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

DIVISION OF
CORPORATION FINANCE

June 13, 2023

R. Nolan Townsend
Chief Executive Officer
Lexeo Therapeutics, Inc.
345 Park Avenue South, Floor 6
New York, NY 10010

**Re: Lexeo Therapeutics, Inc.**
**Amendment No. 2 to**
**Draft Registration Statement on Form S-1**
**Submitted May 17, 2023**
**CIK No. 0001907108**

Dear R. Nolan 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. 2 to Draft Registration Statement on Form S-1

Cover Page

1. Please disclose, if accurate, that the closing of this offering is contingent upon a Nasdaq Listing, or otherwise advise. Please ensure the disclosure is consistent with your underwriting agreement

Prospectus summary
Overview, page 1

2. We note your response to prior comment 1, including your revised disclosure stating that you are using a "clinically validated vector," and reissue. We further note your risk factor

disclosure on page 19 that, "very few products that utilize gene transfer have been approved in the United States or Europe. There have been a limited number of clinical trials using AAVrh10." Given your current stage of development and your risk factor disclosure on page 19, it appears to be premature to make the claim your vector is "clinically validated." Please revise this disclosure to remove this statement.

Our manufacturing approach, page 129

3. We note your disclosure that you believe your manufacturing process "has an improved safety profile over traditional adherent HEK manufacturing." Please revise your disclosure to clarify and describe traditional "HEK manufacturing." In addition, we note you reference that you "have observed reduced incorporation of non-transgene DNA plasmid DNA impurities, from 15% observed in some HEK systems to 0.2% in [y]our process." Please revise your disclosure to discuss the specific studies you are referencing.

4. We note your graphic at the bottom of page 130 appears to measure "MOI" on the x-axis. Please revise your narrative disclosure to explain and define MOI.

5. We note your disclosure that "[b]ased on [y]our estimates, [you] believe [y]our manufacturing process is approximately 10 times more cost efficient than traditional adherent HEK manufacturing." Please update your disclosure to further explain your basis for this claim.

Preclinical safety studies, page 143

6. We note your disclosure discussing a "hypothetical model" and a graphic at the bottom of page 146. Please update your disclosure to clarify what "NHP PKP2 background subtracted" means and how it was modeled. Please update your disclosure to clarify the material assumptions and discuss any limitations underlying such projections by your "hypothetical model" or otherwise advise.

2023 equity incentive plan, page 201

7. We note your response to prior comment 5 and your disclosure that the administrator under the 2023 Plan has the power to modify outstanding awards under your 2023 Plan, including the authority to reprice any outstanding option or stock appreciation right, cancel and re-grant any outstanding option or stock appreciation right in exchange for new stock awards, cash or other consideration, or take any other action that is treated as a repricing under generally accepted accounting principles, with the consent of any materially adversely affected participant. Please clearly disclose if any such repricings could be implemented without stockholder approval. If so, 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.

General

8. Many of your tables and graphics include print that is not legible. For example only, your graphic at the top of page 141 and your graphic at the bottom of page 142 contain text that is too small to be legible. Please revise your graphics throughout your prospectus as applicable to ensure that the text is legible.

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.