liability, contract, or otherwise, and regardless of any notice of the possibility of such damages.. Furthermore, despite the obligation to negotiate during the Negotiation Period in good faith, neither Stanford nor Graphite shall have any liability for refusing to compromise on any issue, accepting risks associated with any unresolved legal claim, or for failing to execute any agreement, including the License Agreement.

7.3 **Workers' Compensation.** Graphite will comply with all statutory workers' compensation and employers' liability requirements for activities performed under this Agreement.

7.4 **Insurance.** During the term of this Agreement, Graphite will maintain such Commercial General Liability Insurance and Product Liability Insurance as are required under the terms of the License Agreement.

8. TERMINATION

8.1 **Termination by Graphite**. Graphite agrees to promptly notify Stanford at any time during the Option Period when Graphite has determined not to exercise the Option. Graphite also agrees to provide Stanford, in reasonable detail, the basis for this determination.

8.2 **No Residual Rights**. Upon expiration or termination of this Option, or upon Graphite's decision not to enter into a License Agreement, whichever is earlier, Graphite will have no residual or other rights in Licensed Patents or Technology.

9. STANFORD NAMES AND MARKS

Graphite will not use (i) Stanford's name or other trademarks, (ii) the name or trademarks of any organization related to Stanford, or (iii) the name of any Stanford faculty member, employee, student or volunteer. This prohibition includes, but is not limited to, use in press releases, advertising, marketing materials, other promotional materials, presentations, case studies, reports, websites, application or software interfaces, and other electronic media. Notwithstanding the foregoing, Graphite may include Stanford's name in factual statements in legal proceedings, patent applications, regulatory filings and, as applicable, in biographies of its officers, directors, employees and advisors. In addition, Graphite may make a short factual statement that identifies Stanford as the grantor of the rights granted under this Agreement to actual or potential investors or acquirers, as well as in the "About Graphite" or other similar section of the Graphite website.

10. ASSIGNMENT

Graphite may not assign this Agreement except in connection with a permitted assignment of the License Agreement. Upon a permitted assignment of this Agreement, Graphite will be released of liability under this Agreement and the term "Graphite" in this Agreement refer solely to the applicable assignee.

11. NOTICES

All notices under this Agreement are deemed fully given when written, addressed, and sent as follows:

All general notices to Graphite are mailed or emailed to:

Graphite Bio, Inc.

[***]

with a copy (which shall not constitute notice) to:

Goodwin Procter, LLP

Attn: Richard Hoffman

Email: rhoffman@goodwinlaw.com

100 Northern Avenue

Boston, MA 02210

All invoices to Graphite (i.e., accounting contact) aree-mailed to:

Accounts Payable

[***]

All general notices to Stanford are e-mailed or mailed to:

Office of Technology Licensing

[***]

All payments to Stanford are mailed to:

Stanford University

Office of Technology Licensing

[***]

Either party may change its address with written notice to the other party.

12. MISCELLANEOUS

12.1 **Waiver**. No term of this Agreement can be waived except by the written consent of the party waiving compliance.

12.2 **Scope of Agreement**. This Agreement, and to the extent referred to herein, the License Agreement, constitute the entire agreement, and supersede all prior agreements, between the parties pertaining to the subject matter hereof. No representative of Stanford or Graphite has been authorized to make any representation, warranty, or promise not contained herein.

12.3 **Choice of Law**. This Agreement and any dispute arising under it is governed by the laws of the State of California, United States of America, applicable to agreements negotiated, executed, and performed within California.

12.4 **Exclusive Forum**. The state and federal courts having jurisdiction in the County of Santa Clara, California, United States of America, provide the exclusive forum for any court action between the parties relating to this Agreement. Graphite submits to the jurisdiction of such courts and waives any claim that such a court lacks jurisdiction over Graphite or constitutes an inconvenient or improper forum.

12.5 **Headings**. No headings in this Agreement affect its interpretation.

12.6 **Electronic Copy**. The parties to this document agree that a copy of the original signature (including an electronic copy) may be used for any and all purposes for which the original signature may have been used. The parties further waive any right to challenge the admissibility or authenticity of this document in a court of law based solely on the absence of an original signature.

[*Remainder of page intentionally left blank. Signature page follows.*]

The parties execute this Agreement by their duly authorized officers or representatives.

THE BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY

Signature: /s/ Mona Wan
Name: Mona Wan
Title: Associate Director
Date: 1/22/2021

GRAPHITE BIO, INC.

Signature: /s/ Josh Lehrer
Name: Josh Lehrer
Title: CEO
Date: 1/22/2021

Appendix A – Optioned Patents

[***]

Appendix B- Optioned Technology
[Intentionally Left Blank]

[***] Certain information in this document has been omitted from this exhibit pursuant to Item 601(b) of RegulationS-K because it is not material.

