

July 14, 2016

**By Electronic Submission**

Securities and Exchange Commission  
Division of Corporation Finance  
100 F Street, N.E.  
Washington, DC 20549

Attention: Suzanne Hayes

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

Ladies and Gentlemen:

On behalf of Catabasis Pharmaceuticals, Inc. (the "Company"), filed herewith is Amendment No. 1 ("Amendment No. 1") to the Registration Statement referenced above.

Amendment No. 1 is being submitted in response to a comment contained in a letter, dated July 13, 2016 (the "Letter"), from Suzanne Hayes of the Staff (the "Staff") of the Securities and Exchange Commission to Jill C. Milne, the Company's President and Chief Executive Officer. For convenient reference, we have set forth below in italics the Staff's comment set forth in the Letter and have keyed the Company's response to the numbering of the comment and the heading used in the Letter.

Prospectus Cover Page

- 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.*

**Response:** In response to the Staff's comment, the Company has modified the disclosure on the prospectus cover page to include the aggregate market value of the Company's outstanding voting and non-voting common

Wilmer Cutler Pickering Hale and Dorr LLP, 60 State Street, Boston, Massachusetts 02109

Beijing Berlin Boston Brussels Denver Frankfurt London Los Angeles New York Palo Alto Washington

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equity, as well as the amount of all securities offered pursuant to General Instruction I.B.6 of Form S-3 during the prior 12 calendar month period that ends on, and includes, the date of the prospectus.

If you have any further questions or comments, or if you require any additional information, please contact the undersigned by telephone at (617) 526-6633 or facsimile at (617) 526-5000. Thank you for your assistance.

Very truly yours,

/s/ Rosemary G. Reilly

Rosemary G. Reilly

cc: Jill C. Milne, Catabasis Pharmaceuticals, Inc.