

PROSPECTUS

1,022,809 Shares of Common Stock



This prospectus relates to the resale by certain of the selling securityholders named in this prospectus (each a “selling securityholder” and, collectively, the “selling securityholders”) of 1,022,809 shares of common stock, par value \$0.00001 per share (the “Common Stock”) issued in a private placement (the “PIPE Financing”). This prospectus also covers any additional securities that may become issuable by reason of stock splits, stock dividends or other similar transactions.

We are registering the resale of these securities to satisfy certain registration rights we have granted. We will not receive any of the proceeds from the sale of the securities by the selling securityholders. We will pay the expenses associated with registering the sales by the selling securityholders, as described in more detail in the section titled “*Use of Proceeds*” appearing elsewhere in this prospectus.

The selling securityholders may sell the securities described in this prospectus in a number of different ways and at varying prices. We provide more information about how the selling securityholders may sell their securities in the section titled “*Plan of Distribution*” appearing elsewhere in this prospectus.

The selling securityholders may sell any, all or none of the securities and we do not know when or in what amount the selling securityholders may sell their securities hereunder following the effective date of this registration statement.

Our Common Stock is listed on The Nasdaq Global Select Market (“Nasdaq”) under the symbol “LENZ.” On April 8, 2025, the last quoted sale price for our Common Stock as reported on Nasdaq was \$18.32.

We are an “emerging growth company,” as defined under the federal securities laws, and, as such, may elect to comply with certain reduced public company reporting requirements for future filings.

Investing in our securities involves a high degree of risk. Before buying any securities, you should carefully read the discussion of the risks of investing in our securities in the section titled “[Risk Factors](#)” beginning on page 6 of this prospectus and under similar headings in any amendments or supplements to this prospectus and the documents incorporated herein by reference.

You should rely only on the information contained in this prospectus or any prospectus supplement or amendment hereto. We have not authorized anyone to provide you with different information.

Neither the Securities Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is April 8, 2025.

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You should rely only on the information contained in this prospectus, information incorporated by reference into this prospectus or any supplement to this prospectus prepared by us or on our behalf. We have not authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We are not making an offer to sell 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 and that any information incorporated by reference is accurate only as of the date of the document incorporated by reference, unless we indicate otherwise. Our business, financial condition, results of operations and prospects may have changed since such dates.

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission (the “SEC”) using the “shelf” registration process. Under this shelf registration process, the selling securityholders hereunder may, from time to time, sell the securities offered by them described in this prospectus. We will not receive any proceeds from the sale by such selling securityholders of the securities offered by them described in this prospectus.

Neither we nor the selling securityholders have authorized anyone to provide you with any information or to make any representations other than those contained in or incorporated by reference into this prospectus or any applicable prospectus supplement or any free writing prospectuses prepared by or on behalf of us or to which we have referred you. Neither we nor the selling securityholders take responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. Neither we nor the selling securityholders will make an offer to sell these securities in any jurisdiction where the offer or sale is not permitted.

You should assume that the information appearing in this prospectus and the applicable prospectus supplement to this prospectus is accurate only as of the date on its respective cover and that any information incorporated by reference is accurate only as of the date of the document incorporated by reference, unless we indicate otherwise. Our business, financial condition, results of operations and prospects may have changed since those dates.

We may also provide a prospectus supplement or post-effective amendment to the registration statement to add information to, or update or change information contained in, this prospectus. You should read both this prospectus and any applicable prospectus supplement or post-effective amendment to the registration statement together with the additional information to which we refer you in the section of this prospectus titled “*Where You Can Find Additional Information*” and “*Incorporation by Reference*.”

MARKET AND INDUSTRY DATA

We obtained the industry and market data used throughout this prospectus and the documents incorporated by reference herein from our own internal estimates and research, as well as from independent market research, industry and general publications and surveys, governmental agencies, publicly available information and 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 addition, while we believe the industry and market data included in this prospectus is reliable and based on reasonable assumptions, such data involve material risks and other uncertainties and are subject to change based on various factors, including those discussed in the section entitled “*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.

TRADEMARKS

This prospectus and the documents incorporated by reference herein contain references to trademarks and service marks belonging to other entities. Solely for convenience, trademarks and trade names referred to in this prospectus and the documents incorporated by reference herein may appear without the ® or TM symbols, but such references are not intended to indicate, in any way, that the applicable licensor will not assert, to the fullest extent under applicable law, its rights to these trademarks and trade names. We do not intend our use or display of other companies' trade names, trademarks or service marks to imply a relationship with, or endorsement or sponsorship of it by, any other companies.

