

Greene Barry E  
Form 4  
December 21, 2012

**FORM 4** UNITED STATES SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

OMB APPROVAL

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Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).

**STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF SECURITIES**

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934, Section 17(a) of the Public Utility Holding Company Act of 1935 or Section 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

1. Name and Address of Reporting Person \*  
Greene Barry E

2. Issuer Name and Ticker or Trading Symbol  
ALNYLAM  
PHARMACEUTICALS, INC.  
[ALNY]

5. Relationship of Reporting Person(s) to Issuer

(Check all applicable)

Director  10% Owner  
 Officer (give title below)  Other (specify below)  
President and COO

(Last) (First) (Middle)

3. Date of Earliest Transaction  
(Month/Day/Year)  
12/20/2012

C/O ALNYLAM  
PHARMACEUTICALS, INC, 300  
THIRD STREET

(Street)

4. If Amendment, Date Original Filed(Month/Day/Year)

6. Individual or Joint/Group Filing(Check Applicable Line)

Form filed by One Reporting Person  
 Form filed by More than One Reporting Person

CAMBRIDGE, MA 02142

(City) (State) (Zip)

**Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned**

| 1. Title of Security (Instr. 3) | 2. Transaction Date (Month/Day/Year) | 2A. Deemed Execution Date, if any (Month/Day/Year) | 3. Transaction Code (Instr. 8) | 4. Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5) | 5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4) | 6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | 7. Nature of Ownership (Instr. 4) |     |       |
|---------------------------------|--------------------------------------|----------------------------------------------------|--------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------|-----|-------|
|                                 |                                      |                                                    |                                | (A) or (D)                                                        | Code                                                                                          | V                                                        | Amount                            | (D) | Price |

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

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SEC 1474  
(9-02)

**Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)**

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| 1. Title of Derivative Security (Instr. 3) | 2. Conversion or Exercise Price of Derivative Security | 3. Transaction Date (Month/Day/Year) | 3A. Deemed Execution Date, if any (Month/Day/Year) | 4. Transaction Code (Instr. 8) | 5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4, and 5) | 6. Date Exercisable and Expiration Date (Month/Day/Year) | 7. Title and Amount of Underlying Securities (Instr. 3 and 4) | Amount or Number of Shares |
|--------------------------------------------|--------------------------------------------------------|--------------------------------------|----------------------------------------------------|--------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------|----------------------------|
|                                            |                                                        |                                      |                                                    | Code                           | V (A) (D)                                                                               | Date Exercisable                                         | Expiration Date                                               | Title                      |
| Stock Option (right to buy)                | \$ 18.66                                               | 12/20/2012                           |                                                    | A                              | 100,000                                                                                 | (1) 12/20/2022                                           | Common Stock                                                  | 100,000                    |

Reporting Owners

| Reporting Owner Name / Address                                                                | Relationships |           |                   |       |
|-----------------------------------------------------------------------------------------------|---------------|-----------|-------------------|-------|
|                                                                                               | Director      | 10% Owner | Officer           | Other |
| Greene Barry E<br>C/O ALNYLAM PHARMACEUTICALS, INC<br>300 THIRD STREET<br>CAMBRIDGE, MA 02142 |               |           | President and COO |       |

Signatures

/s/ Michael P. Mason, Attorney-in-Fact for: Barry E. Greene  
 \*\*Signature of Reporting Person  
 Date 12/20/2012

Explanation of Responses:

- \* If the form is filed by more than one reporting person, see Instruction 4(b)(v).
- \*\* Intentional misstatements or omissions of facts constitute Federal Criminal Violations. See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).
- (1) The stock option vests as to 25% of the shares on the 1st anniversary of the date of the stock option grant and as to an additional 6.25% of the shares each successive three month period thereafter.

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure. Potential persons who are to respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB number.