

ALNYLAM PHARMACEUTICALS, INC.

Form 5

February 13, 2007

FORM 5

OMB APPROVAL

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

OMB Number: 3235-0362
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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).
 Form 3 Holdings Reported Form 4 Transactions Reported

ANNUAL 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

1. Name and Address of Reporting Person *
 SCHIMMEL PAUL

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. Statement for Issuer's Fiscal Year Ended (Month/Day/Year)
 12/31/2006

C/O ALNYLAM
 PHARMACEUTICALS, INC., 300
 THIRD STREET

(Street)

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

6. Individual or Joint/Group Reporting

(check applicable line)

CAMBRIDGE, MA 02142

Form Filed by One Reporting Person
 Form Filed by More than One Reporting Person

(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 at end of Issuer's Fiscal Year (Instr. 3 and 4) | 6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | 7. Nature of Ownership (Instr. 4) |
|---------------------------------|--------------------------------------|--|--------------------------------|---|--|--|------------------------------------|
| Common Stock | 02/28/2006 | | G | 1,615 D \$ 0 | 336,473 | I | By Paul Schimmel Prototype PSP (1) |

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

SEC 2270 (9-02)

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 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. Other |
|--|--|--------------------------------------|--|--------------------------------|---|--|---|--|----------|
| | | | | | (A) (D) | Date Exercisable Expiration Date | Title Amount or Number of Shares | | |

Reporting Owners

Reporting Owner Name / Address

Relationships

Director 10% Owner Officer Other

SCHIMMEL PAUL
C/O ALNYLAM PHARMACEUTICALS, INC.
300 THIRD STREET
CAMBRIDGE, MA 02142

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Signatures

/s/ Patricia L. Allen,
Attorney-in-Fact

02/13/2007

**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) The shares are held by Paul Schimmel as Trustee of the Paul Schimmel Prototype PSP

Note: File three copies of this Form, one of which must be manually signed. If space provided 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.