

ALNYLAM PHARMACEUTICALS, INC.

Form 4

August 15, 2008

**FORM 4**

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

OMB APPROVAL

OMB Number: 3235-0287  
Expires: January 31, 2005  
Estimated average burden hours per response... 0.5

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)  
08/13/2008

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)  
President and 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)
			Code	V Amount (A) or (D) Price			
Common Stock	08/13/2008		S <sup>(1)</sup>	4,551 D \$ 33.915	0	D	
Common Stock	08/13/2008		M <sup>(2)</sup>	30,889 A \$ 0.95	30,889	D	
Common Stock	08/13/2008		S <sup>(1)</sup>	30,889 D \$ 33.9402	0	D	
Common Stock					717	I	by Managed Account <sup>(3)</sup>

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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)

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	
Incentive Stock Option (right to buy)	\$ 0.95	08/13/2008		M <sup>(2)</sup>	30,889	11/06/2004	11/06/2013	Common Stock	30,889

## Reporting Owners

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

## Signatures

By: /s/ Patricia L. Allen, Attorney-in-Fact For: Barry E. Greene 08/15/2008

\_\_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) The sales reported on this Form 4 were made pursuant to a Rule 10b5-1 trading plan adopted by the reporting person on June 23, 2008.
- (2) This exercise is pursuant to a 10b5-1 plan put in place by the reporting person.
- (3) The reporting person owns 717 shares of ALNY common stock under the ALNY 401(k) plan as a result of the ALNY 401(k) matching contribution program.

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

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