UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

SCHEDULE 13D

Under the Securities Exchange Act of 1934 (Amendment No. 4)*

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)

April 10, 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. \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.	(a)		appropriate Box if a Member of a Group (See Instructions) □			
	(b)					
3.	SEC	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					
		7.	Sole Voting Power 0			
Number Share Benefici	s ally	8.	Shared Voting Power 13,189,736			
Owned Each Reporti	i ing	9.	Sole Dispositive Power 0			
Person V	Vith	10.	Shared Dispositive Power 13,189,736			
11.	Aggregate Amount Beneficially Owned by Each Reporting Person 13,189,736					
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) □					
13.	Percent of Class Represented by Amount in Row (11) 47.5%					
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 On	ıly		
4.	Source of Funds (See Instructions) AF				
5.	Che		sclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)		
6.		zenship o	or Place of Organization es		
		7.	Sole Voting Power 0		
Number Shares Beneficia	s ally	8.	Shared Voting Power 13,189,736		
Owned Each Reportin	ng	9.	Sole Dispositive Power 0		
Person W	/ith	10.	Shared Dispositive Power 13,189,736		
11.		regate A 89,736	amount Beneficially Owned by Each Reporting Person		
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) □				
13.	Percent of Class Represented by Amount in Row (11) 47.5%				
14.	Type of Reporting Person (See Instructions) HC, IN				

1.	Names of Reporting Persons. Rajeev Shah			
2.	(a)	ck the	Appropriate Box if a Member of a Group (See Instructions)	
	(b)			
3.	SEC	Use C	only	
4.	Source of Funds (See Instructions) AF			
5.	Che		isclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)	
6. Citizenship or Place of Organization United States				
		7.	Sole Voting Power 0	
Number Shares Beneficia	S	8.	Shared Voting Power 13,189,736	
Owned Each Reporti	-	9.	Sole Dispositive Power 0	
Person V	Vith	10.	Shared Dispositive Power 13,189,736	
11.		regate 89,736	Amount Beneficially Owned by Each Reporting Person	
12.	Che	ck if th	e Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)	
13.	Percent of Class Represented by Amount in Row (11) 47.5%			
14.	Туре		porting Person (See Instructions)	

1.	Names of Reporting Persons. RA Capital Healthcare Fund, L.P.				
2.	(a)	ck the	Appropriate Box if a Member of a Group (See Instructions)		
	(b)				
3.	SEC	Use O	nly		
4.	Source of Funds (See Instructions) WC				
5.	Che	ck if D	sclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)		
6.		zenship aware	or Place of Organization		
		7.	Sole Voting Power 0		
Number Shares Beneficia	s ally	8.	Shared Voting Power 10,599,586		
Owned Each Reportin		9.	Sole Dispositive Power 0		
Person W	/ith	10.	Shared Dispositive Power 10,599,586		
11.		regate .	Amount Beneficially Owned by Each Reporting Person		
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) □				
13.	Percent of Class Represented by Amount in Row (11) 38.2%				
14.	Type PN	e of Re	porting Person (See Instructions)		

Item 1. Security and Issuer

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

This Amendment No. 4 (this "Amendment No. 4" 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 and March 18, 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. 4 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 (1) 10,599,586 shares of Common Stock held directly by the Fund, (2) 1,226,497 shares of Common Stock held directly by RA Capital Nexus Fund, L.P (the "Nexus Fund"), (3) 483,679 shares of Common Stock held directly by RA Capital Nexus Fund II, L.P. (the "Nexus Fund II"), (4) 841,087 shares of Common Stock held directly by a separately managed account (the "Account"), (5) a total of 27,777 vested stock options (right to buy), and (6) 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.

Item 4. Purpose of Transaction

Item 4 of the Statement is hereby amended and supplemented as follows:

Acquisition of Tenet Medicines, Inc.