EXCLUSIVE OPTION AGREEMENT

This Option Agreement ("Option" or "Agreement") between THE BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY ("Stanford"), an institution of higher education having powers under the laws of the State of California, and Graphite Bio, Inc., a Delaware corporation ("Graphite"), having a principal place of business at 279 East Grand Ave., South San Francisco, CA 94080, is effective on the 12th day of April, 2021 ("Effective Date").

1. BACKGROUND

Stanford has assignments of certain inventions listed below from the laboratory of Professor Matthew Porteus ("**Principal Investigator**") related to guide RNAs for gene editing:

(A) [***], entitled "[***]". The invention described in Stanford Docket [***] isco-owned by Stanford and [***] and was made in the course of research supported by the National Institute of Health, Amon G. Carter Foundation, Danish Council for Independent Research, and Myotonic Dystrophy Foundation.

(B) [***], entitled "[***]". The invention was made in the course of research supported by the Amon G. Carter Foundation and a gift from Joe Lacob;

(C) [***], entitled "[***]". The invention was made in the course of research supported by the Amon G. Carter Foundation and a gift from Joe Lacob.

(D) [***], entitled "[***]". The invention was made in the course of research supported by the Amon G. Carter Foundation and a gift from Joe Lacob. Since no patent application has yet been filed for this case, Graphite understands and agrees that there may be additional sponsors;

(E) [***], entitled "[***]" and the related US provisional patent application [***]. The invention was made in the course of research supported by the National Institute of Health (NIH), the National Organization for Rare Disorders (NORD), and the Thrasher Research Fund; and

(F) [***], entitled "[***]". The invention was made in the course of research supported by the California Institute of Regenerative Medicine ("**CIRM**") and the Department of Veterans Affairs ("**VA**"). Therefore, any option or subsequent license is/will be subject to the terms of the: (1) CIRM grant and (2) an Invention Management Agreement (IMA) between the VA and Stanford, with an effective date of August 24, 2017 that authorizes Stanford to exclusively manage certain inventions on behalf of both Stanford and the VA, provided VA has provided an official notification. Stanford has not yet received such notification but is in the process of obtaining one. To date, the invention has been managed by the Stanford.

(G) [***], entitled "[***]". The invention was made in the course of research supported by the National Institutes of Health (NIH).

(H) [***], entitled "[***]". The invention described in Docket [***] is subject to [***] and was made in the course of research supported by the National Institute of Health.

(I) [***], entitled "[***]". The invention was made in the course of research supported by the National Institute of Health.

Stanford and Graphite are parties to that certain Exclusive License Agreement effective December 7, 2020 (the "**Existing License Agreement**").

Stanford wants to have these additional inventions perfected and marketed as soon as possible so that resulting products may be available for public use and benefit.

The parties agree as follows:

2. DEFINITIONS

Whenever used in this Agreement with an initial capital letter, the following terms, whether used in the singular or the plural, shall have the meanings specified below.

2.1 **"Affiliate"** means any person, corporation, or other business entity which controls, is controlled by, or is under common control with Graphite; and for this purpose, "control" of a corporation means the direct or indirect ownership of more than fifty percent (50%) of its voting stock, and "control" of any other business entity means the direct or indirect ownership of greater than a fifty percent (50%) of the equity interests in such entity with the power to direct the management and policies of such entity. A person or entity shall be deemed an Affiliate only for so long as such control exists.

2.2 **"Amended License Agreement"** has the meaning set forth in Section 3.1.

2.3 "[***]" means [***].

2.4 "**CIRM**" has the meaning set forth in the preamble.

2.5 **"Commercialization Plan"** means a reasonably detailed business plan for each contemplated product and service containing, but not limited to, the following information: [***].

2.6 **"[***]"** has the meaning set forth in [***].

2.7 **"Exclusive"** means that, subject to Sections 3 and 4, Stanford will not grant further licenses under the Optioned Patents in the Option Field of Use in the Licensed Territory.

2.8 **"Exclusively Licensed**" shall have the meaning ascribed to the term "Exclusive" as set forth in the Existing License Agreement, as it may be amended from time to time.

2.9 **"Exercise of Option Notification"** has the meaning set forth in Section 4.1(A).

2.10 "**Existing License Agreement**" has the meaning set forth in the preamble.

2.11 "**Initial Field of Use**" shall have the meaning set forth in the Existing License Agreement, as it may be amended from time to time.

2.12 **"Licensed Patents**" shall have the meaning set forth in the Existing License Agreement, as it may be amended from time to time.

