VIA EDGAR

March 20, 2012

U.S. Securities and Exchange Commission
Division of Corporation Finance
100 F Street, NE
Washington, D.C. 20549

Attention: Jim B. Rosenberg

Re: Alexion Pharmaceuticals, Inc.
Form 10-K for the Fiscal Year Ended December 31, 2011
Filed February 17, 2011
File No. 000-27756

Ladies and Gentlemen:

On behalf of Alexion Pharmaceuticals, Inc. ("Alexion"), submitted herewith is a response to comments contained in the letter dated March 7, 2012 from Jim B. Rosenberg of the Staff ("Staff") of the Securities and Exchange Commission ("Commission") to Vikas Sinha, M.B.A., C.A., Alexion's Senior Vice President and Chief Financial Officer. The comments and responses set forth below are keyed to the numbering of the comments and the headings used in the Staff's letter.

On behalf of Alexion, we advise you as follows:

Management's Discussion and Analysis of Financial Condition and Results of Operations

Critical Accounting Policies and Use of Estimates
Revenue Recognition
Net Product Sales, page 42

1. *You indicate that $24 million of the accounts receivables affected by the credit and economic conditions in Europe have been outstanding for greater than a year for which you have recorded an allowance of $3.5 million. Please tell us why you believe the remaining amount is still collectible.*

Response: We closely monitor the economic conditions in Europe, and we note that a substantial portion of the balances in Europe that are outstanding over 365 days relate to Italy, Spain and Greece. We have been actively collecting our receivables in each of these countries, and, with the exception of Greece, our reserves represent discounts on receivables related to the time value of money from slower paying customers. We have recorded allowances to reflect potential non-payment in Greece, and our net receivable balance in Greece is not material.

Our experience has been that certain regions within Italy and Spain consistently have receivables outstanding beyond 360 days. We maintain timely and direct communication with hospital customers in such regions regarding both the current and past due receivable balances, and we actively receive positive confirmation of the validity of receivables from the regional governmental authorities. Additionally, in Italy and Spain, it is common in our industry to commence legal action in order to recover receivables, and we have commenced legal action against certain customers in those countries seeking to recover overdue receivables. We have successfully collected overdue receivables, as well as interest and expenses, in Italy and Spain through legal action. We recognize the additional interest and expense as income upon receipt. As a result of our active collection efforts, we continue to receive regular payments from customers in Italy and Spain, and our days' sales outstanding for these countries is more favorable than industry benchmarks. Based on this experience, we believe the receivables in these regions of Italy and Spain to be fully recoverable.

Subsequent to filing our Annual Report on Form 10-K for the year ended December 31, 2011, the national government in Spain allocated 35 billion Euros for the acceleration of payments due to suppliers of the Spanish regions and municipalities, including pharmaceutical providers of Spain's public health system, and we are currently evaluating this program and whether this may favorably impact the timing of the anticipated collection of our receivables.

Cash Flows
Financing Activities, page 55

2. *You have $540.9 million in cash and cash equivalents at December 31, 2011 and foreign operations are becoming increasingly significant to your business. Please provide proposed revised disclosure to be included in future periodic reports of the amount of cash and investments that are currently held by your foreign subsidiaries that are considered reinvested indefinitely and its expected effect on your liquidity and capital resources. Refer to Item 303(a)(1) of Regulation S-K and Section IV of SEC Release 33-8350.*

Response: In response to the Staff's comment, we will provide disclosure in substance similar to the following:

"At December 31, 2011, approximately $72 million of our cash and cash equivalents was held by our foreign subsidiaries, a significant portion of which is required for liquidity needs of our foreign subsidiaries. At December 31, 2011, our foreign subsidiaries had liabilities due to entities in the U.S. in excess of the amount of cash and cash equivalents held outside the United States, and therefore, entities in the U.S. can access the substantial portion of foreign cash and investment balances without negative tax consequences."

