



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

DIVISION OF
CORPORATION FINANCE

Mail Stop 4720

November 25, 2015

VIA E-mail

John M. Maraganore, Ph. D.
Chief Executive Officer
Alnylam Pharmaceuticals, Inc.
300 Third Street,
Cambridge, MA 02142

**Re: Alnylam Pharmaceuticals, Inc.
Form 10-K for Fiscal Year Ended December 31, 2014
Filed February 13, 2015
File No. 001-36407**

Dear Dr. Maraganore:

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 10 business days by providing the requested information or advise us as soon as possible when you will respond. If you do not believe that 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

3. Significant Agreements, page 114

1. In order to help us understand more fully how your collaborative arrangements impact your financial statements for each period presented, please provide us, in table format, the amounts by year and by line item included in your statements of operations attributable to transactions arising from collaborative arrangements between you and the other participants and third-parties. Please provide separate tables for each of your significant collaborative arrangements and for all of your collaborative arrangements in the aggregate (i.e. the significant arrangements and all other arrangements). Present separately amounts with other participants and third-parties that are netted in a financial statement line item. Refer to ASC 808.

Dr. John M. Maraganore, Ph.D.
Alynham Pharmaceuticals, Inc.
November 25, 2015
Page 2

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 comment or changes to disclosure in response to staff comment do not foreclose the Commission from taking any action with respect to the filing; and
- the company may not assert staff comment 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 Bonnie Baynes, Staff Accountant, at (202) 551-4924 or Mary Mast, Senior Staff Accountant, at (202) 551-3613 if you have questions regarding this comment. 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