

ALNYLAM PHARMACEUTICALS, INC.

Form 4

October 26, 2007

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

(Last) (First) (Middle)

300 THIRD STREET

(Street)

CAMBRIDGE, MA 02142

(City) (State) (Zip)

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

3. Date of Earliest Transaction (Month/Day/Year)
10/24/2007

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

5. Relationship of Reporting Person(s) to Issuer

(Check all applicable)

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

6. Individual or Joint/Group Filing(Check Applicable Line)
 Form filed by One Reporting Person
___ Form filed by More than One Reporting Person

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 Indirect Beneficial Ownership (Instr. 4) |
|---------------------------------|--------------------------------------|--|--------------------------------|---|---|--|---|
| | | | | (A) or (D) | Price | | |
| Common Stock | 10/24/2007 | | S ⁽¹⁾ | 252 | D \$ 30.62 | 41,799 | D |
| Common Stock | 10/24/2007 | | S | 48 | D \$ 30.63 | 41,751 | D |
| Common Stock | 10/24/2007 | | S | 300 | D \$ 30.64 | 41,451 | D |
| Common Stock | 10/24/2007 | | S | 100 | D \$ 30.65 | 41,351 | D |
| Common Stock | 10/24/2007 | | S | 515 | D \$ 30.68 | 40,836 | D |

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| | | | | | | | |
|--------------|------------|---|-------|---|-----------|--------|---|
| Common Stock | 10/24/2007 | S | 300 | D | \$ 30.69 | 40,536 | D |
| Common Stock | 10/24/2007 | S | 12 | D | \$ 30.7 | 40,524 | D |
| Common Stock | 10/24/2007 | S | 200 | D | \$ 30.71 | 40,324 | D |
| Common Stock | 10/24/2007 | S | 100 | D | \$ 30.73 | 40,224 | D |
| Common Stock | 10/24/2007 | S | 485 | D | \$ 30.74 | 39,739 | D |
| Common Stock | 10/24/2007 | S | 700 | D | \$ 30.75 | 39,039 | D |
| Common Stock | 10/24/2007 | S | 460 | D | \$ 30.76 | 38,579 | D |
| Common Stock | 10/24/2007 | S | 1,100 | D | \$ 30.77 | 37,479 | D |
| Common Stock | 10/24/2007 | S | 138 | D | \$ 30.78 | 37,341 | D |
| Common Stock | 10/24/2007 | S | 250 | D | \$ 30.8 | 37,091 | D |
| Common Stock | 10/24/2007 | S | 800 | D | \$ 30.81 | 36,291 | D |
| Common Stock | 10/24/2007 | S | 700 | D | \$ 30.82 | 35,591 | D |
| Common Stock | 10/24/2007 | S | 200 | D | \$ 30.83 | 35,391 | D |
| Common Stock | 10/24/2007 | S | 1,462 | D | \$ 30.84 | 33,929 | D |
| Common Stock | 10/24/2007 | S | 1,727 | D | \$ 30.85 | 32,202 | D |
| Common Stock | 10/24/2007 | S | 1,067 | D | \$ 30.86 | 31,135 | D |
| Common Stock | 10/24/2007 | S | 900 | D | \$ 30.87 | 30,235 | D |
| Common Stock | 10/24/2007 | S | 100 | D | \$ 30.875 | 30,135 | D |
| Common Stock | 10/24/2007 | S | 1,396 | D | \$ 30.88 | 28,739 | D |
| Common Stock | 10/24/2007 | S | 1,500 | D | \$ 30.89 | 27,239 | D |
| | 10/24/2007 | S | 2,146 | D | \$ 30.9 | 25,093 | D |

| | | | | | | | | |
|--------------|------------|--|---|-------|---|----------|--------|---|
| Common Stock | | | | | | | | |
| Common Stock | 10/24/2007 | | S | 1,542 | D | \$ 30.91 | 23,551 | D |
| Common Stock | 10/24/2007 | | S | 1,000 | D | \$ 30.92 | 22,551 | D |
| Common Stock | 10/24/2007 | | S | 1,100 | D | \$ 30.93 | 21,451 | D |
| Common Stock | 10/24/2007 | | S | 1,100 | D | \$ 30.94 | 20,351 | D |

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

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(9-02)

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

| 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) | 8. Price of Derivative Security (Instr. 5) | 9. Number of Derivative Securities Owned Beneficially (Instr. 5) |
|--|--|--------------------------------------|--|--------------------------------|---|--|---|--|--|
| | | | | Code | V (A) (D) | Date Exercisable | Expiration Date | Title | Amount or Number of Shares |

Reporting Owners

| Reporting Owner Name / Address | Relationships | | | |
|---|---------------|-----------|---------|-------|
| | Director | 10% Owner | Officer | Other |
| Greene Barry E 300 THIRD STREET CAMBRIDGE, MA 02142 | | | COO | |

Signatures

By: /s/ Patricia L. Allen, Attorney-in-Fact For: Barry E. Greene

10/26/2007

__Signature of Reporting Person

Date

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) All sales reported on this Form 4 were made pursuant to a Rule 10b5-1 trading plan adopted by the reporting person on September 24, 2007.

Remarks:

This Form 4 is the first of three filed by the reporting person to report transactions occurring on October 24, 2007.

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.