2.13 **"Licensed Product"** means a product, method or service in the Option Field of Use or Initial Field of Use:

(A) the making, having made, using, importing or selling of which, absent the License Agreement, infringes, induces infringement, or contributes to infringement of an Optioned Patent; or

(B) which is made with, uses or incorporates any Optioned Technology.

2.14 **"Licensed Technology**" shall have the meaning ascribed to the term "Technology" as set forth in the Existing License Agreement, as it may be amended from time to time.

2.15 **"Licensed Territory"** means worldwide; provided, however, that to the extent Stanford does not have a right as of the Effective Date to grant the licenses contemplated by Section 3.1 below under any of the Optioned Patents in the Option Field of Use worldwide, the "Licensed Territory" with respect to such Optioned Patents shall exclude such jurisdictions in which Stanford does not have such right; and provided further, however, that Graphite shall have the right to reduce the Licensed Territory from worldwide to a list of specified jurisdictions upon written request to Stanford.

2.16 **"List of Indications"** means the following diseases or indications:

(A) [***], Gaucher Disease, Krabbe Disease, and [***];

(B) [***];

(C) Cystic Fibrosis; and

(D) Hemophilia A/B, Alpha-1 Antitrypsin Deficiency, Hereditary Angioedema, and [***].

2.17 **"Negotiation Period"** has the meaning set forth in Section 4.2.

2.18 **"New License Agreement"** has a meaning set forth in Section 3.1.

2.19 **"Option"** has the meaning set forth in Section 3.1.

2.20 **"Option Field of Use"** means human prophylactics and therapeutics, specifically excluding commercialization of research reagents, research tools, reagent kits, diagnostics and research products, solely for the following indications:

(A) "**CCR5 Integration Program Field of Use**": treatment of diseases though insertion of a construct into the CCR5 locus, including the treatment of [***], Gaucher Disease, Krabbe Disease, & [***]. Stanford Docket [***].

(B) **"Primary Immunodeficiency Program Field of Use"**: treatment of [***]. Stanford Dockets [***].

(C) "**Cystic Fibrosis Program Field of Use**": treatment of Cystic Fibrosis. Stanford Dockets [***].

(D) "**Alpha Globin Program Field of Use**": treatment of diseases though insertion of a construct into the alpha-globin locus, including the treatment of Hemophilia A/B, Alpha-1 Antitrypsin Deficiency, Hereditary Angioedema, [***]. Stanford Dockets [***].

2.21 **"Optioned Patents"** means:

(A) Stanford's and the VA's rights in the patent applications and patents set forth in Exhibit B, and any divisionals, continuations, Continuations-in-Part (as defined below), or substitute applications; any patents issued or granted from any such patent applications; any reissues, renewals, reexamination, extension (including by virtue of any supplementary protection certificate) of any such patents; any confirmation patents, inventor's certificates, applications for inventor's certificate or registration patents or patents of addition based on any such patents; and all foreign counterparts or equivalents in any country or jurisdiction of any of the foregoing patent applications and patents. "Continuation-in-Part" means any claims of any continuation-in-part patent application to the extent the claims are entirely supported in the parent application's original specification and entitled to the parent application's priority date.

(B) Subject to any Third-Party restrictions or sponsor obligations, Stanford's rights in unfiled patents related to the Stanford Dockets included in the Option Fields of Use and solely developed in the laboratory of Matthew Porteus, as Stanford and Graphite mutually agree in their sole discretion and as set forth in an amendment to this Agreement.

2.22 **"Optioned Technology"** means Stanford's and the VA's rights in the additionalknow-how, data and materials specifically listed in Exhibit A to this Agreement or as amended by the mutual written agreement of the parties during the Option Period or for up to six (6) months after the effective date of execution of the Amended License Agreement or New License Agreement by the Parties, provided that such Optioned Technology: (a) was developed in the laboratory of Principal Investigator, (b) exists as of or is developed within six (6) months after the effective date of the Amended License Agreement or New License Agreement and for which Stanford has received a consent in writing from the Principal Investigator and/or other lead contributors, (c) is necessary or useful for research, development or commercialization of Licensed Products, (d) is unpublished, and (e) is not covered by any Third Party rights that would prevent delivery to Graphite.

Optioned Technology may or may not be confidential in nature. The Optioned Technology identified as Exclusive under the heading "Exclusivity" in Exhibit A shall be referred to herein as the "**Exclusive Technology**." The Optioned Technology identified as Non-Exclusive under the heading "Exclusivity" in Exhibit A shall be referred to herein as the "**Nonexclusive Technology**."

2.23 **"OTL"** has the meaning set forth in Section 4.1(B).

2.24 "**Principal Investigator**" has the meaning set forth in the preamble.

2.25 **"Right to Use"** has the meaning set forth in Section 3.1.

