



DIVISION OF
CORPORATION FINANCE

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

September 29, 2023

Jonathan D. Alspaugh
President and Chief Financial Officer
Aeglea BioTherapeutics, Inc.
221 Crescent Street
Building 17, Suite 102B
Waltham, MA 02453

Re: Aeglea BioTherapeutics, Inc.
Registration Statement on Form S-3
Response dated September 8, 2023
File No. 333-273769

Dear Jonathan D. Alspaugh:

We have limited our review of your registration statement to those issues we have addressed in our comment.

Please respond to this letter by amending your registration statement and providing the requested information. If you do not believe our comment applies to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to this comment, we may have additional comments.

Registration Statement on Form S-3

General

1. We note your response to comment 1 from our letter dated August 28, 2023. Based on the totality of the transactions, including the entry into the CVR agreement and disposition of the legacy assets, as well as the termination of the legacy employees and executives, we are unable to concur with your analysis. Please amend your registration statement to register the offering on Form S-1.

Jonathan D. Alspaugh
Aeglea BioTherapeutics, Inc.
September 29, 2023
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We remind you that the company and its management are responsible for the accuracy and adequacy of their disclosures, notwithstanding any review, comments, action or absence of action by the staff.

Refer to Rules 460 and 461 regarding requests for acceleration. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

Please contact Dillon Hagius at 202-551-7967 or Joe McCann at 202-551-6262 with any other questions.

Sincerely,

Division of Corporation Finance
Office of Life Sciences

cc: Branden C. Berns