



DIVISION OF
CORPORATION FINANCE

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

August 28, 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
Filed August 7, 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. 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 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 the comment, we may have additional comments.

Registration Statement on Form S-3

General

1. Based on your public filings, we note that Aeglea recently acquired Spyre Therapeutics, Inc. and distributed to Aeglea stockholders of record a non-transferrable contingent value right ("CVR") relating to the disposition or monetization of Aeglea's legacy business assets. We further note that your Form S-3 does not provide (or incorporate by reference to) material information relating to your newly-acquired/current business operations. Given these circumstances, please tell us your basis for registering this transaction on Form S-3. See *Use of Form S-8, Form 8-K, and Form 20-F by Shell Companies*, Release No. 33-8587 (July 15, 2005) at n. 32 as reiterated in *Special Purpose Acquisition Companies, Shell Companies, and Projections*, Release No. 33-11048 (March 30, 2022) at

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n. 239 and accompanying text.

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 questions.

Sincerely,

Division of Corporation Finance
Office of Life Sciences