

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

SCHEDULE 13D

Under the Securities Exchange Act of 1934

(Amendment No. 3)*

MINERALYS THERAPEUTICS, INC.

(Name of Issuer)

Common Stock, par value \$0.0001 per share

(Title of Class of Securities)

603170101

(CUSIP Number)

Peter Kolchinsky
RA Capital Management, L.P., 200 Berkeley Street, 18th Floor
Boston, MA, 02116
617.778.2500

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

09/04/2025

(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. ☐

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 ("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).

SCHEDULE 13D

CUSIP No. 603170101

1	Name of reporting person RA Capital Management, L.P.
2	Check the appropriate box if a member of a Group (See Instructions) <input type="checkbox"/> (a) <input type="checkbox"/> (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) <input type="checkbox"/>	
6	Citizenship or place of organization DELAWARE	
Number of Shares Beneficially Owned by Each Reporting Person With:	7	Sole Voting Power 0.00
	8	Shared Voting Power 7,796,433.00
	9	Sole Dispositive Power 0.00
	10	Shared Dispositive Power 7,796,433.00
11	Aggregate amount beneficially owned by each reporting person 7,796,433.00	
12	Check if the aggregate amount in Row (11) excludes certain shares (See Instructions) <input type="checkbox"/>	
13	Percent of class represented by amount in Row (11) 9.9 %	
14	Type of Reporting Person (See Instructions) IA, PN	

SCHEDULE 13D

CUSIP No.	603170101
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1	Name of reporting person Peter Kolchinsky
2	Check the appropriate box if a member of a Group (See Instructions) <input type="checkbox"/> (a) <input type="checkbox"/> (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) <input type="checkbox"/>
6	Citizenship or place of organization UNITED STATES

Number of Shares Beneficially Owned by Each Reporting Person With:	7	Sole Voting Power 0.00
	8	Shared Voting Power 7,796,433.00
	9	Sole Dispositive Power 0.00
	10	Shared Dispositive Power 7,796,433.00
11	Aggregate amount beneficially owned by each reporting person 7,796,433.00	
12	Check if the aggregate amount in Row (11) excludes certain shares (See Instructions) <input type="checkbox"/>	
13	Percent of class represented by amount in Row (11) 9.9 %	
14	Type of Reporting Person (See Instructions) HC, IN	

SCHEDULE 13D

CUSIP No.	603170101
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1	Name of reporting person Rajeev Shah
2	Check the appropriate box if a member of a Group (See Instructions) <input type="checkbox"/> (a) <input type="checkbox"/> (b)
3	SEC use only
4	Source of funds (See Instructions) AF, OO
5	Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e) <input type="checkbox"/>
6	Citizenship or place of organization UNITED STATES

Number of Shares Beneficially Owned by Each Reporting Person With:	7	Sole Voting Power 0.00
	8	Shared Voting Power 7,796,433.00
	9	Sole Dispositive Power 0.00
	10	Shared Dispositive Power 7,796,433.00
11	Aggregate amount beneficially owned by each reporting person 7,796,433.00	
12	Check if the aggregate amount in Row (11) excludes certain shares (See Instructions) <input type="checkbox"/>	
13	Percent of class represented by amount in Row (11) 9.9 %	
14	Type of Reporting Person (See Instructions) HC, IN	

SCHEDULE 13D

CUSIP No.	603170101
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1	Name of reporting person RA Capital Healthcare Fund, L.P.	
2	Check the appropriate box if a member of a Group (See Instructions) <input type="checkbox"/> (a) <input type="checkbox"/> (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) <input type="checkbox"/>	
6	Citizenship or place of organization DELAWARE	
Number of Shares Beneficially Owned by Each Reporting Person With:	7	Sole Voting Power 0.00
	8	Shared Voting Power 5,846,161.00
	9	Sole Dispositive Power 0.00
	10	Shared Dispositive Power 5,846,161.00

11	Aggregate amount beneficially owned by each reporting person 5,846,161.00
12	Check if the aggregate amount in Row (11) excludes certain shares (See Instructions) <input type="checkbox"/>
13	Percent of class represented by amount in Row (11) 7.5 %
14	Type of Reporting Person (See Instructions) PN

SCHEDULE 13D

Item 1. Security and Issuer

- (a) **Title of Class of Securities:**
Common Stock, par value \$0.0001 per share
- (b) **Name of Issuer:**
MINERALYS THERAPEUTICS, INC.
- (c) **Address of Issuer's Principal Executive Offices:**
150 N. Radnor Chester Road, Suite F200, Radnor, PENNSYLVANIA , 19087.

Item 1 Comment:

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

This Amendment No. 3 (this "Amendment No. 3" or this "Schedule 13D/A") amends and supplements the statement on Schedule 13D originally filed with the Securities and Exchange Commission (the "SEC") on February 24, 2023, and amended on February 12, 2024 and March 17, 2025 (as amended, the "Statement") by the Reporting Persons. Unless otherwise defined herein, capitalized terms used in this Amendment No. 3 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

- (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"), who are collectively referred to herein as the "Reporting Persons." The agreement among the Reporting Persons to file this Schedule 13D/A jointly in accordance with Rule 13d-1(k) of the Securities Exchange Act of 1934, as amended (the "Act"), is attached hereto as Exhibit 99.1.