2.26 "**Rx Field of Use**" means human prophylactics and therapeutics, excluding commercialization of research reagents and research products.

2.27 **"Stanford Indemnitees"** means Stanford, VA, Stanford Health Care, Lucile Packard Children's Hospital at Stanford and their respective trustees, officers, employees, students, agents, faculty, representatives, and volunteers.

2.28 "**Third Party**" means any person or entity other than Stanford, Graphite or Graphite's Affiliates.

2.29 "**VA**" has the meaning set forth in the preamble.

3. GRANT

3.1 **Grant.** Subject to the terms and conditions of this Agreement, Stanford grants Graphite (a) the right to use the Optioned Patents and Optioned Technology during the Term and only in the Option Field of Use (the "**Right to Use**"), solely to provide the Optionee the opportunity to determine its interest in exercising the Option; and (b) a time-limited Option (the "**Option**") to elect to obtain, during the Negotiation Period (as defined below), a license under Stanford's rights in (i) Optioned Patents and Optioned Technology for the Option Field of Use and Initial Field of Use and (ii) Licensed Patents and Licensed Technology for the Option Field of Use, in each case, to make, have made, use, import, offer to sell and sell and otherwise commercially exploit Licensed Products and Technology in the Licensed Territory through either an amendment to the Existing License Agreement ("**Amended License Agreement**") or through a separate license agreement ("**New License Agreement**"). Such license under Optioned Patents and Licensed Patents, including the right to sublicense, shall be Exclusively Licensed in the indications specified at the time of exercise within the Option Field of Use and in the Initial Field of Use. Such license under the Exclusive Technology, including the right to sublicense, shall be (1) Exclusively Licensed in the indications specified at the time of exercise within the Initial Field of Use and in the Option Field of Use and (2) non-exclusive in the any other fields within the Rx Field of Use. Such license under the Nonexclusive Technology shall be non-exclusive in all fields in the Rx Field of Use. The Parties agree that the term "indications specified at the time of exercise" as used above is not intended to be limiting and, among other means of identification, may be specified by

a list of specific indications, by therapeutic area or by site of insertion of a construct, and in cases of specification by site of insertion of a construct, the Parties may agree on a process akin to that described in Section 4.1(B) to ensure that the applicable Optioned Patents may be exploited for indications that are not being, and not intended to be, researched, developed or commercialized by Graphite, its Affiliates or sublicensees. The Right to Use does not give Graphite any right to import, sell or offer to sell Licensed Products prior to entering into an Amended License Agreement or a New License Agreement. During the Option Period (and if Graphite exercises the Option, during the Negotiation Period), unless otherwise agreed to by Graphite in writing in its sole and absolute discretion, Stanford will not grant to any third party any right or license, or option to negotiate or acquire a right or license, under Stanford's interest in the Optioned Patents or Technology in the Option Field of Use or Initial Field of Use to make, have made, use, import, offer to sell and sell or otherwise commercially exploit: (x) the Licensed Products in the Licensed Territory, nor (y) the Optioned Patents in any manner that diminishes the ability of Graphite to receive the full benefit of the Option. The Right to Use specifically excludes right under the Optioned Patents and Optioned Technology to use Licensed Products in humans. The parties hereby agree that [***].

3.2 **Term.** Unless otherwise terminated by operation of law or by acts of the parties in accordance with the terms of this Agreement, the term of the right to elect to exercise this Option shall commence on the Effective Date and expires 12 months from the Effective Date, or upon Graphite's termination as provided in Section 4.1 below. Any termination or expiration of this Agreement will not relieve Graphite of its obligation to pay any fees or monies, including the Option fee, due or owing at the time of termination or expiration and will not impair any accrued rights of Stanford. Graphite may elect to extend the term of the Option in 1-year increments for a maximum of 2.0 years so that the total term of this Option may not exceed 3.0 years, provided that:

(A) Graphite gives 30 days' prior notice to Stanford for each of the two extensions;

(B) Stanford and Graphite mutually agree (not to be unreasonably withheld) to each] extension provided Graphite is in compliance with its obligations under Section 7; and

(C) Graphite pays the appropriate compensation under Section 8.1.

