Vaishnaw Akshay Form 4 December 11, 2009

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

OMB APPROVAL

OMB 3235-0287 Number: January 31,

2005 Estimated average

Expires:

burden hours per response... 0.5

Check this box if no longer subject to Section 16.

Form 4 or

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

Form 5 obligations may continue. See Instruction

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

1(b).

(Print or Type Responses)

1. Name and Address of Reporting Person *

Vaishnaw Akshay

2. Issuer Name and Ticker or Trading

Symbol

ALNYLAM

PHARMACEUTICALS, INC.

[ALNY]

(Last) (First) (Middle)

(State)

3. Date of Earliest Transaction

(Month/Day/Year) 12/10/2009

(Street) 4. If Amendment, Date Original

5. Relationship of Reporting Person(s) to

Issuer

(Check all applicable)

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

below) SVP, Clinical Research

300 THIRD STREET

Filed(Month/Day/Year)

6. Individual or Joint/Group Filing(Check

Applicable Line)

X 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

CAMBRIDGE, MA 02139

1.Title of 2. Transaction Date 2A. Deemed Security (Month/Day/Year) Execution Date, if (Instr. 3) (Month/Day/Year)

(Zip)

4. Securities TransactionAcquired (A) or Code Disposed of (D) (Instr. 8) (Instr. 3, 4 and 5)

5. Amount of Securities Beneficially Owned Following

6. Ownership 7. Nature of Form: Direct Indirect (D) or Indirect (I) (Instr. 4)

Beneficial Ownership (Instr. 4)

Reported (A) Transaction(s)

or (Instr. 3 and 4) Code V Amount (D) Price

Common Stock

(City)

by I Managed 1,057

Account (1)

(9-02)

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

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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. Transactic Code (Instr. 8)	5. Number of orDerivative 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)	
				Code V	(A) (D)	Date Exercisable	Expiration Date	Title	Amount or Number of Shares
Stock Option (right to buy)	\$ 16.43	12/10/2009		A	45,000	(2)	12/09/2019	Common Stock	45,000

Reporting Owners

Reporting Owner Name / Address	Relationships					
	Director	10% Owner	Officer	Other		
Vaishnaw Akshay			SVP,			
300 THIRD STREET			Clinical			
CAMBRIDGE, MA 02139			Research			

Signatures

/s/ Patricia L Allen, Attorney-in-Fact for Akshay K Vaishnaw

**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 reporting person owns 1,057 shares of ALNY common stock under the ALNY 401(k) plan as a result of the ALNY 401(k) matching contribution program.
- (2) 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.

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