THE COMPANY

This summary highlights information contained in greater detail elsewhere in this prospectus. This summary is not complete and does not contain all of the information you should consider in making your investment decision. You should read the entire prospectus carefully before making an investment in our Common Stock, including the section entitled “Risk Factors” and the documents we have incorporated by reference in this prospectus, along with our consolidated financial statements and related notes incorporated by reference in this prospectus.

OVERVIEW

We are a pre-commercial biopharmaceutical company focused on the development and commercialization of innovative therapies to improve vision. Our initial focus is the treatment of presbyopia, the inevitable loss of near vision that impacts the daily lives of nearly all people over 45. In the United States, the estimated addressable population who suffer from this condition, known as presbyopes, is 128 million, almost four times the number of individuals suffering from dry eye disease and three times the number of individuals suffering from childhood myopia, macular degeneration, diabetic retinopathy and glaucoma combined. We believe that a once-daily pharmacological eye drop that can effectively and safely improve near vision throughout the full workday, without the need for reading glasses, could be a highly attractive commercial product with an estimated U.S. market opportunity in excess of \$3 billion. It is our goal to develop and commercialize such a product, and we have assembled an executive team with extensive clinical and commercial experience to execute this goal and become the category leader.

Our lead product candidate LNZ100 is a preservative-free, single-use, once-daily eye drop containing aceclidine. We believe our product candidate is differentiated based on rapid onset, degree and duration of near vision improvement, its ability to be used across the full age range of presbyopes, from their mid-40s to well into their mid-70s, as well as a broad refractive range. Aceclidine’s pupil-selective mechanism of action was demonstrated in our clinical trials where near vision improved while avoiding blurry distance vision. Our product candidate was well-tolerated in clinical trials, and its active ingredient aceclidine has a favorable tolerability profile that has been well-established empirically. LNZ100 has patent protection until 2039 in the United States, at a minimum, due to a robust intellectual property portfolio underpinned by issued patents.

We submitted a New Drug Application for LNZ100 to the U.S. Food and Drug Administration (“FDA”) in August 2024. In October 2024, the FDA assigned a Prescription Drug User Fee Act target action date of August 8, 2025, which, if approved, will be immediately followed by a commercial launch in the United States, with the product anticipated to be available in the market in the fourth quarter of 2025. Given our goal to develop and commercialize the leading, once-daily eye drop for presbyopia that can effectively and safely improve near vision throughout the full workday, we continue to build a robust commercial strategy in the United States and plan to be launch-ready upon potential FDA approval.

CORPORATE INFORMATION

On March 21, 2024 (the “Closing Date”), LENZ Therapeutics, Inc., a Delaware corporation (previously named Graphite Bio, Inc., a Delaware corporation and our predecessor company (“Graphite”)), consummated the previously announced merger pursuant to the terms of the Agreement and Plan of Merger, dated as of November 14, 2023 (the “Merger Agreement”), by and among Graphite, Generate Merger Sub, Inc., a Delaware corporation and wholly-owned subsidiary of Graphite (“Generate Merger Sub”) and LENZ Therapeutics Operations, Inc. (previously named Lenz Therapeutics, Inc.), a Delaware corporation (“LENZ OpCo”).

Pursuant to the Merger Agreement, on the Closing Date, (i) Graphite effected a reverse stock split of Graphite’s issued common stock at a ratio of 1:7, (ii) Graphite changed its name to “LENZ Therapeutics, Inc.”, and (iii) Generate Merger Sub merged with and into LENZ OpCo (the “Merger”), with LENZ OpCo as the surviving company in the Merger and, after giving effect to such Merger, LENZ OpCo becoming a wholly-owned subsidiary of LENZ Therapeutics, Inc. (together with its consolidated subsidiary, “New LENZ” or “LENZ”). As of the open of trading on March 22, 2024, the Common Stock of the Company, formerly those of Graphite, began trading on The Nasdaq Global Select Market (“Nasdaq”) under the symbol “LENZ.”

Our principal executive offices are located at 201 Lomas Santa Fe Dr., Suite 300, Solana Beach, California 92075, and our telephone number is (858) 925-7000.

Our website address is <https://lenz-tx.com/>. The information on, or that can be accessed through, our website is not part of this prospectus, and you should not consider information contained on our website in deciding whether to purchase shares of our Common Stock. We have included our website address in this prospectus solely as an inactive textual reference.

We use the LENZ logo and other marks as trademarks in the United States and other countries. This prospectus contains references to our trademarks and service marks and to those belonging to other entities. Solely for convenience, trademarks and trade names referred to in this prospectus, including logos, artwork and other visual displays, may appear without a trademark symbol, but such references are not intended to indicate in any way that we will not assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensor to these trademarks and trade names. We do not intend our use or display of other entities' trade names, trademarks or service marks to imply a relationship with, or endorsement or sponsorship of us by, any other entity.

