

SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

SCHEDULE 13D/A

Under the Securities Exchange Act of 1934  
(Amendment No. 1)\*

**VOR BIOPHARMA INC.**

(Name of Issuer)

**Common Stock, par value \$0.0001 per share**

(Title of Class of Securities)

**929033108**

(CUSIP Number)

**RA Capital Management, L.P.**

**200 Berkeley Street, 18<sup>th</sup> Floor**

**Boston, MA 02116**

**Attn: Peter Kolchinsky**

**Telephone: 617.778.2500**

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

**November 10, 2022**

(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. o

**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.**

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

(a)

(b)

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3. SEC Use Only

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4. Source of Funds (See Instructions)

**AF**

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

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6. Citizenship or Place of Organization

**Delaware**

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7. Sole Voting Power

**0**

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Number of  
Shares  
Beneficially  
Owned by  
Each  
Reporting  
Person With

8. Shared Voting Power

**11,131,300**

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9. Sole Dispositive Power

**0**

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10. Shared Dispositive Power

**11,131,300**

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11. Aggregate Amount Beneficially Owned by Each Reporting Person

**11,131,300**

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

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

**28.78%<sup>1</sup>**

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14. Type of Reporting Person (See Instructions)

**IA, PN**

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<sup>1</sup> The Reporting Person is the beneficial owner of 11,120,973 shares of the Issuer's Common Stock as well as shares underlying each of 9,389 vested stock options (right to buy) and 938 stock options (right to buy) which will vest within 60 days held by Dr. Joshua Resnick for the benefit of RA Capital. The percentage calculation assumes that there are 38,676,485 outstanding shares of Common Stock of the issuer, based on 38,666,158 shares outstanding as reported in the Issuers Form 10-Q filed on November 10, 2022, and giving effect to stock options referenced above.

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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

**11,131,300**

9. Sole Dispositive Power

**0**

10. Shared Dispositive Power

**11,131,300**

11. Aggregate Amount Beneficially Owned by Each Reporting Person

**11,131,300**

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

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

**28.78%<sup>2</sup>**

14. Type of Reporting Person (See Instructions)

**HC, IN**

<sup>2</sup> The Reporting Person is the beneficial owner of 11,120,973 shares of the Issuer's Common Stock as well as shares underlying each of 9,389 vested stock options (right to buy) and 938 stock options (right to buy) which will vest within 60 days held by Dr. Joshua Resnick for the benefit of RA Capital. The percentage calculation assumes that there are 38,676,485 outstanding shares of Common Stock of the issuer, based on 38,666,158 shares outstanding as reported in the Issuers Form 10-Q filed on November 10, 2022, and giving effect to stock options referenced above.

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

**11,131,300**

9. Sole Dispositive Power

**0**

10. Shared Dispositive Power

**11,131,300**

11. Aggregate Amount Beneficially Owned by Each Reporting Person

**11,131,300**

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

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

**28.78%<sup>3</sup>**

14. Type of Reporting Person (See Instructions)

**HC, IN**

<sup>3</sup> The Reporting Person is the beneficial owner of 11,120,973 shares of the Issuer's Common Stock as well as shares underlying each of 9,389 vested stock options (right to buy) and 938 stock options (right to buy) which will vest within 60 days held by Dr. Joshua Resnick for the benefit of RA Capital. The percentage calculation assumes that there are 38,676,485 outstanding shares of Common Stock of the issuer, based on 38,666,158 shares outstanding as reported in the Issuers Form 10-Q filed on November 10, 2022, and giving effect to stock options referenced above.

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

**9,295,647**

9. Sole Dispositive Power

**0**

10. Shared Dispositive Power

**9,295,647**

11. Aggregate Amount Beneficially Owned by Each Reporting Person

**9,295,647**

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

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

**24.04%<sup>4</sup>**

14. Type of Reporting Person (See Instructions)

**PN**

<sup>4</sup> The Reporting Person is the beneficial owner of 9,295,647 shares of the Issuer's Common Stock. The percentage calculation assumes that there are 38,676,485 outstanding shares of Common Stock of the issuer, based on 38,666,158 shares outstanding as reported in the Issuers Form 10-Q filed on November 10, 2022, and giving effect to stock options mentioned above.