4. EXERCISE OF OPTION

4.1 **Exercise.**

(A) If [***] or Stanford otherwise agrees in writing, Graphite may exercise this Option by providing written notice to Stanford that includes Optioned Patents and Optioned Technology under one or more of the Option Field of Use. If [***], Graphite may only exercise this Option for Optioned Patents [***], by providing written notice to Stanford that includes Optioned Patents and Optioned Technology under one or more of the Option Field of Use. The Parties will then determine in good faith whether such Option Patents or Optioned Technology could be included in the Amended

License Agreement or should be included in a New License Agreement. Graphite may exercise this Option at any time during the term of the Option but prior to the expiration of this Agreement ("**Exercise of Option Notification**"). Such Exercise of Option Notification shall, (i) identify the particular patent applications, patents and specific indication(s) within the Option Field of Use for which Graphite wishes to obtain a license from Stanford, and (ii) include a written Commercialization Plan for at least one contemplated product and service within the applicable field of use. Stanford shall not be obligated to Graphite in any way to negotiate a license agreement for the Optioned Patents and shall deem that Graphite wishes not to exercise the Option to secure a license agreement if: (a) Graphite fails to notify Stanford its election to exercise the Option to negotiate a license within the required time period; or (b) Graphite fails to provide a Commercialization Plan to Stanford within thirty (30) days after the time it elects to exercise its right to negotiate a license; or (c) Graphite fails to provide Stanford at the time it elects to exercise its right to negotiate a license with a written certification signed by a senior executive officer of Graphite, authorized to provide such certification on behalf of Graphite at the time such certification is provided, that Graphite is in compliance with the terms in Section 7 (Diligence). The Option may be exercised from time to time in one or more parts with respect to one or more Optioned Patents and elements of Optioned Technology in one or more Option Field of Use.

(B) [***]

4.2 **Negotiation.** If Graphite has provided Stanford an Exercise of Notification, provided that Graphite is in compliance with the Existing License Agreement, and further provided the Commercialization Plan is reasonably acceptable to Stanford, Graphite and Stanford will promptly commence negotiation of an Amended License Agreement to include or a New License Agreement that includes Optioned Patents and Optioned Technology along with any additional financial terms and diligence milestones commensurate with the value and stage of development of the technology covered by Optioned Patents and Optioned Technology taking into consideration the Commercialization Plan, the scope of license sought by Graphite, industry standards and Stanford's legal obligations to any third party; provided, however, that Graphite and Stanford acknowledge that absent material and substantial differences between the Option Field of Use being licensed and the Initial Fields of Use licensed under the Existing License Agreement, the financial terms of such Amended License Agreement or New License Agreement would be the same as those set forth in the Existing License Agreement (excluding any grant of additional equity by Graphite). Graphite and Stanford will execute an Amended License Agreement or a New License Agreement no later than 3 months after the date of the Exercise of Option Negotiation. The parties will negotiate the terms in good faith. Notwithstanding any other provision of this Option to the contrary, neither party will be obligated to negotiate a license agreement beyond the period of (i) six (6) months from receipt of Exercise of Option Notification ("**Negotiation Period**"), or (ii) expiration or termination of the Option, whichever is later unless otherwise mutually agreed in writing by the parties. Without limiting the foregoing sentence, any discussions and/or negotiations between the parties subsequent to the Negotiation Period will not be construed to extend or revive the option granted hereunder or any party's obligation to negotiate the terms of the license agreement. The parties mutually acknowledge that good-faith negotiations may or may not result in the execution of the license agreement.

4.3 **Materials Transfer**. To the extent Stanford has legal rights to do so, the exercise of the Option would also include materials transfer of any materials included in the Optioned Technology.

4.4 **Retained Rights.** Stanford retains the right, on behalf of itself, Stanford Health Care, Lucile Packard Children's Hospital at Stanford, and all other non-profit research institutions, to practice the Optioned Patent and use Optioned Technology for anynon-profit purpose, including sponsored research and collaborations. Graphite agrees that, notwithstanding any other provision of this Agreement, it has no right to enforce the Optioned Patent against any such institution. Stanford and any such other institution have the right to publish any information included in any Optioned Technology or Optioned Patent.

4.5 **Specific Exclusion.** Stanford does not:

(A) grant to Graphite any other licenses, implied or otherwise, to any patents or other rights of Stanford or the VA other than those rights granted under Optioned Patent, regardless of whether the patents or other rights are dominant or subordinate to any Optioned Patent, or are required to exploit any Optioned Patent or Optioned Technology; or

(B) agree to furnish to Graphite any technology or technological information other than the Optioned Technology or to provide Graphite with any assistance.

(C) make any representation or warranty, and expressly disclaims any such representation or warranty, express or implied, that it is the sole owner of the Optioned Patents or Optioned Technology.

5. GOVERNMENT RIGHTS

5.1 This Agreement is subject to Title 35 Sections 200-204 of the United States Code. Among other things, these provisions provide the United States Government with nonexclusive rights in the Optioned Patent. They also impose the obligation that Licensed Product sold or produced in the United States be "manufactured substantially in the United States." Graphite will ensure all obligations of these provisions are met.

