

ALNYLAM PHARMACEUTICALS, INC.  
Form SC 13G/A  
February 16, 2010

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SECURITIES AND EXCHANGE COMMISSION  
Washington, D. C. 20549

SCHEDULE 13G

Under the Securities Exchange Act of 1934  
(Amendment No. 3)

ALNYLAM PHARMACEUTICALS, INC.  
(Name of Issuer)

Common Stock, \$.01 par value per share  
(Title and Class of Securities)

02043Q107  
(CUSIP Number)

December 31, 2009  
(Date of Event which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this schedule is filed:

- Rule 13d-1(b)
- Rule 13d-1(c)
- Rule 13d-1(d)

\*The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter the disclosures provided in a prior cover page.

The information required in the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 (the "Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

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CUSIP No. 02043Q107

Page 2 of 6 Pages

1 NAMES OF REPORTING PERSONS  
S.S. OR I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS

ALETHEIA RESEARCH AND MANAGEMENT, INC., IRS number 95-4647814, as general partner of various limited partnerships and on behalf of various managed accounts.

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a)   
(b)

3 SEC USE ONLY

4 CITIZENSHIP OR PLACE OF ORGANIZATION

California

5 SOLE VOTING POWER

2,863,569

NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH

6 SHARED VOTING POWER

0

7 SOLE DISPOSITIVE POWER

2,863,569

8 SHARED DISPOSITIVE POWER

0

9 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

2,863,569

10 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES\*

11 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

6.85%

12 TYPE OF REPORTING PERSON\*

Aletheia Research and Management, Inc.- IA

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CUSIP No. 02043Q107

Page 3 of 6 Pages

Item 1(a). Name of Issuer:

Alnylam Pharmaceuticals, Inc.

Item 1(b). Address of Issuer's Principal Executive Offices:

300 Third Street, Cambridge, MA 02142

Item 2(a). Name of Person Filing:

Aletheia Research and Management, Inc.

Item 2(b). Address of Principal Business Office or, if None, Residence:

100 Wilshire Boulevard, Suite 1960, Santa Monica, CA 90401

Item 2(c). Citizenship:

Not Applicable.

Item 2(d). Title of Class of Securities:

Common Stock, \$.01 par value.

Item 2(e). CUSIP Number:

02043Q107

Item 3. If this statement is filed pursuant to Rule 13d-1(b), or 13d-2(b) or (c), check whether the person filing is a:

- (a)  £ Broker or Dealer registered under Section 15 of the Act.
  - (b)  £ Bank as defined in Section 3(a)(6) of the Act.
  - (c)  £ Insurance Company as defined in Section 3(a)(19) of the Act.
  - (d)  £ Investment Company registered under Section 8 of the Investment Company Act.
  - (e)  S Investment Adviser registered in accordance with Rule 13d-1(b)(1)(ii)(E).
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CUSIP No. 02043Q107

Page 4 of 6 Pages

- (f)  Employee Benefit Plan or Endowment Fund in accordance with Rule 13d-1(b)(1)(ii)(F).
- (g)  Parent Holding Company or control person in accordance with Rule 13d-1(b)(1)(ii)(G).
- (h)  A savings association as defined in Section 3(b) of the Federal Deposit Insurance Act.
- (i)  A church plan that is excluded from the definition of an investment company under Section 3(c) (14) of the Investment Company Act of 1940.
- (j)  Group, in accordance with Rule 13d-1(b)(1)(ii)(J). If this Statement is filed pursuant to Rule 13d-1(c), check this box .

Item 4. Ownership.

- (a) Amount beneficially owned: 2,863,569\*
- (b) Percent of Class: 6.85%
- (c) Number of Shares as to which the person has:
- (i) Sole power to vote or to direct the vote: 2,863,569
- (ii) Shared power to vote or to direct the vote: 0
- (iii) Sole power to dispose or to direct the disposition of: 2,863,569
- (iv) Shared Power to dispose or to direct the disposition of: 0

\* See Disclaimer of Beneficial Ownership

Item 5. Ownership of Five Percent or Less of a Class.

If this statement is being filed to report the fact that as of the date hereof the reporting person has ceased to be the beneficial owner of more than five percent of the class of securities, check the following. .

Item 6 Ownership of More than Five Percent on Behalf of Another Person.

Various accounts and funds managed by the reporting person have the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of, the securities held in their respective accounts. To the knowledge of the reporting person, the interest of any one such account does not exceed 5% of the class of securities.

Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on by the Parent Holding Company.

Not Applicable.



CUSIP No. 02043Q107

Page 5 of 6 Pages

Item 8. Identification and Classification of Members of the Group.

Not Applicable

Item 9. Notice of Dissolution of Group.

Not Applicable.

Item 10. Certification.

By signing below, I certify that, to the best of my knowledge and belief, the securities referred to above were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect.

SIGNATURE

Date: February 11, 2010

ALETHEIA RESEARCH AND MANAGEMENT, INC.

By: /s/ Roger Peikin  
Name: Roger Peikin  
Title: Executive Vice-President

DISCLAIMER OF BENEFICIAL OWNERSHIP

Alnylam Pharmaceuticals, Inc.  
Common Stock  
2,863,569 shares

Aletheia Research and Management, Inc. (“Aletheia”) is an investment advisor registered under Section 203 of the Investment Advisors Act of 1940 and serves in such capacity for a number of managed accounts and funds. In its role as an investment advisor or manager, Aletheia possesses investment and/or voting power over the securities of the Issuer discussed in this schedule. Aletheia disclaims beneficial ownership of such securities. In addition, the filing of this Schedule 13G shall not be construed as an admission that the reporting person or any of its affiliates is the beneficial owner of any securities covered by this Schedule 13G for any purposes other than Section 13(a) of the Securities Exchange Act of 1934.

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