Following negotiations among the parties in furtherance of the proposed transaction contemplated by the Non-Binding Term Sheet, on April 10, 2024, the Issuer entered into an Agreement and Plan of Merger and Reorganization (the "<u>Acquisition Agreement</u>") by and among the Issuer, Tango Merger Sub, Inc., a Delaware corporation and a wholly owned subsidiary of the Issuer ("<u>Transitory Subsidiary</u>"), Tenet Medicines, Inc., a Delaware corporation that is majority-owned by entities affiliated with RA Capital ("<u>Tenet</u>") and, solely in his capacity as Tenet equityholder representative, Stephen Thomas. The Acquisition Agreement provides for the acquisition of Tenet by the Issuer through the merger of Transitory Subsidiary into Tenet, with Tenet surviving as a wholly-owned subsidiary of the Company (the "<u>Acquisition</u>").

At the effective time of the Acquisition, by virtue of the Acquisition and without any action on the part of the holders of common stock of Tenet, (i) all issued and outstanding shares of the common stock of Tenet and (ii) all securities convertible into shares of common stock of Tenet will be converted into the right to receive, in the aggregate, a number of shares of the Issuer's Common Stock (the "Aggregate Consideration") (rounded to the nearest whole share) equal to fifteen and two-fifths percent (15.4%) of the outstanding shares of the Issuer's Common Stock as of immediately following the closing of the Acquisition (and for the avoidance of doubt, before giving effect to the issuance of any securities pursuant to the Private Placement (as defined below)), calculated on a fully-diluted basis using the treasury stock method (including, for clarity, calculated by disregarding any out-of-themoney outstanding stock options of the Issuer). The Acquisition is subject to approval by the Issuer's stockholders of, among other things, the issuance of the Aggregate Consideration issuable in connection with the Acquisition under the rules of The Nasdaq Stock Market LLC ("Nasdaq") (the "Issuer Voting Proposals").

Each of the Issuer and Tenet has agreed to customary representations, warranties and covenants in the Acquisition Agreement, including, among others, covenants relating to the conduct of their respective businesses during the period between the date of signing the Acquisition Agreement and the closing of the Acquisition, using its reasonable best efforts to cause the Acquisition to be consummated, non-solicitation of alternative acquisition proposals, and the conduct of their respective businesses during the period between the date of signing the Acquisition Agreement and the closing of the Acquisition. The Acquisition Agreement includes customary closing conditions, including regarding receipt of the required approvals by the parties' stockholders (including the affirmative vote of a majority of the aggregate voting power held by disinterested stockholders of the Issuer), the accuracy of the representations and warranties and compliance by the parties with their respective covenants.

The Acquisition Agreement contains certain termination rights of each of the Issuer and Tenet, including if the Issuer's stockholders fail to adopt and approve the Issuer Voting Proposals. Upon termination of the Acquisition Agreement under specified circumstances, the Issuer may be required to pay Tenet a termination fee of \$1,000,000 and reimburse Tenet's expenses up to a maximum of \$500,000.

It is expected that, subject to and effective upon the closing of the Acquisition, Dr. Stephen Thomas, the current Chief Executive Officer and a co-founder of Tenet, will be appointed as the interim Chief Executive Officer of the Issuer, and William Bonificio, the current Chief Business Officer of Tenet, will be appointed as the interim Chief Business Officer of the Issuer. The board of directors of the combined company will be composed of seven board members, consisting of the five existing board members of the Issuer including Dr. Levin, Stephen Thomas, the interim Chief Executive Officer, and one board member designated by Tenet.

Support Agreements and Lock-Up Agreements

Concurrently with the execution of the Acquisition Agreement, (i) each of the stockholders of Tenet, including entities affiliated with RA Capital (solely in their respective capacities as Tenet stockholders) entered into support and joinder agreements with the Issuer and Tenet to vote all of their shares of Tenet common stock in favor of adoption of the Acquisition Agreement and against any alternative acquisition proposals (the "Tenet Support and Joinder Agreements") and (ii) RA Capital and certain of its affiliated funds entered into a support agreement with the Issuer and Tenet to vote all of their respective shares of Issuer Common Stock in favor of the Issuer Voting Proposals and against any alternative acquisition proposals (the "Issuer Support Agreements").

