



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

DIVISION OF  
CORPORATION FINANCE

Mail Stop 4546

May 12, 2017

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

**Re: Aerpio Pharmaceuticals, Inc.  
Registration Statement on Form S-1  
Filed April 14, 2017  
File No. 333-217320**

Dear Dr. Gardner:

We have reviewed your 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.

Prospectus Summary  
Overview, page 2

1. Please explain the meaning of terms at their first use, such as “molecule activator of the Tie-2 pathway,” “diabetic macular edema,” “hypoxia-inducible factor-1 alpha,” “humanized monoclonal antibody” and “anti-VEGF.”
2. Please revise to clarify and to present consistently in your Summary the current stage of development of your product candidate AKB-9778. From your disclosure on page 2 and in the fourth bullet point on page 4, it appears you have not yet begun phase 2 trials, but you also state in the first bullet point on page 4 that you have begun phase 2 development, and in the third bullet point on page 4 you appear to suggest that you have received positive results from phase 2 trials.

Risks Associated with our Business, page 3

3. Please add a bullet point disclosing that shareholders will have limited ability to influence corporate matters because a small number of your existing shareholders hold a significant amount of your outstanding common stock.

Description of our Business  
Overview, page 52

4. Please revise your disclosure to indicate the source of the statistics you present in the third and fourth paragraphs of this section, as well as the second full paragraph on page 64.

Our Solution AKB-9778, page 56

5. It is inappropriate to highlight the results regarding change in retinal thickness from a single patient in your Phase 2 trial in the last paragraph on page 58 and in the table on page 59. Please revise to remove this disclosure or include additional context such as the changes in retinal thickness experienced by each patient in the trial.

Clinical Results in DR, page 61

6. We note your comparison of AKB-9778's response rate in diabetic retinopathy severity measured in the Phase 2 study to that of ranibizumab, "an approved therapy for DR in the presence of DME." Please revise to eliminate the inference that your product candidate is more likely to be found effective for purposes of FDA approval.

Certain Relationships and Related Person Transactions, page 116

7. We note your disclosure that Aerpio issued convertible promissory notes to certain related persons. Please revise your disclosure to include the rate or amount of interest that was payable on the notes since the beginning of your last fiscal year. Please refer to Item 404(a)(5) of Regulation S-K.

Selling Stockholders, page 126

8. Please provide us your analysis as to why each of the selling shareholders who received your shares in the merger and conversion transactions and the share cancellation transaction should not be deemed underwriters pursuant to Securities Act Rule 145(c). To the extent they are, please name them as underwriters and revise to clarify that the price at which they are offering their shares will remain fixed for the duration of the offering. If they are not, please provide us a basis for your conclusion, including a discussion of whether such selling shareholders were a party to or an affiliate of a party to the business

Joseph Gardner, Ph.D.  
Aerpio Pharmaceuticals, Inc.  
May 12, 2017  
Page 3

combination transaction discussed in this prospectus. Refer to Section II.G of Securities Act Release 33-8869 (2007).

Zeta Acquisition Corp. II  
Financial Statements and Report of Independent Registered Public Accounting Firm, F-25

9. Please tell us why these financial statements and, as applicable, the report of the independent registered public accounting firm do not provide disclosure of the Merger, the Conversion, the Share Cancellation and the Offering as discussed on page 87.

Exhibit 16.1

10. Please explain to us why the filing includes this exhibit but does not include disclosures regarding changes in and disagreements with accountants on accounting and financial disclosure to which LWBJ, LLP refers.

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.

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