5.2 In addition, due to obligations to CIRM and Department of Veterans Affairs, any rights to [***] are subject to (a) Title 17, California Code of Regulations and the provisions of section 100607 under Title 17 place requirements on Graphite for access to Licensed Product in California (https://www.cirm.ca.gov/our-funding/cirm-stem-cell-grant-regulations). Any unfiled patents of undisclosed technology amended to be included as Optioned Patents or undisclosed Optioned Technology may be subject to further obligations to CIRM.

5.3 The United States Government shall have the nonexclusive, nontransferable, irrevocable, royalty-free,paid-up right to practice or have practiced the Optioned Patent subject to the IMA throughout the world by or on behalf of the United States Government and on behalf of any foreign government or international organization pursuant to any existing or future treaty or agreement to which the United States Government is a signatory.

5.4 Graphite certifies that it is in good standing to do business with the federal government regarding debarment, suspension, proposed debarment or other matters rendering them ineligible.

6. THIRD PARTY OBLIGATION AND RIGHTS:

6.1 This Agreement is further subject to overriding obligations and rights to the VA and CIRM.

7. DILIGENCE

7.1 Graphite agrees to exercise due diligence in conducting research on potential commercial applications for Optioned Patents and Optioned Technology.

7.2 Graphite shall undertake the requisite research and will spend a minimum of $[***] annually to develop and evaluate Licensed Products in the Option Field of Use to determine its interest in exercising the option.

7.3 Graphite also shall undertake reasonable efforts to:

(A) For the [***]

(a) [***]

(b) [***]

(c) [***]

(B) For the [***]

(a) [***]

7.4 The Parties agree to have a good faith discussion about modifying existing diligence efforts or adding additional diligence efforts for other Option Field of Uses at each extension period to ensure that Graphite still plans to develop those additional Option Field of Uses and amending Section 7.3 above, as appropriate

8. CONSIDERATION

8.1 In consideration of the grant by Stanford of the Right to Use and Option and for Stanford's forbearance from licensing other companies in the Option Field of Use during the term of the Option, Graphite will pay Stanford a non-refundable and non-creditable Option fees of:

(A) $10,000 within 30 days after the Effective Date;

(B) $10,000 within 30 days after the first anniversary of the Effective Date if the Option Period has been extended for a first additional year; and

(C) $10,000 within 30 days after the second anniversary of the Effective Date if the Option Period has been extended for a second additional year.

9. PATENT PROSECUTION

9.1 **Prosecution.** Subject to Section 9.3, Stanford shall diligently endeavor to prosecute and maintain the United States and foreign patents comprising Optioned Patents. Stanford shall use reasonable efforts to amend any patent application to include claims reasonably requested by Graphite and required to protect the Licensed Products. Stanford understands and agrees that Stanford's counsel will take instructions only from Stanford, and all patents and patent applications under this Option shall be assigned solely to Stanford.

9.2 **Confidentiality.** Graphite agrees to keep all documents related to filing, prosecution and maintenance of patent applications confidential.

9.3 **Patent Costs**. Within 30 days after receiving a reasonably detailed statement of Stanford's actual costs incurred in the filing, prosecution or maintenance of the Optioned Patents in accordance with Stanford's usual practice, provided Stanford will provide further details if Graphite requests such for a specific invoice, Graphite will reimburse Stanford for all Optioned Patent's patenting expenses after the Effective Date and during the term of the Option and any Negotiation Period, including but not limited to interference or reexamination matters, inventorship disputes and opposition proceedings, in each case, reasonably incurred by Stanford after the Effective Date. Stanford will pay the fees prescribed for large entities to the United States Patent and Trademark Office. If Graphite requests that Stanford pay fees prescribed for a small entity, then Graphite will bear all responsibility for notifying Stanford if its status changes to large entity. Graphite is herein notified that the determination of entity size for the United States Patent and Trademark Office depends not only on the size of Graphite, but also may depend on the size of any companies to which Graphite has granted licenses.

9.4 In the event the Option is terminated under the terms set forth in Section 11 (Termination), Stanford may continue prosecution and/or maintenance of such patent applications or patents at its sole discretion and expense, and Graphite will have no further rights or licenses thereunder.

10. INDEMNITY

10.1 **Indemnification.** Graphite will indemnify, hold harmless, and defend all Stanford Indemnitees against any claim of any kind arising out of or related to the exercise of any rights granted Graphite under this Agreement, or the breach of this Agreement by Graphite.

