



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

DIVISION OF
CORPORATION FINANCE

Mail Stop 4546

June 7, 2017

Joseph Gardner, Ph.D.
President and Chief Executive Officer
Aerpio Pharmaceuticals, Inc.
9987 Carver Road
Cincinnati, OH 45242

**Re: Aerpio Pharmaceuticals, Inc.
Amendment No. 1 to Registration Statement on Form S-1
Filed May 22, 2017
File No. 333-217320**

Dear Dr. Gardner:

We have reviewed your amended 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 amending your registration statement and providing the requested information. 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 any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments. Unless we note otherwise, our references to prior comments are to comments in our May 12, 2017 letter.

Description of our Business
Our solution, page 58

1. We note your response to prior comment 5; however, the revised disclosure indicates that the sole patient you highlight in Figure 4 represented only about 29% of all patients in the cohort (i.e., patients who achieved a retinal thickness of less than 300 microns). Please revise the graphic so that it also illustrates, by comparison, the mean change in retinal thickness achieved by all 48 patients in the cohort. Alternatively, please remove the graphic.

Changes in and Disagreements with Accountants on Accounting and Financial Disclosure, page 98

2. LWBJ, LLP's letter dated April 14, 2017 filed as Exhibit 16.1 to Form S-1 filed on April 14, 2017 refers to disclosure that is not included in that filing. As such, incorporating that letter by reference into your S-1/A filed May 22, 2017 does not appear appropriate. Please amend your filing to include an updated exhibit 16.1 that refers to disclosure herein.

Selling Stockholders, page 129

3. We note the last paragraph of your response to prior comment 8 that the selling shareholders are "longtime investors" in Aerpio Therapeutics, Inc. With respect to each of the selling shareholders that were affiliates of Aerpio, such as the "major shareholders" with board representation or pre-merger officers and directors you reference in your response, please expand your response to tell us how long they have held the Aerpio shares, the circumstances under which they received them, their relationship to the issuer, the amount of shares involved, and whether the shareholders are in the business of underwriting securities.

You may contact Jacob Luxenburg at (202) 551-2339 or James Rosenberg at (202) 551-3679 if you have questions regarding comments on the financial statements and related matters. Please contact Christine Westbrook at (202) 551-5019 or Mary Beth Breslin at (202) 551-3625 with any other questions.

Sincerely,

/s/ Mary Beth Breslin for

Suzanne Hayes
Assistant Director
Office of Healthcare and Insurance

cc: Danielle Lauzon, Esq.
Goodwin Proctor LLP