

OMB APPROVAL

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

SCHEDULE 13G

UNDER THE SECURITIES EXCHANGE ACT OF 1934
(AMENDMENT NO. __)*

ALNYLAM PHARMACEUTICALS, INC.

(Name of Issuer)

Common Stock

(Title of Class of Securities)

02043Q107

(CUSIP Number)

June 4, 2004

(Date of Event Which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

- Rule 13d-1(b)
- Rule 13d-1(c)
- Rule 13d-1(d)

*The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter the disclosures provided in a prior cover page.

The information required in the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

1 NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)

ARCH Venture Fund V, L.P.

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (a) []
(b) []

3 SEC USE ONLY

4 CITIZENSHIP OR PLACE OF ORGANIZATION

Delaware

5 SOLE VOTING POWER

0

NUMBER OF
SHARES
BENEFICIALLY
OWNED BY
EACH
REPORTING
PERSON
WITH

6 SHARED VOTING POWER

2,006,197

7 SOLE DISPOSITIVE POWER

0

8 SHARED DISPOSITIVE POWER

2,006,197

9 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

2,006,197

10 CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE
INSTRUCTIONS) []

11 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

10.4%

12 TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)

PN

*SEE INSTRUCTIONS BEFORE FILLING OUT!

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ARCH V Entrepreneurs Fund, L.P.

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ARCH Venture Partners V, LLC

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Steven Lazarus

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Keith Crandell

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Robert Nelsen

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 Clinton Bybee

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 (b) []

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 IN

*SEE INSTRUCTIONS BEFORE FILLING OUT!

- Item 1(a). Name of Issuer: Alnylam Pharmaceuticals, Inc. (the "Issuer").
- Item 1(b). Address of Issuer's Principal Executive Offices: 300 Third Street, Cambridge, Massachusetts 02142
- Item 2(a). Names of Persons Filing: ARCH Venture Fund V, L.P. ("ARCH Venture Fund V"); ARCH V Entrepreneurs Fund, L.P. ("ARCH V Entrepreneurs Fund"); ARCH Venture Partners V, L.P. ("AVP V LP"); ARCH Venture Partners V, LLC ("AVP V LLC"); (collectively, the "Reporting Entities" and individually, each a "Reporting Entity") and Steven Lazarus ("Lazarus"), Keith Crandell ("Crandell"), Robert Nelsen ("Nelsen") and Clinton Bybee ("Bybee") (collectively, the "Managing Directors" and individually, each a "Managing Director"). The Reporting Entities and the Managing Directors collectively are referred to as the "Reporting Persons".
- Item 2(b). Address of Principal Business Office or, if None, Residence: 8725 W. Higgins Road, Suite 290, Chicago, IL 60631.
- Item 2(c). Citizenship: ARCH Venture Fund V, ARCH V Entrepreneurs Fund, and AVP V LP are limited partnerships organized under the laws of the State of Delaware. AVP V LLC is a limited liability company organized under the laws of the State of Delaware. Each Managing Director is a US citizen.
- Item 2(d). Title of Class of Securities: Common Stock (the "Common Stock").
- Item 2(e). CUSIP Number: 02043Q107
- Item 3. If this statement is filed pursuant to Section 240.13d-1(b) or 240.13d-2(b) or (c), check whether the person filing is a:
- Not Applicable.
- Item 4. Ownership.

(a) Amount beneficially owned:

ARCH Venture Fund V is the record owner of 1,994,425 shares of Common Stock (the "ARCH Venture Fund V Shares") as of June 4, 2004. ARCH V Entrepreneurs Fund is the record owner of 11,772 shares of Common Stock (the "ARCH V Entrepreneurs Fund Shares", together with the ARCH Venture Fund V Shares, the "Record Shares") as of June 4, 2004. AVP V LP is the sole general partner of ARCH Venture Fund V and ARCH V Entrepreneurs Fund. AVP V

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LLC is the sole general partner of AVP V LP. By virtue of their relationship as affiliated entities who have overlapping general partners and managing directors, each Reporting Entity may be deemed to share the power and direct the disposition and vote of the Record Shares. As individual general partners or managing directors of each of AVP V LLC and AVP V LP, each Managing Director may also be deemed to share the power and direct the disposition and vote of the Record Shares.

(b) Percent of class:

Reporting entities and Reporting Persons: 10.4%, calculated based on the 19,283,309 shares of Common Stock reported to be outstanding in the Issuer's Form S-1/A filed with the Securities and Exchange Commission on June 4, 2004.

(c) Number of shares as to which the person has:

(i) Sole power to vote or to direct the vote:

0 shares for each Reporting Person

(ii) Shared power to vote or to direct the vote:

Each of the Reporting Persons: 2,006,197

(iii) Sole power to dispose or to direct the disposition of:

0 shares for each Reporting Person

(iv) Shared power to dispose or to direct the disposition of:

Each of the Reporting Persons: 2,006,197

Item 5. Ownership of Five Percent or Less of a Class.

Not Applicable.

Item 6. Ownership of More than Five Percent on Behalf of Another Person.

Not Applicable.