We are an emerging growth company as defined in the Jumpstart Our Business Startups Act of 2012 (the "JOBS Act"). We will remain an emerging growth company until the earliest to occur of: the last day of the fiscal year in which we have more than \$1.235 billion in annual revenues; the date we qualify as a "large accelerated filer," with at least \$700 million of equity securities held by non-affiliates; the issuance, in any three-year period, by us of more than \$1.0 billion in non-convertible debt securities; and the last day of the fiscal year ending after the fifth anniversary of Graphite's initial public offering (i.e., December 31, 2026).

Section 107 of the JOBS Act provides that an emerging growth company can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act of 1933, as amended (the "Securities Act"), for complying with new or revised accounting standards. In other words, an emerging growth company can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have elected not to opt out of such extended transition period, which means that when a standard is issued or revised and it has different application dates for public or private companies, we, as an emerging growth company, can adopt the new or revised standard at the time private companies adopt the new or revised standard. This may make comparison of our financial statements with certain other public companies difficult or impossible because of the potential differences in accounting standards used.

Additionally, we are a "smaller reporting company" as defined in Item 10(f)(1) of Regulation S-K. Smaller reporting companies may take advantage of certain reduced disclosure obligations, including, among other things, providing only two years of audited financial statements. We may continue to be a smaller reporting company in any given year if either (i) the market value of our stock held by non-affiliates is less than \$250 million as of June 30th in the most recently completed fiscal year, 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 as of June 30th in the most recently completed fiscal year.

Unless expressly indicated or the context requires otherwise, the terms "LENZ," "New LENZ," the "Company," the "Registrant," "we," "us" and "our" in this prospectus refer to LENZ Therapeutics, Inc., the parent entity formerly named Graphite Bio, Inc., after giving effect to the Merger, and as renamed LENZ Therapeutics, Inc., and where appropriate, our wholly-owned subsidiaries (including LENZ OpCo).

The Offering

Shares of Common Stock Offered Hereunder	<p>An aggregate of 1,022,809 shares of Common Stock issued in the PIPE Financing.</p> <p>All aforementioned shares of Common Stock were initially registered in our Initial Registration Statement, and no new shares are being registered hereunder.</p>
Use of Proceeds	<p>We will not receive any proceeds from the sale of our shares of common stock offered by the selling securityholders under this prospectus (the “Securities”). See the section titled “Use of Proceeds” appearing elsewhere in this prospectus for more information.</p>
Common Stock Outstanding	<p>27,531,490 shares of Common Stock as of December 31, 2024.</p>
Risk Factors	<p>See the section titled “Risk Factors” and other information included in this prospectus and the documents incorporated by reference for a discussion of factors that you should consider carefully before deciding to invest in our Common Stock.</p>
Nasdaq symbol	<p>“LENZ” for our Common Stock.</p>

The number of shares of Common Stock outstanding is based on 27,531,490 shares of Common Stock as of December 31, 2024 and excludes the following, in each case as of December 31, 2024:

- 164,676 shares of our Common Stock issuable upon the exercise of warrants to purchase shares of our Common Stock outstanding as of December 31, 2024, with an exercise price of \$10.64 per share;
- 1,458,939 shares of our Common Stock issuable upon the exercise of outstanding options under the LENZ OpCo 2020 Equity Incentive Plan (the “2020 Plan”) as of such date, which were assumed by the Company in connection with the Merger, with a weighted average exercise price of \$4.28 per share;
- 8,438 shares of our Common Stock issuable upon the exercise of outstanding options under the LENZ Therapeutics, Inc. (f/k/a Graphite Bio, Inc.) 2021 Stock Option and Incentive Plan as of such date, with a weighted average exercise price of \$11.94 per share;
- 1,522,550 shares of our Common Stock issuable upon the exercise of outstanding options under the LENZ Therapeutics, Inc. 2024 Equity Incentive Plan (the “2024 Plan”) as of such date, with a weighted average exercise price of \$16.45 per share;
- 790,139 shares of our Common Stock issuable upon the exercise of stock options granted pursuant to the 2024 Plan subsequent to December 31, 2024, with a weighted average exercise price of \$26.00 per share;
- 30,500 shares of common stock issuable upon the vesting of restricted stock units granted pursuant to the 2024 Plan subsequent to December 31, 2024;
- 1,544,122 shares of our Common Stock reserved for future issuance under our 2024 Plan, as well as any automatic increases in the number of shares of Common Stock reserved for future issuance under this plan; and
- 250,995 shares of our Common Stock reserved for future issuance under our 2024 Employee Stock Purchase Plan (the “2024 ESPP”), as well as any automatic increases in the number of shares of Common Stock reserved for future issuance under this plan.