10.2 **No Indirect Liability.** Stanford is not liable for any special, consequential, lost profit, expectation, punitive or other indirect damages in connection with any claim arising out of or related to this Agreement, whether grounded in tort (including negligence), strict liability, contract, or otherwise, and regardless of any notice of the possibility of such damages. Except for liability arising under its indemnification obligations under Section 10.1 or for any use by Graphite of the Optioned Patents and Optioned Technology that is outside the scope of the rights to such intellectual property granted to Graphite under this Agreement, Graphite is not liable for any special, consequential, lost profit, expectation, punitive or other indirect damages in connection with any claim arising out of or related to this Agreement, whether grounded in tort (including negligence), strict liability, contract, or otherwise, and regardless of any notice of the possibility of such damages.. Furthermore, despite the obligation to negotiate during the Negotiation Period in good faith, neither Stanford nor Graphite shall have any liability for refusing to compromise on any issue, accepting risks associated with any unresolved legal claim, or for failing to execute any agreement.

10.3 **Workers' Compensation.** Graphite will comply with all statutory workers' compensation and employers' liability requirements for activities performed under this Agreement.

10.4 **Insurance.** During the term of this Agreement, Graphite will maintain such Commercial General Liability Insurance and Product Liability Insurance as are required under the terms of the Existing License Agreement.

11. TERMINATION

11.1 **Termination by Graphite.** Graphite agrees to promptly notify Stanford at any time during the term of this Option when Graphite has determined not to exercise the Option. Graphite also agrees to provide Stanford, in reasonable detail, the basis for this determination.

11.2 **Termination by Stanford.** Stanford may terminate this Agreement upon thirty (30) days written notice to Company if Company is in material breach of its obligations, including but not limited to its payment obligations under Article 6 herein, unless, before the end of the thirty (30) day period, Company has cured the breach or default to the reasonable satisfaction of Stanford and so notifies Stanford in writing, stating the manner of the cure.

11.3 **Bankruptcy**. This Option will automatically terminate without the obligation to provide thirty (30) days' notice as set forth in Article 15 upon the filing of a petition for relief under the United States Bankruptcy Code by or against the Graphite as a debtor or alleged debtor.

11.4 **No Residual Rights.** Upon expiration or termination of this Option, or upon Graphite's decision not to enter into a License Agreement, whichever is earlier, Graphite will have no residual or other rights in Optioned Patent or Optioned Technology.

12. STANFORD NAMES AND MARKS

Graphite will not use (i) Stanford's or the VA's name or other trademarks, (ii) the name or trademarks of any organization related to Stanford or the VA, or (iii) the name of any Stanford faculty member, employee, student or volunteer or any VA employee. This prohibition includes, but is not limited to, use in press releases, advertising, marketing materials, other promotional materials, presentations, case studies, reports, websites, application or software interfaces, and other electronic media. Notwithstanding the foregoing, Graphite may include Stanford's name in factual statements in legal proceedings, patent applications, regulatory filings and, as applicable, in biographies of its officers, directors, employees and advisors. In addition, Graphite may make a short factual statement that identifies Stanford as the grantor of the rights granted under this Agreement to actual or potential investors or acquirers, as well as in the "About Graphite" or other similar section of the Graphite website.

13. EXCLUSIONS AND NEGATION OF WARRANTIES

13.1 **Negation of Warranties**. Stanford provides Graphite the rights granted in this Agreement AS IS and WITH ALL FAULTS. Stanford makes no representations and extends no warranties of any kind, either express or implied. Among other things, Stanford disclaims any express or implied warranty:

(A) of merchantability, of fitness for a particular purpose;

(B) of non-infringement; or

(C) arising out of any course of dealing.

13.2 **No Representation of Licensed Patent**. Graphite also acknowledges that Stanford does not represent or warrant:

(A) the validity or scope of any Optioned Patent or Optioned Technology; or

(B) that the exploitation of the Optioned Patents or Optioned Technology will be successful.

14. CONFIDENTIALITY

14.1 Graphite and Stanford agree that any information disclosed by either party to the other party pursuant to this Agreement, which would, given the nature and context of the disclosure, reasonably be deemed to be proprietary or confidential ("Confidential Information"), shall be maintained in confidence by the receiving Party, and the receiving Party will use all reasonable diligence to prevent disclosure except to necessary personnel including their employees, agents, consultants, contractors, and sponsors of research, provided that such parties are bound by a like duty of confidentiality as that found in this Section 14. Graphite's and Stanford's obligations under this confidentiality clause shall remain in effect for the Term and a period of three (3) years thereafter. Graphite and Stanford shall not have any obligation of confidentiality with respect to information that:

(A) that recipient can demonstrate by written records was previously known to it prior to its disclosure by the disclosing party;

(B) that recipient can demonstrate by written records is now, or becomes in the future, public knowledge other than through acts or omissions of recipient;

(C) that recipient can demonstrate by written records was obtained lawfully and without restrictions on the recipient from sources independent of the disclosing party; and

(D) that is required to be disclosed by law, provided that the recipient uses reasonable efforts to give the disclosing party sufficient notice of such required disclosure to allow the disclosing party reasonable opportunity to object to, and to take legal action to prevent, such disclosure.