Item 7. Identification and Classification of the Subsidiary which Acquired the Security Being Reported on By the Parent Holding Company or Control Person.

Not Applicable.

Item 8. Identification and Classification of Members of the Group.

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Not Applicable. The Reporting Persons expressly disclaim membership in a "group" as used in Rule 13d-1(b)(ii)(J).

Item 9. Notice of Dissolution of Group.

Not Applicable.

Item 10. Certification.

By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect.

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SIGNATURES

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Dated: June 10, 2004

ARCH VENTURE FUND V, L.P.

By: ARCH Venture Partners V, L.P.
its General Partner

By: ARCH Venture Partners V, LLC

its General Partner

By: _____
*
Steven Lazarus
Managing Director

ARCH V ENTREPRENEURS FUND, L.P.

By: ARCH Venture Partners V, L.P.
its General Partner

By: ARCH Venture Partners V, LLC
its General Partner

By: _____
*
Steven Lazarus
Managing Director

ARCH VENTURE PARTNERS V, L.P.

By: ARCH Venture Partners V, LLC
its General Partner

By: _____
*
Steven Lazarus
Managing Director

ARCH VENTURE PARTNERS V, LLC

By: _____
*
Steven Lazarus
Managing Director

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13G

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*
Steven Lazarus

*
Keith Crandell

*
Robert Nelsen

*
Clinton Bybee

* By: /s/ Mark McDonnell

Mark McDonnell as
Attorney-in-Fact

This Schedule 13G was executed by Mark McDonnell pursuant to Powers of Attorney
attached hereto as Exhibit 2 and incorporated herein by reference.

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AGREEMENT

Pursuant to Rule 13d-1-(k)(1) under the Securities Exchange Act of 1934, the undersigned hereby agree that only one statement containing the information required by Schedule 13G need be filed with respect to the ownership by each of the undersigned of shares of stock of Alnylam Pharmaceuticals, Inc.

This Agreement may be executed in any number of counterparts, each of which shall be deemed an original.

Dated: June 10, 2004 ARCH VENTURE FUND V, L.P.

By: ARCH Venture Partners V, L.P.
its General Partner

By: ARCH Venture Partners V, LLC
its General Partner

By: *

Steven Lazarus
Managing Director

ARCH V ENTREPRENEURS FUND, L.P.

By: ARCH Venture Partners V, L.P.
its General Partner

By: ARCH Venture Partners V, LLC
its General Partner

By: *

Steven Lazarus
Managing Director

ARCH VENTURE PARTNERS V, L.P.

By: ARCH Venture Partners V, LLC
its General Partner

By: *

Steven Lazarus
Managing Director

ARCH VENTURE PARTNERS V, LLC

By: *

Steven Lazarus
Managing Director

*

Steven Lazarus

*

Keith Crandell

*

Robert Nelsen

*

Clinton Bybee

* By: /s/ Mark McDonnell

Mark McDonnell as
Attorney-in-Fact

This Agreement was executed by Mark McDonnell pursuant to Powers of Attorney
attached hereto as Exhibit 2 and incorporated herein by reference.

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CUSIP NO. 02043Q107

13G

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Exhibit 2

POWERS OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears
below hereby constitutes and appoints Mark McDonnell his true and lawful
attorney-in-fact, with full power of substitution, to sign any and all
instruments, certificates and documents that may be necessary, desirable or
appropriate to be executed on behalf of himself as an individual or in his
capacity as a general partner of any partnership, pursuant to Sections 13 and 16
of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and any
and all regulations promulgated thereunder, and to file the same, with all
exhibits thereto, and any other documents in connection therewith, with the
Securities and Exchange Commission, and with any other entity when and if such
is mandated by the Exchange Act or by the By-laws of the National Association of
Securities Dealers, Inc., granting unto said attorney-in-fact full power and
authority to do and perform each and every act and thing necessary, desirable or
appropriate, fully to all intents and purposes as he might or could do in
person, thereby ratifying and confirming all that said attorney-in-fact, or his
substitutes, may lawfully do or cause to be done by virtue hereof.

IN WITNESS WHEREOF, this Power of Attorney has been signed as of the 8th
day of June, 2004.

ARCH VENTURE FUND V, L.P.

By: ARCH Venture Partners V, L.P.
its General Partner

By: ARCH Venture Partners V, LLC
its General Partner

By: /s/ Keith Crandell

Managing Director

ARCH V ENTREPRENEURS FUND, L.P.

By: ARCH Venture Partners V, L.P.
its General Partner

By: ARCH Venture Partners V, LLC
its General Partner

By: /s/ Keith Crandell

Managing Director

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13G

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ARCH VENTURE PARTNERS V, L.P.

By: ARCH Venture Partners V, LLC

its General Partner

By: /s/ Keith Crandell

Managing Director

ARCH VENTURE PARTNERS V, LLC

By: /s/ Keith Crandell

Managing Director

/s/ Steven Lazarus

Steven Lazarus

/s/ Keith Crandell

Keith Crandell

/s/ Robert Nelsen

Robert Nelsen

/s/ Clinton Bybee

Clinton Bybee