RISK FACTORS SUMMARY

Investing in our Common Stock involves a high degree of risk. You should consider carefully the risks and uncertainties described below, together with all of the other information contained in this prospectus, including our consolidated financial statements and related notes, before deciding to invest in our securities. If any of the following risks actually occur, our business, operating results, financial condition and prospects could be materially and adversely affected. In that event, the market 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 that we are unaware of, or that we currently believe are not material, may also become important factors that adversely affect our business or results of operations.

Our business is subject to numerous risks and uncertainties that you should consider before investing in our company, as more fully described below. The principal factors and uncertainties that make investing in our company risky include, among others:

- We are a pre-commercial biopharmaceutical company with limited operating history. We have incurred significant losses and negative cash flows from operations since our formation, and we anticipate that we will continue to incur losses as we seek approval and begin commercialization. We have no products approved for commercial sale, which may make it difficult for you to evaluate our current business and predict our future success and viability.
- Our business depends entirely on the development and commercialization of LNZ100, and we do not have additional product candidates in our current development pipeline. If we are unable to successfully complete our clinical development program for LNZ100 and obtain the marketing approvals necessary to commercialize LNZ100, or experience significant delays in doing so, or if after obtaining marketing approvals, we fail to commercialize LNZ100, our business will be materially harmed. We currently generate no revenue from sales of any products and may never generate revenue or be profitable.
- Clinical trials are expensive, time-consuming, difficult to design and implement and involve an uncertain outcome. The outcome of preclinical testing and earlier clinical trials may not be predictive of the success of later clinical trials. The results of our clinical trials may not satisfy the requirements of the FDA, European Medicines Agency or other comparable foreign regulatory authorities, and we may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of such product candidate.
- Even if LNZ100 or any other product candidate receives marketing approval, they may fail to achieve market acceptance by eye care professionals and patients, and the market opportunity for these products, if approved, may be smaller than we estimate.
- If we are unable to establish sales and marketing capabilities or enter into agreements with third parties to sell and market our product candidates on acceptable terms, we may be unable to successfully commercialize our product candidates that obtain regulatory approval.
- We intend to deploy a targeted, cost-effective, digitally focused direct-to-consumer marketing strategy, but if we are unable to be sufficiently effective with a limited budget and are required to spend more than anticipated, we may need to raise more capital, divert resources from other strategies, or just fail to reach the intended market, in each case which could have a material adverse effect on our business.
- If we are unable to obtain and maintain sufficient intellectual property protection for our technology and products and product candidates we may develop, or if the scope of the intellectual property protection obtained is not sufficiently broad, our competitors or other third parties could develop and commercialize products similar or identical to ours, and our ability to successfully develop and, if approved, commercialize our product candidates may be adversely affected.
- We face significant competition, and if our competitors develop and market technologies or products more rapidly than we do or that are more effective, safer or less expensive than the product candidates we

develop, our commercial opportunities will be negatively impacted. Our product candidates may, if approved, also face competition from existing branded, generic and off-label products.

- We contract with third parties for the manufacture of our product candidates for our ongoing clinical trials, and expect to continue to do so for additional clinical trials and ultimately for commercialization. This reliance on third parties increases the risk that we will not have sufficient quantities of our product candidates or drugs or such quantities at an acceptable cost, which could delay, prevent or impair our development or commercialization efforts.
- The manufacture of drugs is complex and our third-party manufacturers may encounter difficulties in production. If any of our third-party manufacturers encounter such difficulties, our ability to provide adequate supply of LNZ100 for patients, if approved, could be delayed or prevented.
- We have relied, and expect to continue to rely on third parties, including independent clinical investigators and CROs, to conduct, supervise and monitor certain aspects of our clinical trials and any future preclinical studies. If these third parties do not successfully carry out their contractual duties, comply with applicable regulatory requirements or meet expected deadlines, we may not be able to obtain regulatory approval for or commercialize our product candidates, or such approval or commercialization may be delayed, and our business could be substantially harmed.
- Our success is highly dependent on our ability to attract and retain highly skilled executive officers and employees.
- The market price of our common stock is expected to be volatile.

