

SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

SCHEDULE 13D/A

Under the Securities Exchange Act of 1934
(Amendment 1)*

Mineralys Therapeutics, Inc.
(Name of Issuer)

Common Stock, par value \$0.0001 per share
(Title of Class of Securities)

603170101
(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)

February 12, 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).

CUSIP No. 603170101

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

7. Sole Voting Power
0

Number of
Shares
Beneficially
Owned by
Each

8. Shared Voting Power
4,949,307

Reporting Person With 9. Sole Dispositive Power
0

10. Shared Dispositive Power
4,949,307

11. Aggregate Amount Beneficially Owned by Each Reporting Person
4,949,307

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

13. Percent of Class Represented by Amount in Row (11)
9.99%

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

CUSIP No. 603170101

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

7. Sole Voting Power
0

Number of Shares Beneficially Owned by Each Reporting Person With 8. Shared Voting Power
4,949,307

9. Sole Dispositive Power
0

10. Shared Dispositive Power
4,949,307

11. Aggregate Amount Beneficially Owned by Each Reporting Person
4,949,307

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

13. Percent of Class Represented by Amount in Row (11)
9.99%

14. Type of Reporting Person (See Instructions)
HC, IN

CUSIP No. 603170101

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

7. Sole Voting Power

0

Number of
Shares
Beneficially
Owned by
Each
Reporting
Person With

8. Shared Voting Power

4,949,307

9. Sole Dispositive Power

0

10. Shared Dispositive Power

4,949,307

11. Aggregate Amount Beneficially Owned by Each Reporting Person

4,949,307

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

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

9.99%

14. Type of Reporting Person (See Instructions)

HC, IN

CUSIP No. 603170101

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
3,066,190

9. Sole Dispositive Power
0

10. Shared Dispositive Power
3,066,190

11. Aggregate Amount Beneficially Owned by Each Reporting Person
3,066,190

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

13. Percent of Class Represented by Amount in Row (11)
6.2%

14. Type of Reporting Person (See Instructions)
PN

Item 1. Security and Issuer

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

This Amendment No. 1 (“Amendment No. 1”) amends and supplements the statement on Schedule 13D originally filed with the Securities and Exchange Commission (the “SEC”) on February 24, 2023 (the “Statement”) by RA Capital Management, L.P. (“RA Capital”), Peter Kolchinsky, Rajeev Shah and RA Capital Healthcare Fund, L.P. (the “Fund”) with respect to the common stock, \$0.0001 par value per share (“Common Stock”), of Mineralys Therapeutics, Inc., a Delaware corporation (the “Issuer”). Unless otherwise defined herein, capitalized terms used in this Amendment No. 1 shall have the meanings ascribed to them in the Statement.

Item 2. Identity and Background

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

- (a) This Statement is being filed on behalf of RA Capital, Dr. Kolchinsky, Mr. Shah, and the Fund, who are collectively referred to herein as the “Reporting Persons.” The agreement among the Reporting Persons to file this Statement jointly in accordance with Rule 13d-1(k) of the Securities Exchange Act of 1934, as amended (the “Act”), is attached hereto as Exhibit 1.

The Reporting Persons’ ownership of the Issuer’s securities includes (i) 2,983,755 shares of Common Stock held directly by the Fund; (ii) 1,867,229 shares of Common Stock held by RA Capital Nexus Fund III, L.P. (the “Nexus Fund III”); and (iii) a total of 13,444 shares underlying vested stock options (right to buy), and 2,444 shares underlying stock options (right to buy) which shall vest within 60 days of this filing held by Dr. Derek DiRocco for the benefit of RA Capital. The Fund also holds Pre-Funded Warrants (as defined below) through which it has a right to acquire 549,755 shares of Common Stock. The Pre-Funded Warrants contain a provision (the “Beneficial Ownership Blocker”) which precludes exercise of the warrants to the extent that, following exercise, the Fund, together with its affiliates and other attribution parties, would own more than 9.99% of the Common Stock outstanding. The Reporting Persons are currently prohibited from exercising the Pre-Funded Warrants to the extent that the exercise would result in beneficial ownership of more than 4,949,307 shares of Common Stock by the Reporting Persons.

RA Capital Healthcare Fund GP, LLC is the general partner of the Fund and RA Capital Nexus Fund III GP, LLC is the general partner of the Nexus Fund III. 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 and the Nexus Fund III 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 or the Nexus Fund III. The Fund and the Nexus Fund III have delegated to RA Capital the sole power to vote and the sole power to dispose of all securities held in the Fund’s and the Nexus Fund III’s portfolio, including the shares of the Issuer’s Common Stock reported herein. Because the Fund and the Nexus Fund III have 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 and the Nexus Fund III 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 other than for the purpose of determining their obligations under Section 13(d) of the Act, and the filing of this Schedule 13D 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 and the Nexus Fund III. The principal occupation of Dr. Kolchinsky and Mr. Shah is investment management.

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- (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 3. Source and Amount of Funds or Other Consideration

Item 3 of the Initial Statement is hereby amended and supplemented to add the following:

February 2024 Securities Purchase Agreement

On February 7, 2024, the Issuer entered into a securities purchase agreement (the “February 2024 Securities Purchase Agreement”) with certain institutional accredited investors (the “February 2024 PIPE Investors”), pursuant to which the Issuer agreed to issue and sell to the February 2024 PIPE Investors in a private placement (the “February 2024 Private Placement”) (i) an aggregate of 8,339,169 shares of Common Stock (the “Shares”) at a price of \$13.50 per share; and (ii) an aggregate of 549,755 warrants (the “Pre-Funded Warrants”) in lieu of shares of Common Stock, at a purchase price of \$13.499 per Pre-Funded Warrant (the shares of Common Stock issuable upon exercise of the Pre-Funded Warrants, the “Warrant Shares”). The February 2024 Private Placement closed on February 12, 2024. The Fund purchased 1,672,508 shares of Common Stock and 549,755 Pre-Funded Warrants in the February 2024 Private Placement, for total consideration of \$30.0 million.

