



DIVISION OF
CORPORATION FINANCE

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

May 17, 2022

R. Nolan Townsend
Chief Executive Officer
Lexeo Therapeutics, Inc.
430 East 29th Street, Floor 14
New York, NY 10016

**Re: Lexeo Therapeutics, Inc.
Amendment No. 1 to
Draft Registration Statement on Form S-1
Submitted May 5, 2022
CIK No. 0001907108**

Dear Mr. Townsend:

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 May 5, 2022

Overview, page 1

1. We note your disclosure here and throughout your draft registration statement that you are “utilizing [y]our modular approach that integrates clinically validated technology.” Please revise to clarify what you mean by “clinically validated technology” and provide the basis for that claim.

High Transduction Efficiency and Biodistribution, page 4

2. We note your response to prior comments 6 and 7 and your revised disclosure on page 4 and 129 and reissue in part. Please revise your disclosure to clearly discuss the specific

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"preclinical studies and clinical trials" you relied upon as your basis for your belief that AAVrh10 is an "optimal vector for delivery and expression of transgenes for the treatment of the cardiovascular and CNS diseases." Clarify whether you or your collaboration partners conducted these studies/trials or whether unrelated third-parties conducted them. In addition, if your basis is based on preclinical studies on non-human cells, please make that clear or otherwise advise.

Capitalization, page 98

3. Please revise to remove cash from total capitalization.

Management's Discussion and Analysis of Financial Condition and Results of Operations

Results of operations

Comparison of the years ended December 31, 2021 and 2020, page 112

4. Please revise to include a discussion of grant revenue for each period in your results of operations.

Equity incentive plans

2022 equity incentive plan, page 191

5. We note your response to prior comment 21 and revised disclosure on page 192 and reissue in part. Your disclosure states that only the approval of the holders of a majority of the Company's shares is required in "certain circumstances." Please clarify the "certain circumstances" that would require stockholder approval. If certain repricing actions would not require stockholder approval, please include appropriate risk factor disclosure, including whether proxy advisory firms could find such repricing without stockholder approval contrary to a performance-based pay philosophy or otherwise advise.

You may contact Eric Atallah at 202-551-3663 or Lynn Dicker at 202-551-3616 if you have questions regarding comments on the financial statements and related matters. Please contact Jason Drory at 202-551-8342 or Tim Buchmiller at 202-551-3635 with any other questions.

Sincerely,

Division of Corporation Finance
Office of Life Sciences

cc: Dayne Brown, Esq.