Notes to Consolidated Financial Statements
Business Overview and Summary of Significant Accounting Policies, page F-7

3. *The Healthcare Reform Act requires many changes for the pharmaceutical industry, including an annual fee to be assessed on pharmaceutical manufacturers, changes in Medicaid*

prescription drug rebates, changes in the Medicare coverage gap, as well as other changes that may have affected your current results of operations. In addition, other changes may affect future periods. Please provide proposed disclosure to be included in future periodic reports of your accounting policies for the changes. For example, disclose how you are recording the amounts due for the fee assessed to pharmaceuticals and where the amounts are classified in the income statement. Provide us your accounting basis for the policies to be disclosed. In addition, provide proposed disclosure to be included in future periodic reports for Management's Discussion and Analysis of the effects the Healthcare Reform Act had on your liquidity and results of operations for each period presented and the anticipated effects the legislation will have on your future liquidity and results of operations.

Response: We provided disclosure related to the Healthcare Reform Act ("Act") in our Form 10-K for the year ended December 31, 2010. Based on our subsequent assessment, the Act, as currently applied, does not currently have, and we do not anticipate it having in the future, a material impact on our financial statements.

Our assessment of key components of the Act is as follows:

- The Act mandated an annual fee payable by branded prescription drug manufacturers and importers on branded prescription drugs. Due to the orphan drug status of our only marketed product, Soliris, we are currently exempt from paying this annual fee.

- Manufacturers of pharmaceutical products are required to be responsible for 50% of a patient's cost of branded prescription drugs related to the Medicare Part D Coverage Gap (the "Coverage Gap"). Medicare patients typically receive Soliris therapy under Medicare Part B rather than Part D, and therefore, the financial exposure for the Coverage Gap is not material to our results.

- Manufacturers are also subject to an increase in rebates associated with Medicaid recipients and an expansion of the rebate to managed Medicaid organizations, and we have appropriately adjusted our accruals for governmental rebates, the results of which, in total, also were not material to our results. Furthermore, Soliris is exempt from the expansion of 340(B) eligible entities under the Act, due to its orphan drug status.

We will revise future disclosures to discuss the Act in more detail and provide additional quantitative disclosures when and if the amounts become material to our financial results.

Inventories, page F-9

4. *You state that "For products with an approved indication, raw materials and purchased drug product associated with clinical development programs are included in inventory and charged to research and development expense when consumed. For products without an approved indication, purchased drug product is charged to research and development expense upon final quality release. We also capitalize the cost of inventory manufactured at our manufacturing*

plant in property, plant and equipment prior to the approval of the facility by regulatory authorities." Please provide proposed disclosure to be included in future periodic reports to clarify your policy as follows:

- *Clarify what you mean by "for products with an approved indication" and "for products without an approved indication". Clarify if these costs relate to inventory capitalized prior to regulatory approval or if the costs relate to products that are purchased to be used in research and development activities.*
- *Clarify what you mean by "final quality release" and why you believe that is the point in time in which research and development expense should be recorded.*
- *Clarify how the costs that you capitalize at your manufacturing plant are accounted for after the manufacturing facility is approved and how the costs are expensed in the financial statements. State if the inventory produced can be sold after approval. Clarify if the costs are recorded as cost of goods sold if the product is sold or expensed as depreciation expense once the manufacturing plant is approved.*
- *Clarify how you account for the costs of inventory relating to getting manufacturing plant approval in which the validation batches are not successful.*
- *Tell us the accounting literature you used to support your accounting treatment for the capitalization of inventory.*
- *If material, separately disclose the inventory capitalized relating to inventory available for sale, inventory produced prior to regulatory approval, and inventory to be used in research and development activities separately by each category of raw materials, work in-process, and finished goods.*

Response: In response to the Staff's comment, we will appropriately revise the disclosure to provide additional clarification of the accounting treatment of inventory. We have addressed each of the items separately below.

- *Clarify what you mean by "for products with an approved indication" and "for products without an approved indication". Clarify if these costs relate to inventory capitalized prior to regulatory approval or if the costs relate to products that are purchased to be used in research and development activities.*
- *Clarify what you mean by "final quality release" and why you believe that is the point in time in which research and development expense should be recorded.*

We will revise the disclosure in substance similar to the following:

"Products that have been approved by the FDA or other regulatory authorities, such as Soliris, are also used in clinical programs to assess the safety and efficacy of the products for usage in diseases that have not been approved by the FDA or other regulatory authorities. The form of Soliris utilized for both commercial and clinical programs is identical and, as a result, the inventory has an "alternative future use" as defined in Accounting Standards Codification ("ASC") 730-10-25. Raw materials and purchased drug product associated with clinical development programs are included in inventory and charged to research and development expense when the

product enters the research and development process and no longer can be used for commercial purposes and therefore does not have an “alternative future use”.