14.2 Upon termination of this Option, Graphite and Stanford will destroy or return any of the disclosing party's Confidential Information in its possession within fifteen (15) days following the termination or expiration of this Option; provided, however, that a party shall not have any obligation to destroy the disclosing party's Confidential Information contained in routine, electronic back-up files unless and until such Confidential Information is accessed; and provided further, however, that Graphite's obligation to destroy Confidential Information of Stanford that relates to Licensed Products shall apply only to such Licensed Products that Graphite is obligated to destroy pursuant to Section 15. Each party also may, however, retain one copy of such Confidential Information for archival purposes in non-working files.

15. DISPOSITION OF LICENSED PRODUCT

15.1 Graphite shall destroy those Licensed Products for an Option Field of Use (a) with respect to which Graphite undertook research or development activities in the exercise of its rights hereunder, (b) the making, using or selling of which is covered by an Optioned Patent and (c) that remain in the possession or control of Graphite or its Affiliates, within fifteen (15) days after any of the following events have occurred: (i) the date of termination or expiration of the Option with respect to the applicable Option Field of Use and Optioned Patent; or, (ii) the date of termination or expiration of the Option with respect to the applicable Option Field of Use and Optioned Patent, and Graphite has not exercised such Option under the terms set forth in Section 4 (Exercise of Option); or, (iii) the termination of negotiations where Graphite exercised the Option in accordance with Section 4 (Exercise of Option), but negotiations between Stanford and Graphite were terminated without an agreement on the terms of the Amended License Agreement or New License Agreement being reached. Graphite will provide Stanford within thirty (30) days following the destruction of such Licensed Products with written notice that they have been destroyed.

16. ASSIGNMENT

16.1 Graphite may not assign this Agreement except in connection with a permitted assignment of the Existing License Agreement. Upon a permitted assignment of this Agreement, Graphite will be released of liability under this Agreement and the term "Graphite" in this Agreement refer solely to the applicable assignee.

17. NOTICES

All notices under this Agreement are deemed fully given when written, addressed, and sent as follows:

All general notices to Graphite are mailed or emailed to:

Graphite Bio, Inc.
[***]

with a copy (which shall not constitute notice) to:

Goodwin Procter, LLP
Attn: Richard Hoffman
Email: [***]
100 Northern Avenue
Boston, MA 02210

All financial invoices to Graphite (i.e., accounting contact) aree-mailed to:

Accounts Payable
[***]

All general notices to Stanford are e-mailed or mailed to:

Office of Technology Licensing

[***]

All payments to Stanford are mailed to:

Stanford University
Office of Technology Licensing
[***]

Either party may change its address with written notice to the other party.

18. MISCELLANEOUS

18.1 **Waiver.** No term of this Agreement can be waived except by the written consent of the party waiving compliance.

18.2 **Scope of Agreement.** This Agreement constitutes the entire agreement between the parties pertaining to the subject matter hereof. No representative of Stanford or Graphite has been authorized to make any representation, warranty, or promise not contained herein.

18.3 **Choice of Law.** This Agreement and any dispute arising under it is governed by the laws of the State of California, United States of America, applicable to agreements negotiated, executed, and performed within California.

18.4 **Compliance with Laws.** Graphite shall comply with all applicable international, national, state, regional and local laws and regulations in performing its obligations hereunder and in its use or manufacture of the Licensed Products or practice of the Optioned Patent or Optioned Technology. Graphite will observe all applicable United States and foreign laws with respect to the transfer of Licensed Products and related technical data to foreign countries, including, without limitation, the International Traffic in Arms Regulations (ITAR) and the Export Administration Regulations.

18.5 **Exclusive Forum.** The state and federal courts having jurisdiction over Stanford, California, United States of America, provide the exclusive forum for any court action between the parties relating to this Agreement. Graphite submits to the jurisdiction of such courts, and waives any claim that such a court lacks jurisdiction over Graphite or constitutes an inconvenient or improper forum.

18.6 **Headings.** No headings in this Agreement affect its interpretation.

18.7 **Electronic Copy.** The parties to this document agree that a copy of the original signature (including an electronic copy) may be used for any and all purposes for which the original signature may have been used. The parties further waive any right to challenge the admissibility or authenticity of this document in a court of law based solely on the absence of an original signature.

The parties execute this Agreement by their duly authorized officers or representatives.

THE BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY

Signature: /s/ Mona Wan
Name: Mona Wan
Title: Associate Director
Date: 4/12/2021

GRAPHITE BIO, INC.

Signature: /s/ Josh Lehrer
Name: Josh Lehrer
Title: CEO
Date: 4/12/2021

Exhibit A

Technology:

[Intentionally Left Blank]