

Mail Stop 6010

January 28, 2009

Mr. Vikas Sinha
Senior Vice President and Chief Financial Officer
Alexion Pharmaceuticals, Inc.
352 Knotter Drive
Cheshire, Connecticut 06410

**Re: Alexion Pharmaceuticals, Inc.
Form 10-K for the Year Ended December 31, 2007
Filed February 29, 2008
Form 10-Q for the Period Ended September 30, 2008
Filed October 30, 2008
Form DEF 14A
Filed April 4, 2008
File No. 000-27756**

Dear Mr. Sinha:

We have reviewed your response and have the following comments. Where indicated, we think you should revise your document in response to these comments. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure. After reviewing this information, we may raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comments or any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 51

Critical Accounting Policies and the Use of Estimates, page 52

Research and Development Expenses, page 55

1. Please refer to your response to comment five. Revise your tabular and narrative disclosures included in Exhibit D to include a discussion of your research and development costs incurred to date. Refer to the first bullet point of our original comment.

DEF 14A

2. Please revise your disclosure to include the individual goals, as derived from the corporate goals discussed, used in determining compensation for Drs. Bell and Squinto and Messrs. Keiser, Sinha and Dubin, as well as a qualitative discussion of the extent of achievement of these goals for each named executive officer.

* * *

Please respond to these comments within 10 business days or tell us when you will provide us with a response.

Please contact Ibolya Ignat, Staff Accountant at (202) 551-3656, or Gustavo Rodriguez, Accounting Branch Chief, at (202) 551-3752 if you have any questions regarding the processing of your response as well as any questions regarding comments on the financial statements and related matters. Please contact Mike Rosenthal at 202-551-3674 or me at 202-551-3715 with any other questions.

Sincerely,

Jeffrey P. Riedler
Assistant Director