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

SCHEDULE 13D

**Under the Securities Exchange Act of 1934
(Amendment No.5)***

Eliem Therapeutics, Inc.

(Name of Issuer)

Common Stock, par value \$0.0001 per share

(Title of Class of Securities)

28658R 106

(CUSIP Number)

RA Capital Management, L.P.

200 Berkeley Street, 18th Floor

Boston, MA 02116

Attn: Peter Kolchinsky

Telephone: 617.778.2500

(Name, Address and Telephone Number of Person
Authorized to Receive Notices and Communications)

May 15, 2024

(Date of Event Which Requires Filing of this Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of §§ 240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the following box.

Note: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See Section 240.13d-7 for other parties to whom copies are to be sent.

* 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 disclosures provided in a prior cover page.

The information required on 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, as amended ("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.
RA Capital Management, L.P.

2. Check the Appropriate Box if a Member of a Group (See Instructions)
(a)
(b)

3. SEC Use Only

4. Source of Funds (See Instructions)
AF

5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)

6. Citizenship or Place of Organization
Delaware

Number of Shares Beneficially Owned by Each Reporting Person With	7. Sole Voting Power 0
	8. Shared Voting Power 13,190,292
	9. Sole Dispositive Power 0
	10. Shared Dispositive Power 13,190,292

11. Aggregate Amount Beneficially Owned by Each Reporting Person
13,190,292

12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13. Percent of Class Represented by Amount in Row (11)
45.3%

14. Type of Reporting Person (See Instructions)
IA, PN

-
1. Names of Reporting Persons.
Peter Kolchinsky
-
2. Check the Appropriate Box if a Member of a Group (See Instructions)
(a)
(b)
-
3. SEC Use Only
-
4. Source of Funds (See Instructions)
AF
-
5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)
-
6. Citizenship or Place of Organization
United States
-
- | | |
|---|---|
| Number of
Shares
Beneficially
Owned by
Each
Reporting
Person With | 7. Sole Voting Power
0 |
| | 8. Shared Voting Power
13,190,292 |
| | 9. Sole Dispositive Power
0 |
| | 10. Shared Dispositive Power
13,190,292 |
-
11. Aggregate Amount Beneficially Owned by Each Reporting Person
13,190,292
-
12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)
-
13. Percent of Class Represented by Amount in Row (11)
45.3%
-
14. Type of Reporting Person (See Instructions)
HC, IN
-

-
1. Names of Reporting Persons.
Rajeev Shah
-
2. Check the Appropriate Box if a Member of a Group (See Instructions)
(a)
(b)
-
3. SEC Use Only
-
4. Source of Funds (See Instructions)
AF
-
5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)
-
6. Citizenship or Place of Organization
United States
-
- | | |
|---|---|
| Number of
Shares
Beneficially
Owned by
Each
Reporting
Person With | 7. Sole Voting Power
0 |
| | 8. Shared Voting Power
13,190,292 |
| | 9. Sole Dispositive Power
0 |
| | 10. Shared Dispositive Power
13,190,292 |
-
11. Aggregate Amount Beneficially Owned by Each Reporting Person
13,190,292
-
12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)
-
13. Percent of Class Represented by Amount in Row (11)
45.3%
-
14. Type of Reporting Person (See Instructions)
HC, IN
-

1. Names of Reporting Persons.
RA Capital Healthcare Fund, L.P.

2. Check the Appropriate Box if a Member of a Group (See Instructions)

(a)

(b)

3. SEC Use Only

4. Source of Funds (See Instructions)

WC

5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)

6. Citizenship or Place of Organization

Delaware

7. Sole Voting Power

0

Number of
Shares
Beneficially
Owned by
Each
Reporting
Person With

8. Shared Voting Power

10,599,586

9. Sole Dispositive Power

0

10. Shared Dispositive Power

10,599,586

11. Aggregate Amount Beneficially Owned by Each Reporting Person

10,599,586

12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13. Percent of Class Represented by Amount in Row (11)

36.4%

14. Type of Reporting Person (See Instructions)

PN

Item 1. Security and Issuer

Item 1 of the Statement is amended and supplemented as follows:

This Amendment No. 5 (this “Amendment No. 5” or this “Schedule 13D/A”) amends and supplements the statement on the Schedule 13D originally filed with the Securities and Exchange Commission (the “SEC”) on August 19, 2021, and amended on April 10, 2023, November 17, 2023, March 18, 2024 and April 12, 2024 (as amended, the “Statement”), filed by RA Capital Management, L.P., Dr. Kolchinsky, Mr. Shah, and RA Capital Healthcare Fund, L.P. with respect to the common stock, par value \$0.0001 per share (the “Common Stock”), of Eliem Therapeutics, Inc., a Delaware corporation (the “Issuer”). Unless otherwise defined herein, capitalized terms used in this Amendment No. 5 shall have the meanings ascribed to them in the Statement. Unless amended or supplemented below, the information in the Statement remains unchanged.

Item 2. Identity and Background

Item 2 of the Statement is hereby amended and restated as follows:

- (a) This Schedule 13D/A is being filed on behalf of RA Capital Management, L.P. (“RA Capital”), Peter Kolchinsky, Rajeev Shah, and RA Capital Healthcare Fund, L.P. (the “Fund”). RA Capital, Dr. Kolchinsky, Mr. Shah and the Fund are collectively referred to herein as the “Reporting Persons.”

The Reporting Persons’ beneficial ownership of the Issuer’s securities includes (i) 10,599,586 shares of Common Stock held directly by the Fund, (ii) 1,226,497 shares of Common Stock held directly by RA Capital Nexus Fund, L.P. (the “Nexus Fund”), (iii) 483,679 shares of Common Stock held directly by RA Capital Nexus Fund II, L.P. (the “Nexus Fund II”), (iv) 841,087 shares of Common Stock held directly by a separately managed account (the “Account”), (v) a total of 28,333 vested stock options (right to buy), and (vi) 11,110 stock options (right to buy) which shall vest within 60 days of this filing.

RA Capital Healthcare Fund GP, LLC is the general partner of the Fund, RA Capital Nexus Fund GP, LLC is the general partner of the Nexus Fund, and RA Capital Nexus Fund II GP, LLC is the general partner of the Nexus Fund II. The general partner of RA Capital is RA Capital Management GP, LLC, of which Dr. Kolchinsky and Mr. Shah are the controlling persons. RA Capital serves as investment adviser for the Fund, the Nexus Fund, the Nexus Fund II, and the Account and may be deemed a beneficial owner, for purposes of Section 13(d) of the Securities Exchange Act of 1934 (the “Act”), of any securities of the Issuer held by the Fund, the Nexus Fund, the Nexus Fund II or the Account. The Fund, the Nexus Fund, and the Nexus Fund II have delegated to RA Capital the sole power to vote and the sole power to dispose of all securities held in the Fund, the Nexus Fund, and the Nexus Fund II, and each of these funds has divested themselves of voting and investment power over the reported securities they hold and may not revoke that delegation on less than 61 days’ notice. The Fund, the Nexus Fund, and the Nexus Fund II disclaim beneficial ownership of the securities they hold for purposes of Section 13(d) of the Act and therefore disclaim any obligation to report ownership of the reported securities under Section 13(d) of the Act. As managers of RA Capital, Dr. Kolchinsky and Mr. Shah may be deemed beneficial owners, for purposes of Section 13(d) of the Act, of any securities of the Issuer beneficially owned by RA Capital. RA Capital, Dr. Kolchinsky, and Mr. Shah disclaim beneficial ownership of the securities reported in this Schedule 13D/A other than for the purpose of determining their obligations under Section 13(d) of the Act, and the filing of the Schedule 13D/A shall not be deemed an admission that either RA Capital, Dr. Kolchinsky, or Mr. Shah is the beneficial owner of such securities for any other purpose.