Concurrently with the execution of the Acquisition Agreement, certain executive officers, directors and stockholders of Tenet and the Issuer (solely in their respective capacities as stockholders), including the entities and funds affiliated with RA Capital, have entered into lock-up agreements (the "Lock-Up Agreements") pursuant to which, subject to specified exceptions, they have agreed not to transfer their shares of Issuer Common Stock issued in connection with the Acquisition for the 180-day period following the closing of the Acquisition.

Securities Purchase Agreement

On April 10, 2024, the Issuer entered into a securities purchase agreement (the "Securities Purchase Agreement") with several accredited institutional investors, including funds affiliated with RA Capital (the "PIPE Investors"), pursuant to which the Issuer agreed to issue and sell to the PIPE Investors in a private placement an aggregate of 31,238,282 shares of the Issuer's Common Stock (the "PIPE Shares"), at a price of \$3.84 per PIPE Share (the "Private Placement"). The Fund and RA Capital Nexus Fund III, L.P. (the "Nexus Fund III"), a fund advised by RA Capital, each of which are current equityholders of Tenet, agreed to purchase 11,949,171 and 1,059,375 PIPE Shares, respectively, in the Private Placement for the purchase price of \$45.9 million and \$4.1 million, respectively.

The Private Placement is expected to close immediately following the closing of the Acquisition (the date of closing, the "<u>Closing Date</u>"), subject to the satisfaction of specified customary closing conditions, including approval from the stockholders of the Issuer, and contingent upon, among other things, the closing of the Acquisition.

The Issuer has granted the PIPE Investors indemnification rights with respect to its representations, warranties, covenants and agreements under the Securities Purchase Agreement.

Assuming completion of the Acquisition and the closing of the Private Placement, entities affiliated with RA Capital are expected to beneficially own an aggregate of 48.3% of the Issuer's then outstanding Common Stock.

Registration Rights Agreements

On April 10, 2024, the Issuer entered into a registration rights agreement (the "Registration Rights Agreement") with the PIPE Investors, pursuant to which the Issuer agreed to register for resale the PIPE Shares. On or prior to the closing of the Acquisition, each Tenet stockholder receiving the Aggregate Consideration in the Acquisition may elect to become party to the Registration Rights Agreement (each such stockholder, together with the PIPE Investors, the "Registrable Holders"), in which case the Issuer will also register for resale the Aggregate Consideration. Under the Registration Rights Agreement, the Issuer has agreed to file a registration statement covering the resale of the PIPE Shares and any Aggregate Consideration within 45 days following the closing of the Private Placement (the "Filing Deadline"). The Issuer has agreed to use commercially reasonable efforts to cause such registration statement to become effective as promptly as practicable and to keep such registration statement effective until the date the PIPE Shares and any Aggregate Consideration covered by such registration statement have been sold or cease to be registrable securities under the Registration Rights Agreement.

If (i) the registration statement has not been filed by the Filing Deadline, (ii) the registration statement has not been declared effective by the SEC prior to the earlier of (A) five business days after the date on which the Issuer is notified by the SEC that the registration statement will not be reviewed by the SEC staff or is not subject to further comment by the SEC staff, or (B) 45 days following the Filing Deadline (or, in the event the SEC reviews and has written comments to the registration statement, 90 days following the Filing Deadline) or (iii) after the registration statement has been declared effective by the SEC, sales cannot be made pursuant to the registration statement for any reason (including by reason of a stop order or the Issuer's failure to update such registration statement), subject to certain limited exceptions, then the Issuer has agreed to make pro rata payments to each Registrable Holder as liquidated damages in an amount equal to 1.0% of the aggregate amount invested by each such Registrable Holder in the registrable securities for the initial day of failure and for each subsequent 30-day period (or pro rata for any portion thereof) for each such month during which such event continues, subject to certain caps set forth in the Registration Rights Agreement.

The Issuer has granted the Registrable Holders customary indemnification rights in connection with the registration statement. The Registrable Holders have also granted the Issuer customary indemnification rights in connection with the registration statement.