The Reporting Persons' ownership of the Issuer's securities includes (i) 5,456,521 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 75,116 shares underlying vested stock options (right to buy), and 7,927 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 7,796,433 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/A other than for the purpose of determining their obligations under Section 13(d) of the Act, and the filing of this 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 and the Nexus Fund III. 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 3. Source and Amount of Funds or Other Consideration

Item 3 of the Statement is hereby amended and supplemented as follows:

On September 4, 2025, the Fund purchased 1,176,470 shares of common stock at a price of \$25.50 per share from the underwriters of the Issuer's public offering (the "September 2025 Offering"). The aggregate purchase price for all securities acquired by the Fund in the September 2025 Offering was \$29,999,985, which was funded by the working capital of the Fund.

Item 5. Interest in Securities of the Issuer

- (a) Rows 11 and 13 of each Reporting Person's cover page to this Schedule 13D/A set forth the aggregate number of shares of common stock and percentages of the shares of common stock beneficially owned by such Reporting Person and are incorporated by reference. The percentage set forth in each row 13 is based upon the sum of: (i) 66,295,184 shares of common stock outstanding as of August 7, 2025, as reported in the Issuer's Quarterly Report on Form 10-Q filed with the SEC on August 12, 2025 and (ii) 11,274,509 shares of common stock issued in the September 2025 Offering as disclosed in the Issuer's prospectus supplement dated September 2, 2025 filed with the SEC on September 3, 2025, and giving effect to stock options and Pre-Funded Warrants, to the extent exercisable within 60 days hereof, as referenced herein.
- Due to field limitations of the EDGAR filing system, the percentages listed in Row 13 of each of the cover pages for RA Capital, Dr. Kolchinsky and Mr. Shah have been rounded down to 9.9%.
- (b) Rows 7 through 10 of each Reporting Person's cover page to this Schedule 13D/A set forth the number of shares of common stock as to which such Reporting Person has the sole or shared power to vote or direct the vote and sole or shared power to dispose of or direct the disposition and are incorporated by reference.
- (c) Except as set forth herein and below, none of the Reporting Persons has effected any transactions with respect to the securities of the Issuer during the past sixty days:

No. Transaction	Price Per Purchaser Date	Shares	Share
Vest Stock Option (Right to Buy)	RA Capital 07/13/2025	2,742	(1)
Vest Stock Option (Right to Buy)	RA Capital 08/09/2025	1,222	(2)
Vest Stock Option (Right to Buy)	RA Capital 08/13/2025	2,741	(1)
Purchase (September 2025 Offering) Fund	09/04/2025	1,176,470	\$25.50
Vest Stock Option (Right to Buy)	RA Capital 09/09/2025	1,222	(2)(3)
Vest Stock Option (Right to Buy)	RA Capital 09/13/2025	2,741	(1)(3)
Vest Stock Option (Right to Buy)	RA Capital 10/09/2025	1,222	(2)(3)
Vest Stock Option (Right to Buy)	RA Capital 10/13/2025	2,742	(1)(3)

(1) This option represents a right to purchase a total of 32,900 shares of the Issuer's common stock, which began vesting on March 13, 2025 in 12 equal monthly installments, subject to DiRocco's continued service to the Issuer through each vesting date. These options have an exercise price of \$10.20.

(2) This option represents a right to purchase a total of 44,000 shares of the Issuer's common stock, which began vesting on March 9, 2023 in 36 equal monthly installments, subject to DiRocco's continued service to the Issuer through each vesting date. These options have an exercise price of \$16.00.

(3) Represents future vesting of options within 60 days from the filing date of this Amendment No. 3.

- (d) Except as set forth below, none of the Reporting Persons has effected any transactions with respect to the securities of the Issuer since the most recent amendment 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:

Lock-up Agreement

Each of the Issuer's executive officers and directors, including Dr. DiRocco, have agreed not to sell or transfer any common stock or securities convertible into, exchangeable for, exercisable for, or repayable with common stock, for 60 days from September 2, 2025 without first obtaining the written consent of BofA Securities, Inc., Evercore Group L.L.C. and Goldman Sachs & Co. LLC, subject to specified exceptions, including sales pursuant to existing trading plans established under Rule 10b5-1 under the Exchange Act.

The foregoing description of the Lock-up Agreement is not complete and is qualified in its entirety by reference to the full text of the form of the lock-up agreement attached hereto as Exhibit 99.2 and incorporated by reference herein.

Item 7. Material to be Filed as Exhibits.

Exhibit 99.1 Joint Filing Agreement (incorporated by reference to Exhibit 99.1 to the Reporting Persons' Schedule 13D/A filed with the SEC on March 17, 2025).

Exhibit 99.2 Form of Lock-up From Directors and Officers (incorporated by reference to Exhibit A to the Underwriting Agreement filed as Exhibit 1.1 to the Issuer's Current Report on Form 8-K, filed with the SEC on September 3, 2025).

SIGNATURE

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.

RA Capital Management, L.P.

Signature: /s/ Peter Kolchinsky
Name/Title: By Peter Kolchinsky, Authorized Signatory
Date: 09/08/2025

Peter Kolchinsky

Signature: /s/ Peter Kolchinsky
Name/Title: Peter Kolchinsky
Date: 09/08/2025

Rajeev Shah

Signature: /s/ Rajeev Shah
Name/Title: Rajeev Shah
Date: 09/08/2025

RA Capital Healthcare Fund, L.P.

Signature: /s/ Peter Kolchinsky
Name/Title: By RA Capital Healthcare Fund GP, LLC, its General Partner, By Peter Kolchinsky, Manager
Date: 09/08/2025