- (b) The address of the principal business office of each of the Reporting Persons is 200 Berkeley Street, 18th Floor, Boston, MA 02116.
- (c) The Fund is a private investment vehicle. RA Capital provides investment management services to the Fund, the Nexus Fund, the Nexus Fund II, and the Account. The principal occupation of Dr. Kolchinsky and Mr. Shah is investment management.
- (d) During the last five years, none of the Reporting Persons has been convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors).
- (e) During the last five years, none of the Reporting Persons has been a party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding was or is subject to a judgment, decree of final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws or finding any violation with respect to such laws.
- (f) See Item 6 of the cover pages.
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Item 5. Interest in Securities of the Issuer

Item 5 of the Statement is hereby amended and restated in its entirety to read as follows:

- (a) The information set forth in rows 11 and 13 of the cover pages to this Schedule 13D/A is incorporated by reference. The percentage set forth in row 13 is based on the sum of (i) 29,091,166 shares of Common Stock outstanding as of May 9, 2024, as reported in the Issuer's Quarterly Report on Form 10-Q filed with the SEC on May 15, 2024 and (ii) 39,443 shares of Common Stock issuable upon the exercise of stock options within 60 days.
- (b) The information set forth in rows 7 through 10 of the cover pages to this Schedule 13D/A and Item 2 above is incorporated by reference.
- (c) Schedule A sets forth all transactions with respect to the shares of Common Stock effected since the most recent amendment to this Statement by any Reporting Person and is incorporated herein by reference.
- (d) No person (other than the Reporting Persons) is known to have the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of, the shares of Common Stock subject to this Schedule 13D/A.
- (e) Not applicable.

Item 7. Material to be Filed as Exhibits

Item 7 of the Statement is hereby amended and supplemented as follows:

[Exhibit 1 Joint Filing Agreement](#)

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: May 17, 2024

RA CAPITAL MANAGEMENT, L.P.

By: /s/ Peter Kolchinsky

Name: Peter Kolchinsky

Title: Authorized Signatory

PETER KOLCHINSKY

/s/ Peter Kolchinsky

RAJEEV SHAH

/s/ Rajeev Shah

RA CAPITAL HEALTHCARE FUND, L.P.

By: RA Capital Healthcare Fund GP, LLC

Its: General Partner

By: /s/ Peter Kolchinsky

Name: Peter Kolchinsky

Title: Manager

SCHEDULE A[†]

Transaction	Purchaser	Date	No. Shares	Price
Vest Stock Option (Right to Buy)	RA Capital	07/01/2024	555	(1)*

(1) This option represents a right to purchase a total of 20,000 shares of the Issuer's Common Stock, which began vesting on August 1, 2021 in 36 equal monthly installments over three years, subject to Dr. Levin's continued service to the Issuer through each vesting date. These options have an exercise price of \$12.50.

* Represents future vesting options within 60 days from the filing date of this Schedule 13D/A.

[†] The Common Stock and percentage ownership reported in this amendment reflect an increase in the number of outstanding shares of the Issuer. The vesting options in Schedule A did not cause a material change in the Reporting Persons' beneficial ownership.

JOINT FILING AGREEMENT

This Joint Filing Agreement, dated as of May 17, 2024, is by and among RA Capital Management, L.P., Peter Kolchinsky, Rajeev Shah, and RA Capital Healthcare Fund, L.P. (the foregoing are collectively referred to herein as the “Filers”).

Each of the Filers may be required to file with the United States Securities and Exchange Commission a statement on Schedule 13G and/or 13D with respect to Common Stock, par value \$0.0001 per share of Eliem Therapeutics, Inc. beneficially owned by them from time to time.

Pursuant to and in accordance with Rule 13(d)(1)(k) promulgated under the Securities Exchange Act of 1934, as amended, the Filers hereby agree to file a single statement on Schedule 13G and/or 13D (and any amendments thereto) on behalf of each of such parties, and hereby further agree to file this Joint Filing Agreement as an exhibit to such statement, as required by such rule.

This Joint Filing Agreement may be terminated by any of the Filers upon one week’s prior written notice or such lesser period of notice as the Filers may mutually agree.

Executed and delivered as of the date first above written.

RA CAPITAL MANAGEMENT, L.P.

By: /s/ Peter Kolchinsky

Name: Peter Kolchinsky
Title: Authorized Signatory

PETER KOLCHINSKY

/s/ Peter Kolchinsky

RAJEEV SHAH

/s/ Rajeev Shah

RA CAPITAL HEALTHCARE FUND, L.P.

By: RA Capital Healthcare Fund GP, LLC
Its: General Partner

By: /s/ Peter Kolchinsky

Name: Peter Kolchinsky
Title: Manager