For products which are under development and have not yet been approved by regulatory authorities, purchased drug product is charged to research and development expense upon delivery. For these contracts, we make nonrefundable payments to the vendors until the inventory is delivered, which we define as the point in which the inventory passes quality inspection and ownership transfers to us. In accordance with ASC 730-20-25, the nonrefundable advance payments for research and development activities are deferred and capitalized until the goods are delivered.”

- *Clarify how the costs that you capitalize at your manufacturing plant are accounted for after the manufacturing facility is approved and how the costs are expensed in the financial statements. State if the inventory produced can be sold after approval. Clarify if the costs are recorded as cost of goods sold if the product is sold or expensed as depreciation expense once the manufacturing plant is approved.*
- *Clarify how you account for the costs of inventory relating to getting manufacturing plant approval in which the validation batches are not successful.*
- *Tell us the accounting literature you used to support your accounting treatment for the capitalization of inventory.*

We reference Note 5 of our Consolidated Financial Statements for an explanation of the treatment of the costs capitalized at our manufacturing plant, which we will revise in substance similar to the following:

“In July 2006, we acquired a manufacturing plant in Smithfield, Rhode Island for the commercial production of Soliris and development and manufacturing of future products. Since this date, we have incurred costs related to the construction of the plant to support full-scale commercial manufacturing. We have also capitalized costs related to validation activities which are directly attributable to preparing the facility for its intended use under FASB Concept Statement No. 5, including engineering runs and inventory production necessary to obtain approval of the facility from government regulators for the production of a commercially approved drug.

The production of inventory for preparing the facility for its intended use requires two types of production: engineering runs which are used for testing purposes only and do not result in saleable inventory and validation runs which are used for validating equipment and may result in saleable inventory. The costs associated with inventory produced during engineering runs and normal production losses during validation runs are capitalized to fixed assets and depreciated over the assets useful life. Saleable inventory produced during the validation process is initially treated as a fixed asset, however, upon regulatory approval, is reclassified to inventory and expensed when utilized. Abnormal production costs incurred during the validation process are expensed as incurred.

In December 2009, we received final regulatory approval for production of commercial quantities of eculizumab by the European Commission. Accordingly, our plant was considered substantially complete and ready for its intended use. As a result of the approval, we placed the plant in service. Based on the approval, we expected to sell certain pre-approval inventory from validation runs, and we therefore reclassified $4,514 from property, plant and equipment to inventory. Since this point, we have recorded the expense associated with this inventory in Cost of Goods Sold or Research and Development Expenses as product has been sold or utilized in R&D activities, respectively.”

- *If material, separately disclose the inventory capitalized relating to inventory available for sale, inventory produced prior to regulatory approval, and inventory to be used in research and development activities separately by each category of raw materials, work in-process, and finished goods.*

The substantial portion of our inventory is related to Soliris, which can be used for both commercial and clinical requirements, and it is not practicable to separate the amounts used for commercial and clinical purposes. As described above, Soliris used for clinical purposes is not segregated until such point that the product enters the research and development process and has no “alternative future use”, at which point it is expensed.

Our inventory for products other than Soliris is not material.

Income Taxes, page F-25

5. *You state "it is not practical to estimate the amount of additional taxes which might be payable on our undistributed earnings". Please provide proposed revised disclosure to be included in future periodic reports to indicate whether such estimate is practicable. Refer to ASC 740-30-50-2c.*

Response: In response to the Staff’s comment, to the extent applicable, we will add in future filings a sentence in substance similar to the following in the footnote regarding income taxes:

“We have not provided U.S. income taxes on undistributed earnings of our non-U.S. subsidiaries as these earnings are intended to be either permanently reinvested or subject to a tax free liquidation and do not give rise to significant incremental U.S. taxes. It is not practicable to estimate the amount of additional taxes which might be payable on our undistributed earnings due to a variety of factors, including the timing, extent and nature of any repatriation.”

Alexion acknowledges that:

- Alexion 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
- Alexion 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.

Should you have any questions or require additional information, please telephone the undersigned at (203) 271-8336.

Very truly yours,

/s/ Michael V. Greco

Michael V. Greco
Associate General Counsel and Corporate Secretary

cc: Leonard Bell, Alexion Pharmaceuticals, Inc.
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