

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

SCHEDULE 13G

UNDER THE SECURITIES EXCHANGE ACT OF 1934

RANI THERAPEUTICS HOLDINGS, INC.

(Name of Issuer)

Class A Common Stock, \$0.0001 par value per share

(Title of Class of Securities)

753018100

(CUSIP Number)

10/23/2025

(Date of Event Which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

- ☐ Rule 13d-1(b)
- ☒ Rule 13d-1(c)
- ☐ Rule 13d-1(d)

SCHEDULE 13G

CUSIP No. 753018100

	Names of Reporting Persons
1	RA Capital Management, L.P. Check the appropriate box if a member of a Group (see instructions)
2	<input type="checkbox"/> (a) <input type="checkbox"/> (b)
3	Sec Use Only Citizenship or Place of Organization
4	DELAWARE
Number of Shares	5 Sole Voting Power

Beneficially	0.00
Owned by	Shared Voting Power
Each	6
Reporting	9,882,477.00
Person	Sole Dispositive Power
With:	7
	0.00
	Shared Dispositive
	8 Power
	9,882,477.00
9	Aggregate Amount Beneficially Owned by Each Reporting Person
	9,882,477.00
10	Check box if the aggregate amount in row (9) excludes certain shares (See Instructions)
	<input type="checkbox"/>
11	Percent of class represented by amount in row (9)
	9.9 %
12	Type of Reporting Person (See Instructions)
	IA, PN

SCHEDULE 13G

CUSIP No. 753018100

1	Names of Reporting Persons
	Peter Kolchinsky
	Check the appropriate box if a member of a Group (see instructions)
2	<input type="checkbox"/> (a)
	<input type="checkbox"/> (b)
3	Sec Use Only
4	Citizenship or Place of Organization
	UNITED STATES
	Sole Voting Power
5	0.00
Number of	Shared Voting Power
Shares	6
Beneficially	9,882,477.00
Owned by	Sole Dispositive Power
Each	7
Reporting	0.00
Person	Shared Dispositive
With:	8 Power
	9,882,477.00
9	Aggregate Amount Beneficially Owned by Each Reporting Person
	9,882,477.00
10	Check box if the aggregate amount in row (9) excludes certain shares (See Instructions)
	<input type="checkbox"/>
11	Percent of class represented by amount in row (9)

9.9 %
Type of Reporting Person (See Instructions)
12
HC, IN

SCHEDULE 13G

CUSIP No. 753018100

	Names of Reporting Persons
1	Rajeev Shah
	Check the appropriate box if a member of a Group (see instructions)
2	<input type="checkbox"/> (a)
	<input type="checkbox"/> (b)
3	Sec Use Only
	Citizenship or Place of Organization
4	UNITED STATES
	Sole Voting Power
5	0.00
Number of	Shared Voting Power
Shares	6
Beneficially	9,882,477.00
Owned by	Sole Dispositive Power
Each	7
Reporting	0.00
Person	Shared Dispositive
With:	Power
	8
	9,882,477.00
	Aggregate Amount Beneficially Owned by Each Reporting Person
9	9,882,477.00
	Check box if the aggregate amount in row (9) excludes certain shares (See Instructions)
10	<input type="checkbox"/>
	Percent of class represented by amount in row (9)
11	9.9 %
	Type of Reporting Person (See Instructions)
12	HC, IN

SCHEDULE 13G

CUSIP No. 753018100

	Names of Reporting Persons
1	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
Citizenship or Place of Organization

4 DELAWARE

Sole Voting Power

5

0.00

Number of
Shares

Shared Voting Power

6

Beneficially
Owned by

9,882,477.00

Each

Sole Dispositive Power

7

Reporting

0.00

Person

Shared Dispositive

With:

Power

8

9,882,477.00

Aggregate Amount Beneficially Owned by Each Reporting Person

9

9,882,477.00

Check box if the aggregate amount in row (9) excludes certain shares (See Instructions)

10

☐

Percent of class represented by amount in row (9)

11

9.9 %

Type of Reporting Person (See Instructions)

12

PN

SCHEDULE 13G

Item 1.

Name of issuer:

(a)

RANI THERAPEUTICS HOLDINGS, INC.

Address of issuer's principal executive offices:

(b)

2051 RINGWOOD AVENUE, SAN JOSE, CA, 95131.

Item 2.

Name of person filing:

(a)

The names of the persons filing this report (collectively, the "Reporting Persons") are: RA Capital Management, L.P. ("RA Capital") Peter Kolchinsky ("Dr. Kolchinsky") Rajeev Shah ("Mr. Shah") RA Capital Healthcare Fund, L.P. (the "Fund") The Reporting Persons expressly disclaim status as a "group" for purposes of this Schedule 13G.

Address or principal business office or, if none, residence:

(b)

The address of the principal business office of each of the Reporting Persons is: c/o RA Capital Management, L.P., 200 Berkeley Street, 18th Floor, Boston MA 02116

Citizenship:

(c)

RA Capital and the Fund are Delaware limited partnerships. Dr. Kolchinsky and Mr. Shah are United States citizens.