Pursuant to the February 2024 Securities Purchase Agreement, the Issuer agreed to file a registration statement with the SEC within 60 days after the closing of the February 2024 Private Placement (subject to certain exceptions) for purposes of registering the resale of the Shares and the Warrant Shares, to use its reasonable best efforts to have such registration statement declared effective within the time period set forth in the February 2024 Purchase Agreement, and to keep such registration statement effective until the earliest of (i) the time as all of the Shares and Warrant Shares purchased by the February 2024 PIPE Investors pursuant to the terms of the February 2024 Purchase Agreement have been sold pursuant to the registration statement, or (ii) such time as the Shares and Warrant Shares become eligible for resale by non-affiliates without any volume limitations or other restrictions pursuant to Rule 144 under the Securities Act of 1933, as amended (the “Securities Act”).

References to and the description of the February 2024 Securities Purchase Agreement set forth above in this Item 3 do not purport to be complete and are qualified in their entirety by reference to the full text of the February 2024 Securities Purchase Agreement, which is attached hereto as Exhibit 4 and incorporated by reference herein.

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 Statement is incorporated by reference. The percentage set forth in row 13 is based on the sum of (i) 41,105,118 outstanding shares of Common Stock, as reported in the Issuer's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission (the "SEC") on November 7, 2023 and (ii) 8,339,169 shares of Common Stock issued in the February 2024 Private Placement, as reported in the Issuer's Current Report on Form 8-K filed with the SEC on February 8, 2024, and giving effect to stock options and Pre-Funded Warrants, to the extent exercisable within 60 days hereof, as referenced herein.

(b) The information set forth in rows 7 through 10 of the cover pages to this Statement and Item 2 above is incorporated by reference.

(c) The following table lists the Reporting Persons' transactions in Common Stock that were effected during the sixty day period prior to the filing of this Amendment No. 1.

Transaction	Purchaser	Date	No. Shares	Price
Vest Stock Option (Right to Buy)	RA Capital	December 31, 2023	1,222	(1)
Vest Stock Option (Right to Buy)	RA Capital	January 31, 2024	1,222	(1)
Vest Stock Option (Right to Buy)	RA Capital	February 29, 2024	1,222	(1)*
Vest Stock Option (Right to Buy)	RA Capital	March 31, 2024	1,222	(1)*
Purchase Common Stock	The Fund	February 12, 2024	1,672,508	\$13.50
Purchase Pre-Funded Warrants (Right to Buy)	The Fund	February 12, 2024	549,755	\$13.499 (2)

(1) This option represents a right to purchase a total of 44,000 shares of the Issuer's Common Stock, which began vesting from February 9, 2023 in 36 equal monthly installments, subject to Dr. Derek DiRocco's continuous service to the Issuer through each vesting date. These options have an exercise price of \$16.00 per share.

(2) Pre-Funded Warrants have an exercise price of \$0.001 per share.

* Represents future vesting options within 60 days from the filing date of this Amendment No. 1.

(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 Statement.

(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 to add the following:

Item 3 is incorporated by reference.

Pre-Funded Warrants

Each Pre-Funded Warrant has an exercise price of \$0.001 per share of Common Stock, is immediately exercisable and does not expire. Under the terms of the Pre-Funded Warrants, the Issuer may not effect the exercise of any Pre-Funded Warrant, and the Fund will not be entitled to exercise any portion of any Pre-Funded Warrant, which, upon giving effect to such exercise, would cause the Fund (together with its affiliates) to own more than 9.99% of the number of shares of the Common Stock outstanding immediately after giving effect to such exercise, as such percentage ownership is determined in accordance with the terms of the Pre-Funded Warrants. However, the Fund may increase or decrease such percentage, from time to time, to any other percentage not in excess of 19.99%, provided that any increase in such percentage shall not be effective until 61 days after such notice is delivered to the Issuer.

The exercise price and the number of shares of Common Stock issuable upon exercise of each Pre-Funded Warrant are subject to appropriate adjustment in the event of certain stock dividends and distributions, stock splits, stock combinations, reclassifications or similar events affecting the Common Stock.

In the event of certain fundamental transactions (as described in the Pre-Funded Warrants), a holder of Pre-Funded Warrants will be entitled to receive, upon exercise of the Pre-Funded Warrants, the kind and amount of securities, cash or property that such holder would have received had they exercised in full the Pre-Funded Warrants immediately prior to such fundamental transaction without regard to any limitations on exercise contained in the Pre-Funded Warrants.

References to and the description of the Pre-Funded Warrants set forth above in this Item 6 do not purport to be complete and are qualified in their entirety by reference to the full text of the Form of Pre-Funded Warrant, which is attached hereto as Exhibit 5 and incorporated by reference herein.

Item 7. Material to be Filed as Exhibits

Item 7 of the Statement is hereby amended and supplemented to add the following:

Exhibit 4 Securities Purchase Agreement, dated February 7, 2024, by and between Mineralys Therapeutics, Inc. and each of the purchasers party thereto (incorporated by reference to Exhibit 10.1 to the Issuer's Current Report on Form 8-K filed on February 8, 2024)

Exhibit 5 Form of Pre-Funded Warrant (incorporated by reference to Exhibit 4.1 to the Issuer's Current Report on Form 8-K filed on February 8, 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: February 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

Exhibit 1

JOINT FILING AGREEMENT

This Joint Filing Agreement, dated as of February 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 Mineralys 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