RISK FACTORS

An investment in our Common Stock involves a high degree of risk. In addition to the risk and uncertainties described under the section titled "Cautionary Note Regarding Forward-Looking Statements," you should consider carefully the risks and uncertainties incorporated by reference to our most recent Annual Report on Form 10-K, any subsequent Quarterly Reports on Form 10-Q or Current Reports on Form 8-K, and all other information contained in or incorporated by reference into this prospectus, as updated by our subsequent filings under the Exchange Act, and the risk factors and other information contained in any applicable prospectus supplement before acquiring any of such securities. Additional risks and uncertainties that we are unaware of, or that we currently believe are not material, may also become important factors that adversely affect our business or results of operations. The occurrence of any of these risks might cause you to lose all or part of your investment in the offered securities.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain statements in this prospectus and the documents incorporated by reference herein may constitute “forward-looking statements” for purposes of the federal securities laws. Our forward-looking statements include, but are not limited to, statements regarding our or our management team’s expectations, hopes, beliefs, intentions or strategies regarding the future, including those relating to the Merger and their expected benefits; our plans relating to the clinical development of our product candidates, including the size, number and areas to be evaluated; our plans relating to commercializing our product candidates, if approved, including the geographic areas of focus and strategy; and our ability to obtain funding for its operations. Forward-looking statements include statements relating to our management team’s expectations, hopes, beliefs, intentions or strategies regarding the future, including those relating to the Merger and related transactions. In addition, any statements that refer to projections, forecasts or other characterizations of future events or circumstances, including any underlying assumptions, are forward-looking statements. The words “believe,” “may,” “will,” “estimate,” “continue,” “anticipate,” “intend,” “expect,” “could,” “would,” “project,” “plan,” “potentially,” “likely,” “target” or the negative of these terms and other similar expressions and variations thereof are intended to identify forward-looking statements, but are not the exclusive means of identifying such statements, and the absence of these words does not mean that a statement is not forward-looking.

These forward-looking statements are based on current expectations and beliefs concerning future developments and their potential effects. There can be no assurance that future developments affecting us will be those that we have anticipated. These forward-looking statements involve a number of risks, uncertainties (some of which are beyond our control) or other assumptions that may cause actual results or performance to be materially different from those expressed or implied by these forward-looking statements. As a result of a number of known and unknown risks and uncertainties, our actual results or performance may be materially different from those expressed or implied by these forward-looking statements. Some factors that could cause actual results to differ include, but are not limited to, the following:

- the likelihood of our clinical trials demonstrating safety and efficacy of our product candidates to the satisfaction of the FDA, and other positive results;
- the timing, scope and likelihood of regulatory filings and approvals for LNZ100;
- our ability to obtain and maintain regulatory approval of LNZ100;
- our plans relating to the development of LNZ100;
- the size of the market opportunity for LNZ100, including our estimates of the size of the affected population and potential adoption rate;
- our plans relating to commercializing LNZ100, if approved, including the geographic areas of focus and sales strategy;
- our competitive position and the success of competing therapies that are or may become available;
- the beneficial characteristics, and the potential safety, efficacy and therapeutic effects of LNZ100;
- the need to hire additional personnel and our ability to attract and retain such personnel;
- our plans relating to the further development and manufacturing of LNZ100 and any future product candidates;
- the expected potential benefits of strategic collaborations with third parties and our ability to attract collaborators with development, regulatory and commercialization expertise;
- the rate and degree of market acceptance and clinical utility of LNZ100 and any other product candidates we may develop;

- the impact of existing laws and regulations and regulatory developments in the United States and other jurisdictions;
- our intellectual property position, including the scope of protection we are able to establish and maintain for intellectual property rights covering LN2100, including the extensions of existing patent terms where available, the validity of intellectual property rights held by third parties, and our ability not to infringe, misappropriate or otherwise violate any third-party intellectual property rights;
- our continued reliance on third parties to conduct any additional clinical trials of LN2100 or any future product candidates, and for the manufacture of our product candidates for any such trials;
- the accuracy of our estimates regarding expenses, future revenue, capital requirements and needs for additional financing;
- our financial performance;
- our ability to recognize the anticipated benefits of the Merger;
- the period over which we estimate our existing cash and cash equivalents will be sufficient to fund our future operating expenses and capital expenditure requirements;
- our expectations regarding the period during which we will remain an emerging growth company under the JOBS Act;
- our anticipated use of our existing resources and the proceeds from the Merger; and
- the risks and uncertainties described under the heading “Risk Factors” and in our current and periodic reports, and other filings, filed from time to time with the SEC that are incorporated by reference into this prospectus.

Should one or more of these risks or uncertainties materialize, or should any of our assumptions prove incorrect, actual results may vary in material respects from those projected in these forward-looking statements. It is not possible to predict or identify all such risks.

The forward-looking statements made in this prospectus relate only to events as of the date on which the statements are made. We undertake no obligation to update any forward-looking statements made in this prospectus to reflect events or circumstances after the date of this prospectus or to reflect new information or the occurrence of unanticipated events, except as required by law. We may not actually achieve the plans, intentions, or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments we may make.

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 investors are cautioned not to unduly rely upon these statements.

