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

DIVISION OF
CORPORATION FINANCE

Mail Stop 4720

February 25, 2016

VIA E-mail
Mr. Vikas Sinha
Executive Vice President and
Chief Financial Officer
Alexion Pharmaceuticals, Inc.
100 College Street
New Haven, CT 06510

Re: Alexion Pharmaceuticals, Inc.
Form 10-K for Fiscal Year Ended December 31, 2015
Filed February 8, 2016
File No. 000-27756

Dear Mr. Sinha:

We have limited our review of your filing to the financial statements and related disclosures and have the following comment. In our comment, we ask you to provide us with information so we may better understand your disclosure.

Please respond to this comment within ten business days by providing the requested information or advise us as soon as possible when you will respond. If you do not believe our comment applies to your facts and circumstances, please tell us why in your response.

After reviewing your response to this comment, we may have additional comments.

Notes to Consolidated Financial Statements
2. Acquisitions, page F-17

1. You state that you recorded approximately $40.7 million of adjustments to the amounts initially recorded for the assets acquired and liabilities assumed as of the acquisition date, which primarily related to the valuation of acquired inventory and the assessment of inventory-related items. Refer to ASC 805-10-30-2 through 30-3. Please tell us the following:
   - The amount of the measurement period adjustments related to the valuation of acquired inventory vs. the assessment of inventory-related items.
   - What is meant by the "assessment of inventory-related items
   - The timing and nature of the new information received that resulted in each measurement period adjustment.

- An analysis of the new information received demonstrating that it related to events or circumstances that existed at the acquisition date. Address in your analysis your consideration of events occurring after the acquisition date related to Kanuma such as obtaining EU regulatory approval and the FDA's three month extension of the Prescription Drug User Fee Act date for its priority review for Kanuma's biologics license application.
- The amount of the "reasonable profit allowance" at June 30, September 30 and December 31, what specific efforts of the company after acquisition it represented, and why you believe it was reasonable at each date.

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 Exchange Act of 1934 and all applicable Exchange Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

In responding to our comment, please provide a written statement from the company acknowledging that:

- the company is responsible for the adequacy and accuracy of the disclosure in the filing;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

You may contact Senior Staff Accountants Christine Allen Torney at (202) 551-3652 or Mary Mast, at (202) 551-3613 with any questions. In this regard, do not hesitate to contact me at (202) 551-3679.

Sincerely,

/s/ Jim B. Rosenberg

Jim B. Rosenberg
Senior Assistant Chief Accountant
Office of Healthcare and Insurance