## Item 1. Security and Issuer

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

This Amendment No. 1 amends and supplements the statement on Schedule 13D originally filed with the Securities and Exchange Commission on February 19, 2021 (as so amended, the “Statement”) by the Reporting Persons with respect to the Common Stock, \$0.0001 par value per share (the “Common Stock”), of Vor Biopharma Inc., a Delaware Corporation (the “Issuer”), which has its principal executive offices at 100 Cambridgepark Drive, Suite 101, Cambridge, MA 02140. Unless otherwise defined herein, capitalized terms used in this Amendment No. 1 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 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 Reporting Persons ownership of the Issuer’s securities include (1) 9,295,647 shares of Common Stock held by the Fund, (2) 1,825,326 shares of Common Stock held by the RA Capital Nexus Fund, L.P. (the “Nexus Fund”) (3) a total of 9,389 vested stock options (right to buy), and (4) 938 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 and RA Capital Nexus Fund GP, LLC is the general partner of the Nexus Fund. 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 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. The Fund and the Nexus Fund 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’s portfolio, including the shares of the Issuer’s Common Stock reported herein. Because the Fund and the Nexus Fund 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 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 Statement (the “Statement”) other than for the purpose of determining their obligations under Section 13(d) of the Act, and the filing of the Statement 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, 18<sup>th</sup> 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. 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 4. Purpose of Transaction

Item 4 of the Statement is amended and restated as follows:

The Reporting Persons acquired the Common Stock reported herein for investment purposes and not with an intent, purpose or effect of changing control of the Issuer. Although the Reporting Persons currently have no plan or proposal to acquire any additional Issuer securities or to dispose of any of the Issuer securities reported herein, the Reporting Persons may acquire additional Issuer securities from time to time or dispose of Issuer securities they beneficially own, on the open market or in private transactions or otherwise (including by means of 10b5-1 programs), consistent with their investment purposes and in amounts, on such terms and at such times as to be determined by the Reporting Persons based upon a number of factors, including, without limitation, their ongoing assessment of the Issuer's business prospects, the availability of Issuer securities at prices that would make the purchase or sale of such securities desirable, prevailing market conditions, the availability of other investment opportunities, and/or other considerations.

In addition, consistent with their investment purpose, the Reporting Persons may engage in communications with persons associated with the Issuer, including shareholders of the Issuer, officers of the Issuer, members of the board of directors of the Issuer, and/or other third parties, to discuss matters regarding the Issuer, including but not limited to its operations, strategic direction, governance or capitalization, and potential business combinations or dispositions involving the Issuer or certain of its businesses. Dr. Joshua Resnick, a Managing Director of RA Capital, currently serves as a director of the Issuer and therefore will engage in regular discussions with the Issuer's board of directors and management as part of his duties as a director.

Neither Dr. Resnick (other than in his capacity as a director) nor the Reporting Persons have any present plans or proposals that relate to, or could result in, any of the matters referred to in paragraphs (a) through (j), inclusive, of the instructions to Item 4 of Schedule 13D.

Depending on various factors including, without limitation, the Issuer's financial position, results and strategic direction, actions taken by the Issuer's management and Board, other investment opportunities available to RA Capital, the price levels of the Issuer securities, conditions in the securities markets and general economic and industry conditions, the Reporting Persons may change their purpose and formulate and implement plans or proposals with respect to the Issuer at any time and from time to time. Any such action may be made by the Reporting Persons alone or in conjunction with other shareholders, potential acquirers, financing sources and/or other third parties and could include one or more purposes, plans or proposals that relate to or would result in actions required to be reported herein in accordance with Item 4 of Schedule 13D.

#### Item 5. Interest in Securities of the Issuer

Item 5 of the Statement is hereby amended and supplemented as follows:

(a) and (b) See Items 7-11 of the cover pages above and Item 2.

(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 Schedule 13D:<sup>5</sup>

Transaction	Purchaser	Date	No. Shares	Price
Vest Stock Option (Right to Buy)	RA Capital	5-Oct-2022	469	(1)
Vest Stock Option (Right to Buy)	RA Capital	5-Nov-2022	469	(1)
Vest Stock Option (Right to Buy)	RA Capital	5-Dec-2022	469	(1)*
Vest Stock Option (Right to Buy)	RA Capital	5-Jan-2023	469	(1)*

(1) This option represents a right to purchase a total of 16,900 shares of the Issuer's Common Stock, granted on March 5, 2021 vesting in equal monthly installments over the following three years, subject to Dr. Resnick's continued service to the Issuer through each vesting date. These options have an exercise price of \$18.00.

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

(d) Not applicable.

(e) Not applicable.

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<sup>5</sup> The Common Stock and percentage ownership reported in this amendment reflect an increase in the number of outstanding shares of the Issuer.

**Item 6. Contracts, Arrangements, Understandings or Relationships with Respect to Securities of the Issuer**

**Equity Awards**

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

Dr. Resnick, a Managing Director at RA Capital, is a member of the Board of Directors of the Issuer. From time to time, Dr. Resnick may receive stock options or other awards of equity-based compensation pursuant to the Issuer's compensation arrangements for non-employee directors. Pursuant to an agreement with RA Capital, Dr. Resnick is obligated to transfer any securities issued under any such stock options or other awards, or the economic benefit thereof, to RA Capital.

**Item 7. Material to be Filed as Exhibits**

Exhibit 1 Joint Filing Agreement

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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.

Date: November 14, 2022

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

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**JOINT FILING AGREEMENT**

This Joint Filing Agreement, dated as of November 14, 2022, 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 Vor Biopharma, 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

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