USE OF PROCEEDS

All of the Securities offered by the selling securityholders pursuant to this prospectus will be sold by the selling securityholders for their respective accounts. We will not receive any of the proceeds from the sale of the Securities hereunder.

With respect to the registration of shares of our Common Stock offered by the selling securityholders pursuant to this prospectus, the selling securityholders will pay any underwriting discounts and commissions and expenses incurred by them for brokerage, accounting, tax or legal services or any other expenses incurred by them in disposing of the Securities. We will bear all other costs, fees and expenses incurred in effecting the registration of the Securities covered by this prospectus, including, without limitation, all registration and filing fees, Nasdaq listing fees, and fees of our counsel and our independent registered public accountants.

SELLING SECURITYHOLDERS

This prospectus relates to the resale by the selling securityholders from time to time of up to an aggregate of 1,022,809 shares of Common Stock that were issued to certain investors in the PIPE Financing. The selling securityholders may from time to time offer and sell any or all of the shares of Common Stock set forth below pursuant to this prospectus and any accompanying prospectus supplement. When we refer to the “selling securityholders” in this prospectus, we mean the persons listed in the table below and their permitted transferees who later come to hold any of the selling securityholders’ interest in the Common Stock in accordance with the terms of the applicable agreements governing their respective registration rights, other than through a public sale.

The following table sets forth, based on written representations from the selling securityholders as of March 28, 2025 and subsequent filings with the SEC, as applicable, the names of the selling securityholders, the aggregate number of shares of Common Stock beneficially owned by the selling securityholders, the aggregate number of shares of Common Stock that the selling securityholders may offer pursuant to this prospectus and the number of shares of Common Stock that would be beneficially owned by the selling securityholders after the sale of the shares of Common Stock offered hereby assuming that the selling securityholders sell all of the shares of Common Stock covered by this prospectus. The percentage of beneficial ownership after the offered shares of Common Stock are sold is calculated based on 27,543,120 shares of Common Stock outstanding as of March 28, 2025.

We have determined beneficial ownership in accordance with the rules of the SEC and the information is not necessarily indicative of beneficial ownership for any other purpose. Unless otherwise indicated below, to our knowledge, the persons and entities named in the tables have sole voting and sole investment power with respect to the shares of Common Stock set forth below, subject to community property laws where applicable.

We cannot advise you as to whether the selling securityholders will in fact sell any or all of such Common Stock. In addition, the selling securityholders may sell, transfer or otherwise dispose of, at any time and from time to time, the Common Stock in transactions exempt from the registration requirements of the Securities Act after the date of this prospectus. Information about the selling securityholders, including those listed below, may change over time. Since the effectiveness of the initial prospectus, certain securityholders may have sold or otherwise transferred their securities registered thereunder. For purposes of this table, we have assumed that the selling securityholders will have sold all of the shares of Common Stock covered by this prospectus upon the completion of the offering.

Selling securityholder information for each additional selling securityholder, if any, will be set forth by a prospectus supplement to the extent required prior to the time of any offer or sale of such selling securityholder’s shares pursuant to this prospectus. Any prospectus supplement may add, update, substitute, or change the information contained in this prospectus, including the identity of each selling securityholder and the number of shares registered on its behalf. A selling securityholder may sell or otherwise transfer all, some or none of such shares in this offering. See “*Plan of Distribution*.”

Name of Selling Securityholder	Common Stock Beneficially Owned Prior to Offering	Number of Shares of Common Stock Being Offered	Common Stock Beneficially Owned After the Offered Shares of Common Stock are Sold	
			Number	Percent
RTW Biotech Opportunities, Ltd. ⁽¹⁾	108,351	15,387	92,964	*
RTW Innovation Master Fund, Ltd. ⁽¹⁾	316,880	103,902	212,978	*
RTW Master Fund, Ltd. ⁽¹⁾	438,158	113,578	324,580	1.2 %
Point72 Associates, LLC ⁽²⁾	852,642	789,942	62,700	*
Total Shares	1,716,031	1,022,809	693,222	

* Less than 1%.

(1) RTW Investments, LP (“RTW”), in its capacity as the investment manager of RTW Biotech Opportunities, Ltd., RTW Innovation Master Fund, Ltd., and RTW Master Fund, Ltd. (collectively, the “RTW Funds”), has the power to vote and the power to direct the disposition of the shares held by the RTW Funds. Accordingly, RTW may be deemed to be the beneficial owner of such securities. Roderick Wong, M.D.,

as the Managing Partner of RTW, has the power to direct the vote and disposition of the securities held by RTW. Dr. Wong disclaims beneficial ownership of the shares held by the RTW Funds, except to the extent of his pecuniary interest therein. The address and principal office of RTW Investments, LP is 40 10th Avenue, Floor 7, New York, NY 10014, and the address of Dr. Wong and each of the RTW Funds is c/o RTW Investments, LP, 40 10th Avenue, Floor 7, New York, NY 10014.

