

SHARP PHILIP A  
Form 4  
June 12, 2009

**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 \*  
SHARP PHILIP A

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)

(Last) (First) (Middle)

3. Date of Earliest Transaction (Month/Day/Year)  
06/11/2009

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 Indirect Beneficial Ownership (Instr. 4) |
|---------------------------------|--------------------------------------|--|--------------------------------|---|---|--|---|
|                                 |                                      |  |                                | (A) or (D)  | Price   |  |   |
|                                 |                                      |  |                                | Code  | V   | Amount   |   |
| Common Stock                    | 04/14/2009                           |  | J <sup>(1)</sup>               | V   | 176,830   | A  | \$ 0 252,630 D  |
| Common Stock                    | 04/14/2009                           |  | J <sup>(1)</sup>               | V   | 176,830   | D  | \$ 0 75,800 D   |
| Common Stock                    | 04/14/2009                           |  | J <sup>(1)</sup>               | V   | 176,830   | D  | \$ 0 0 I by Trust                                     |
| Common Stock                    | 04/14/2009                           |  | J <sup>(1)</sup>               | V   | 176,830   | A  | \$ 0 176,830 I by Trust                               |

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

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

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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 Security (Instr. 3 and 4) |
|--|--|--------------------------------------|--|--------------------------------|---|--|---|
| Non-Qualified Stock Option (right to buy)  | \$ 22.09   | 06/11/2009                           |  | A                              | 15,000  | 06/11/2010 06/11/2019                                    | Common Stock 15   |

## Reporting Owners

| Reporting Owner Name / Address                            | Relationships |           |         |       |
|---|---------------|-----------|---------|-------|
|   | Director      | 10% Owner | Officer | Other |
| SHARP PHILIP A<br>300 THIRD STREET<br>CAMBRIDGE, MA 02142 |               | X         |         |       |

## Signatures

By: /s/ Patricia L Allen, Attorney-in-Fact For: Phillip A Sharp 06/12/2009

\_\_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).

The 176,830 shares were previously reported as indirectly owned by the "Phillip A. Sharp 2008 Grantor Retained Annuity Trust". On (1) April 14, 2009, the shares were re-registered to Phillip A. Sharp and then contributed to the "Phillip A. Sharp 2009 Grantor Retained Annuity Trust".

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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