The foregoing descriptions of the Acquisition Agreement, the Issuer Support Agreements, the Tenet Support and Joinder Agreements, the Lock-Up Agreements, the Securities Purchase Agreement and the Registration Rights Agreement (collectively, the "<u>Subject Agreements</u>") do not purport to be complete and are qualified in their entirety by reference to the Acquisition Agreement, the form of Issuer Support Agreement, the form of Tenet Support and Joinder Agreement, the form of Lock-Up Agreement, the Securities Purchase Agreement and the Registration Rights Agreement, respectively, which are filed as Exhibits 3, 4, 5, 6, 7 and 8 hereto, respectively, and incorporated herein by reference.

The Subject Agreements are not intended to provide any other factual information about the Issuer or Tenet or to modify or supplement any factual disclosures about the Issuer in its public reports filed with the SEC. The representations, warranties and covenants contained in each Subject Agreement were made only for purposes of such Subject Agreement as of the specific dates therein, were solely for the benefit of the parties to such Subject Agreement, may be subject to limitations agreed upon by the contracting parties, including being qualified by confidential disclosures made for the purposes of allocating contractual risk between the parties to such Subject Agreement instead of establishing these matters as facts, and may be subject to standards of materiality applicable to the contracting parties that differ from those applicable to investors. Investors are not third-party beneficiaries under such Subject Agreement and should not rely on the representations, warranties and covenants or any descriptions thereof as characterizations of the actual state of facts or condition of the parties thereto or any of their respective subsidiaries or affiliates. Moreover, information concerning the subject matter of representations and warranties may change after the date of a Subject Agreement, which subsequent information may or may not be fully reflected in the Issuer's public disclosures. The Subject Agreements should be read in conjunction with the disclosures in the Issuer's periodic reports and other filings with the SEC.

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 27,719,409 shares of Common Stock outstanding as of March 22, 2024, as reported in the Issuer's Annual Report on Form 10-K filed with the SEC on March 28, 2024.
- (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 6. Contracts, Arrangements, Understandings or Relationships with Respect to Securities of the Issuer

Item 6 of the Statement is hereby amended and supplemented as follows:

The information included in Item 4 of this Schedule 13D/A is incorporated by reference herein.

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
Exhibit 3	Agreement and Plan of Merger and Reorganization, dated as of April 10, 2024, by and among Eliem Therapeutics, Inc., Tango Merger Sub, Inc., Tenet Medicines, Inc. and, solely in his capacity as the Company Equityholder Representative, Stephen Thomas (incorporated by reference to Exhibit 2.1 to the Issuer's Current Report on Form 8-K (File No. 001-40708), filed on April 11, 2024).
Exhibit 4	Form of Company Support Agreement (incorporated by reference to Exhibit 10.1 to the Issuer's Current Report on Form 8-K (File No. 001-40708), filed on April 11, 2024).
Exhibit 5	Form of Tenet Support and Joinder Agreement (incorporated by reference to Exhibit 10.2 to the Issuer's Current Report on Form 8-K (File No. 001-40708), filed on April 11, 2024).
Exhibit 6	Form of Lock-Up Agreement (incorporated by reference to Exhibit 10.3 to the Issuer's Current Report on Form 8-K (File No. 001-40708), filed on April 11, 2024).
Exhibit 7	Securities Purchase Agreement, dated April 10, 2024, by and among Eliem Therapeutics, Inc. and the persons party thereto (incorporated by reference to Exhibit 10.4 to the Issuer's Current Report on Form 8-K (File No. 001-40708), filed on April 11, 2024).
Exhibit 8	Registration Rights Agreement, dated April 10, 2024, by and among Eliem Therapeutics, Inc. and the persons party thereto (incorporated by reference to Exhibit 10.5 to the Issuer's Current Report on Form 8-K (File No. 001-40708), filed on April 11, 2024).

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: April 12, 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	05/18/2024	10,000	(1)*
Vest Stock Option (Right to Buy)	RA Capital	06/01/2024	555	(2)*

- (1) This option represents a right to purchase a total of 10,000 shares of the Issuer's Common Stock, which vests in full on the earlier of May 18, 2024 or the day immediately prior to the 2024 annual meeting of stockholders, subject to Dr. Levin's continued service to the Issuer through such vesting date. These options have an exercise price of \$3.00.
- (2) 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.

JOINT FILING AGREEMENT

This Joint Filing Agreement, dated as of April 12, 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