- (2) Point72 Asset Management, L.P. maintains investment and voting power with respect to the securities held by Point72 Associates, LLC. Point72 Capital Advisors, Inc. is the general partner of Point72 Asset Management, L.P. Mr. Steven A. Cohen controls each of Point72 Asset Management, L.P. and Point72 Capital Advisors, Inc. By reason of the provisions of Rule 13d-3 of the Exchange Act, each of Point72 Asset Management, L.P., Point72 Capital Advisors, Inc., and Mr. Cohen may be deemed to beneficially own the securities directly held by Point72 Associates reflected herein. Each of Point72 Asset Management, L.P., Point72 Capital Advisors, Inc., and Mr. Cohen disclaims beneficial ownership of any such securities.

DESCRIPTION OF SECURITIES

The following description of our capital stock and provisions of our Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws are summaries and are qualified by reference to our Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws and applicable provisions of Delaware corporate law.

Authorized Capital Stock

Our authorized capital stock consists of 300,000,000 shares of common stock, par value \$0.00001 per share and 10,000,000 shares of preferred stock, par value \$0.00001 per share.

Common Stock

Voting

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 our common stock is generally required to take action under our Certificate of Incorporation and Bylaws.

Dividends

Holders of 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.

Distributions on Liquidation

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 of our debts and other liabilities, subject to the preferential rights of any preferred stock then outstanding.

Other Rights

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.

Preferred Stock

Our board of directors is authorized, without action by the stockholders, to designate and issue up to an aggregate of 10,000,000 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 the Company, which might harm the market price of our common stock. Our board of directors will make any determination to issue such shares based on its judgment as to our best interests and the best interests of our stockholders.

Anti-Takeover Effects of Delaware Law and Provisions of our Amended and Restated Certificate of Incorporation and Bylaws

Certain provisions of the DGCL and of our Certificate of Incorporation and Bylaws could have the effect of delaying, deferring or discouraging another party from acquiring control of our Company. 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

We are subject to the provisions of Section 203 of the DGCL. 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, the Graphite 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 the Graphite 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.

Transfer Agent

The transfer agent for our Common Stock is Equiniti Trust Company, LLC.

Exchange Listing

Our Common Stock is listed on Nasdaq under the symbol “LENZ.”

PLAN OF DISTRIBUTION

The selling securityholders, which as used herein includes donees, pledgees, transferees or other successors-in-interest selling shares of common stock or interests in shares of common stock received after the date of this prospectus from a selling securityholders as a gift, pledge, partnership distribution or other transfer, may, from time to time, sell, transfer or otherwise dispose of any or all of their shares of common stock or interests in shares of common stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions. These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices.

The selling securityholders may use any one or more of the following methods when disposing of shares or interests therein:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent, but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- short sales;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- broker-dealers may agree with the selling securityholders to sell a specified number of such shares at a stipulated price per share;
- a combination of any such methods of sale; and
- any other method permitted by applicable law.

The selling securityholders may, from time to time, pledge or grant a security interest in some or all of the shares of common stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of common stock, from time to time, under this prospectus, or under an amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act of 1933, as amended (the “Securities Act”), amending the list of selling securityholders to include the pledgee, transferee or other successors in interest as selling securityholders under this prospectus. The selling securityholders also may transfer the shares of common stock in other circumstances, in which case the transferees, pledgees or other successors in interest will be the selling securityholders for purposes of this prospectus.

In connection with the sale of our common stock or interests therein, the selling securityholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the common stock in the course of hedging the positions they assume. The selling securityholders may also sell shares of our common stock short and deliver these securities to close out their short positions, or loan or pledge the common stock to broker-dealers that in turn may sell these securities. The selling securityholders may also enter into option or other transactions with broker-dealers or other financial institutions or the creation of one or more derivative securities which require the delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The aggregate proceeds to the selling securityholders from the sale of the common stock offered by them will be the purchase price of the common stock less discounts or commissions, if any. Each of the selling securityholders

reserves the right to accept and, together with their agents from time to time, to reject, in whole or in part, any proposed purchase of common stock to be made directly or through agents. We will not receive any of the proceeds from this offering.

The selling securityholders also may resell all or a portion of the shares in open market transactions in reliance upon Rule 144 under the Securities Act, provided that they meet the criteria and conform to the requirements of that rule, or another available exemption from the registration requirements of the Securities Act.

