

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

June 7, 2021

Josh Lehrer Chief Executive Officer Graphite Bio, Inc. 279 East Grand Avenue, Suite 430 South San Francisco, CA 94080

Re: Graphite Bio, Inc.
Amendment No. 1 to Draft Registration Statement on Form S-1
Submitted May 21, 2021
CIK No. 0001815776

Dear Dr. Lehrer:

We have reviewed your amended draft registration statement and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by providing the requested information and either submitting an amended draft registration statement or publicly filing your registration statement on EDGAR. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing the information you provide in response to these comments and your amended draft registration statement or filed registration statement, we may have additional comments.

Amendment No. 1 to Draft Registration Statement on Form S-1 submitted on May 21, 2021

Stanford Exclusive License Agreement and Option Agreement, page 96

1. We note your disclosure on page 97 of the First Option Agreement with Stanford. Please expand your disclosure to include discussion of the Second Option Agreement with Stanford, including whether you have exercised this option. We refer to your disclosure of the Second Option Agreement on page 146.

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Management's Discussion and Analysis of Financial Condition and Results of Operations Critical Accounting Policies and Significant Judgments and Estimates, Stock-Based Compensation Expense, page 107

Once you have an estimated offering price or range, please tell us the fair value of the common stock underlying your issuances of share based compensation for the most recent period and explain the reasons for any differences between the recent valuations of your common stock leading up to the initial public offering and the estimated offering price. This information will help facilitate our review of your accounting for equity issuances, including share based compensation. Please discuss with the staff how to submit your response.

Exhibits

3. We refer to the exclusive license agreements (including the amendments thereto) and option agreements filed as Exhibits 10.12, 10.13, 10.14 and 10.15 to your registration statement. We note that certain identified information has been redacted in these exhibits because it is not material. Please revise the statement on the first page of each exhibit to note that certain identified information has been excluded from such exhibit because it is both not material and is the type that you treat as private or confidential. Refer to Item 601(b) of Regulation S-K.

You may contact Kristin Lochhead at 202-551-3664 or Daniel Gordon at 202-551-3486 if you have questions regarding comments on the financial statements and related matters. Please contact Jane Park at 202-551-7439 or Jeffrey Gabor at 202-551-2544 with any other questions.

Sincerely,

Division of Corporation Finance Office of Life Sciences

cc: Maggie Wong, Esq.