SHARP PHILIP A

Form 4

December 11, 2009

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

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF

OMB APPROVAL OMB

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SECURITIES Form 5

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

1(b).

(Print or Type Responses)

1. Name and Address of Reporting Person *

SHARP PHILIP A

2. Issuer Name and Ticker or Trading

Symbol

ALNYLAM

PHARMACEUTICALS, INC.

[ALNY]

12/10/2009

(Last) (First) (Middle) 3. Date of Earliest Transaction (Month/Day/Year)

X_ Director Officer (give title below)

10% Owner Other (specify

300 THIRD STREET

Security

(Instr. 3)

(Street)

4. If Amendment, Date Original 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

5. Relationship of Reporting Person(s) to

(Check all applicable)

Person

Issuer

CAMBRIDGE, MA 02142

(Zip) (State) (City) 1.Title of 2. Transaction Date 2A. Deemed

Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned 4. Securities (Month/Day/Year) Execution Date, if

TransactionAcquired (A) or Disposed of (D) Code (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 Beneficial Ownership (Instr. 4) (Instr. 4)

Reported (A) Transaction(s) or (Instr. 3 and 4)

Code V Amount (D) Price

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

(Month/Day/Year)

Persons who respond to the collection of SEC 1474 information contained in this form are not required to respond unless the form displays a currently valid OMB control number.

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

1. Title of Derivative Conversion 3. Transaction Date 3A. Deemed (Month/Day/Year) Execution Date, if

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5. Number of TransactionDerivative

6. Date Exercisable and **Expiration Date**

7. Title and Amount of **Underlying Securities**

(9-02)

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Security (Instr. 3)	or Exercise Price of Derivative Security		any (Month/Day/Year)	Code (Instr. 8)	Securities Acquired (A) or Disposed of (D) (Instr. 3, 4, and 5)	(Month/Day/Year)		(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(1)	15,000	12/10/2010	12/09/2019	Common Stock	15,000

Reporting Owners

Reporting Owner Name / Address	Relationships						
reporting owner runner runners	Director	10% Owner	Officer	Other			
SHARP PHILIP A 300 THIRD STREET CAMBRIDGE, MA 02142	X						

Signatures

/s/ Patricia L Allen, Attorney-in-Fact for Phillip A
Sharp
12/11/2009

**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 options were granted to Dr. Sharp in connection with his service as Chairman of the Alnylam Scientific Advisory Board.

 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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