Title of class of securities:

(d)

Class A Common Stock, \$0.0001 par value per share

CUSIP No.:

(e)

753018100

Item 3. If this statement is filed pursuant to §§ 240.13d-1(b) or 240.13d-2(b) or (c), check whether the person filing is a:

- (a) ☐ Broker or dealer registered under section 15 of the Act (15 U.S.C. 78o);
- (b) ☐ Bank as defined in section 3(a)(6) of the Act (15 U.S.C. 78c);
- (c) ☐ Insurance company as defined in section 3(a)(19) of the Act (15 U.S.C. 78c);
- (d) ☐ Investment company registered under section 8 of the Investment Company Act of 1940 (15 U.S.C. 80a-8);
- (e) ☐ An investment adviser in accordance with § 240.13d-1(b)(1)(ii)(E);
- (f) ☐ An employee benefit plan or endowment fund in accordance with § 240.13d-1(b)(1)(ii)(F);
- (g) ☐ A parent holding company or control person in accordance with § 240.13d-1(b)(1)(ii)(G);
- (h) ☐ A savings associations as defined in Section 3(b) of the Federal Deposit Insurance Act (12 U.S.C. 1813);
- (i) ☐ A church plan that is excluded from the definition of an investment company under section 3(c)(14) of the Investment Company Act of 1940 (15 U.S.C. 80a-3);
- (j) ☐ A non-U.S. institution in accordance with § 240.13d-1(b)(1)(ii)(J). If filing as a non-U.S. institution in accordance with § 240.13d-1(b)(1)(ii)(J), please specify the type of institution:
- (k) ☐ Group, in accordance with Rule 240.13d-1(b)(1)(ii)(K).

Item 4. Ownership

Amount beneficially owned:

Row 9 of each Reporting Person's cover page to this Schedule 13G sets forth the aggregate number of securities of the Issuer beneficially owned by such Reporting Person and is incorporated by reference. The Fund directly holds (i) 8,500,000 shares of Class A common stock; (ii) pre-funded warrants (the "Pre-Funded Warrants") exercisable for up to 16,500,000 shares of Class A common stock; and (iii) warrants (the "Common Warrants" and, together with the Pre-Funded Warrants, the "Warrants") exercisable for up to 25,000,000 shares of Class A common stock. Each of the Pre-Funded Warrants and the Common Warrants contains a provision (the "Beneficial Ownership Blockers") 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 Class A common stock outstanding. Additionally, the Common Warrants are not exercisable until the effective date of the approval by the Issuer's stockholders of such exercisability, in accordance with the rules of the Nasdaq Stock Market. The Fund is currently prohibited from exercising the Warrants to the extent that such exercise would result in the Reporting Persons' beneficial ownership of more than 9,882,477 shares of Class A common stock. RA Capital Healthcare Fund GP, LLC is the general partner of the 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 may be deemed a beneficial owner, for purposes of Section 13(d) of the Act, of any securities of the Issuer held by the Fund. The Fund has delegated to RA Capital the sole power to vote and the sole power to dispose of all securities held in the Fund's portfolio, including the shares of the Issuer's Class A common stock reported herein. Because the Fund has divested voting and investment power over the reported securities it holds and may not revoke that delegation on less than 61 days' notice, the Fund disclaims beneficial ownership of the securities it holds for purposes of 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 13G other than for the purpose of determining their obligations under Section 13(d) of the Act, and the filing of this Schedule 13G 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.

Percent of class:

- (a) Due to the Beneficial Ownership Blockers listed in the Warrants, each Reporting Person's beneficial ownership percentage is 9.99%. Such percentage is based upon the sum of (i) 97,541,221 shares of Class A common stock outstanding as of October 23, 2025, as reported in the Issuer's Current Report on Form 8-K filed with the Securities and Exchange Commission (the "SEC") on October 27, 2025 and (ii) 1,382,477 shares of Class A common stock issuable upon the exercise of Warrants. Due to field limitations of the EDGAR filing system, the percentages listed in Row 11 of the Reporting Persons' cover pages have been rounded down to 9.9%. %
- (b) Number of shares as to which the person has:
- (c) (i) Sole power to vote or to direct the vote:

Row 5 of each Reporting Person's cover page to this Schedule 13G sets forth the sole power to vote or to direct the vote of securities of the Issuer beneficially owned by such Reporting Person and is incorporated by reference.

(ii) Shared power to vote or to direct the vote:

Row 6 of each Reporting Person's cover page to this Schedule 13G sets forth the shared power to vote or to direct the vote of securities of the Issuer beneficially owned by such Reporting Person and is incorporated by reference.

(iii) Sole power to dispose or to direct the disposition of:

Row 7 of each Reporting Person's cover page to this Schedule 13G sets forth the sole power to dispose or to direct the disposition of securities of the Issuer beneficially owned by such Reporting Person and is incorporated by reference.

(iv) Shared power to dispose or to direct the disposition of:

Row 8 of each Reporting Person's cover page to this Schedule 13G sets forth the shared power to dispose or to direct the disposition of securities of the Issuer beneficially owned by such Reporting Person and is incorporated by reference.

Item 5. Ownership of 5 Percent or Less of a Class.

Item 6. Ownership of more than 5 Percent on Behalf of Another Person.
Not Applicable

Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on by the Parent Holding Company or Control Person.
Not Applicable

Item 8. Identification and Classification of Members of the Group.
Not Applicable

Item 9. Notice of Dissolution of Group.
Not Applicable

Item 10. Certifications:

By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect, other than activities solely in connection with a nomination under ?? 240.14a-11.

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: 10/30/2025

Peter Kolchinsky

Signature: /s/ Peter Kolchinsky
Name/Title: Peter Kolchinsky
Date: 10/30/2025

Rajeev Shah

Signature: /s/ Rajeev Shah
Name/Title: Rajeev Shah
Date: 10/30/2025

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: 10/30/2025

Exhibit Information

Exhibit 99.1 Joint Filing Agreement

JOINT FILING AGREEMENT

This Joint Filing Agreement, dated as of October 30, 2025, 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 the Class A common stock, \$0.0001 par value per share of Rani Therapeutics Holdings, 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