The selling securityholders and any underwriters, broker-dealers or agents that participate in the sale of the common stock or interests therein may be “underwriters” within the meaning of Section 2(a)(11) of the Securities Act. Any discounts, commissions, concessions or profit they earn on any resale of the shares may be underwriting discounts and commissions under the Securities Act. Selling securityholders who are “underwriters” within the meaning of Section 2(a)(11) of the Securities Act will be subject to the prospectus delivery requirements of the Securities Act.

To the extent required, the shares of our common stock to be sold, the names of the selling securityholders, the respective purchase prices and public offering prices, the names of any agents, dealer or underwriter, and any applicable commissions or discounts with respect to a particular offer will be set forth in an accompanying prospectus supplement or, if appropriate, a post-effective amendment to the registration statement that includes this prospectus.

In order to comply with the securities laws of some states, if applicable, the common stock may be sold in these jurisdictions only through registered or licensed brokers or dealers. In addition, in some states the common stock may not be sold unless it has been registered or qualified for sale or an exemption from registration or qualification requirements is available and is complied with.

We have advised the selling securityholders that the anti-manipulation rules of Regulation M under the Securities Exchange Act of 1934, as amended, may apply to sales of shares in the market and to the activities of the selling securityholders and their affiliates. In addition, to the extent applicable, we will make copies of this prospectus (as it may be supplemented or amended from time to time) available to the selling securityholders for the purpose of satisfying the prospectus delivery requirements of the Securities Act. The selling securityholders may indemnify any broker-dealer that participates in transactions involving the sale of the shares against certain liabilities, including liabilities arising under the Securities Act.

We have agreed to indemnify the selling securityholders against liabilities, including liabilities under the Securities Act and state securities laws, relating to the registration of the shares offered by this prospectus.

We have agreed with the selling securityholders to use commercially reasonable efforts to cause the registration statement of which this prospectus constitutes a part to become effective and to remain continuously effective until the earlier of (1) such time as all of the shares covered by this prospectus have been disposed of pursuant to and in accordance with such registration statement or (2) (B) the date that all the shares covered by this prospectus cease to be Registrable Securities.

LEGAL MATTERS

The validity of the Securities offered hereby has been passed upon for us by Wilson Sonsini Goodrich & Rosati, Professional Corporation. Certain members of, and investment partnerships comprised of members of, and persons associated with, Wilson Sonsini Goodrich & Rosati, Professional Corporation, directly or indirectly own less than 0.1% of the outstanding shares of our common stock.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2024, as set forth in their report, which is incorporated by reference in this prospectus and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We file reports, proxy statements and other information with the SEC. The SEC maintains a website that contains reports, proxy and information statements and other information about issuers, such as us, who file electronically with the SEC. The address of that website is <http://www.sec.gov>.

Our website address is <https://lenz-tx.com/>. The information on our website, however, is not, and should not be deemed to be, a part of this prospectus.

This prospectus and any applicable prospectus supplement are part of a registration statement that we filed with the SEC and do not contain all of the information in the registration statement. The full registration statement may be obtained from the SEC or us, as provided below. Statements in this prospectus or any prospectus supplement about these documents are summaries and each statement is qualified in all respects by reference to the document to which it refers. You should refer to the actual documents for a more complete description of the relevant matters. You may inspect a copy of the registration statement through the SEC's website, as provided above.

INCORPORATION BY REFERENCE

The SEC's rules allow us to "incorporate by reference" information into this prospectus, which means that we can disclose important information to you by referring you to another document filed separately with the SEC. The information incorporated by reference is deemed to be part of this prospectus, and subsequent information that we file with the SEC will automatically update and supersede that information. Any statement contained in this prospectus or a previously filed document incorporated by reference will be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus or a subsequently filed document incorporated by reference modifies or replaces that statement.

This prospectus and any accompanying prospectus supplement incorporate by reference the documents set forth below that have previously been filed with the SEC:

- our Annual Report on Form 10-K for the year ended December 31, 2024, filed with the SEC on [March 19, 2025](#) (our "Annual Report");
- the description of our Common Stock contained in the [Annual Report](#).

All reports and other documents we subsequently file pursuant to Section 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, which we refer to as the "Exchange Act" in this prospectus, prior to the termination of this offering, including all such documents we may file with the SEC after the date of the initial registration statement and prior to the effectiveness of the registration statement, but excluding any information furnished to, rather than filed with, the SEC, will also be incorporated by reference into this prospectus and deemed to be part of this prospectus from the date of the filing of such reports and documents.

You may request a free copy of any of the documents incorporated by reference in this prospectus by writing or telephoning us at the following address:

LENZ Therapeutics, Inc.
201 Lomas Santa Fe Dr., Suite 300
Solana Beach, California 92075
(858) 925-7000

Exhibits to the filings will not be sent, however, unless those exhibits have specifically been incorporated by reference in this prospectus or any accompanying prospectus supplement.