



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

DIVISION OF  
CORPORATION FINANCE

Mail Stop 4720

July 13, 2016

Jill C. Milne, Ph.D.  
President and Chief Executive Officer  
Catabasis Pharmaceuticals, Inc.  
One Kendall Square  
Building 1400E, Suite B14202  
Cambridge, MA 02139

**Re: Catabasis Pharmaceuticals, Inc.  
Registration Statement on Form S-3  
Filed July 1, 2016  
File No. 333-212382**

Dear Dr. Milne:

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.

Prospectus Cover Page

1. It appears that you are relying on General Instruction I.B.6 of Form S-3 for this offering. If true, please revise your prospectus cover page to disclose the calculation of the aggregate market value of your outstanding voting and nonvoting common equity and the amount of all securities offered pursuant to General Instruction I.B.6 during the prior 12 calendar month period that ends on, and includes, the date of the prospectus. Refer to Instruction 7 to General Instruction I.B.6. Otherwise, please provide us your analysis demonstrating your eligibility to use Form S-3.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Act of 1933 and all applicable Securities Act rules require. Since the company and its management are in

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possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement, please provide a written statement from the company acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

Please contact Michael Gershon at (202) 551-6598 or Joseph McCann at (202) 551-6262 with any questions.

Sincerely,

/s/ Joseph McCann for

Suzanne Hayes  
Assistant Director  
Office of Healthcare and Insurance

cc: Rosemary G. Reilly, Esq.  
Wilmer Cutler Pickering Hale and Dorr LLP