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**SECURITIES AND EXCHANGE COMMISSION**  
Washington, D.C. 20549

**SCHEDULE 13D**

Under the Securities Exchange Act of 1934

**(Amendment No. 4)\***

**ACUMEN PHARMACEUTICALS, INC.**

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**(Name of Issuer)**

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

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**(Title of Class of Securities)**

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**(CUSIP Number)**

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

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

**03/13/2026**

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**(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).

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**SCHEDULE 13D**

**CUSIP No.**

Name of reporting person

1

RA Capital Management, L.P.

2

Check the appropriate box if a member of a Group (See Instructions)

(a)

(b)

3 SEC use only  
Source of funds (See Instructions)

4 AF  
Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e)

5   
Citizenship or place of organization

6 DELAWARE

Sole Voting Power

7

0.00

Number of  
Shares

Shared Voting Power

Beneficially 8

21,101,669.00

Owned by

Sole Dispositive Power

Each

9

0.00

Reporting

Person

With:

Shared Dispositive Power

10

21,101,669.00

Aggregate amount beneficially owned by each reporting person

11 21,101,669.00

Check if the aggregate amount in Row (11) excludes certain shares (See Instructions)

12   
Percent of class represented by amount in Row (11)

13 29.5 %

Type of Reporting Person (See Instructions)

14 IA, PN

## SCHEDULE 13D

### CUSIP No.

Name of reporting person

1 Peter Kolchinsky

Check the appropriate box if a member of a Group (See Instructions)

2  (a)  
 (b)

3 SEC use only  
Source of funds (See Instructions)

4 AF  
Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e)

5   
Citizenship or place of organization

6 UNITED STATES

Number of 7 Sole Voting Power

Shares	
Beneficially	0.00
Owned by	Shared Voting Power
Each	8
Reporting	21,101,669.00
Person	Sole Dispositive Power
With:	9
	0.00
	Shared Dispositive Power
	10
	21,101,669.00
	Aggregate amount beneficially owned by each reporting person
11	21,101,669.00
	Check if the aggregate amount in Row (11) excludes certain shares (See Instructions)
12	<input type="checkbox"/>
	Percent of class represented by amount in Row (11)
13	29.5 %
	Type of Reporting Person (See Instructions)
14	HC, IN

## SCHEDULE 13D

### CUSIP No.

	Name of reporting person
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
	Source of funds (See Instructions)
4	AF
	Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e)
5	<input type="checkbox"/>
	Citizenship or place of organization
6	UNITED STATES
	Sole Voting Power
	7
	0.00
Number of	Shared Voting Power
Shares	8
Beneficially	21,101,669.00
Owned by	Sole Dispositive Power
Each	9
Reporting	0.00
Person	Shared Dispositive Power
With:	10
	21,101,669.00
11	Aggregate amount beneficially owned by each reporting person

21,101,669.00

Check if the aggregate amount in Row (11) excludes certain shares (See Instructions)

12

Percent of class represented by amount in Row (11)

13

29.5 %

Type of Reporting Person (See Instructions)

14

HC, IN

### SCHEDULE 13D

#### CUSIP No.

Name of reporting person

1

RA Capital Healthcare Fund, L.P.

Check the appropriate box if a member of a Group (See Instructions)

2

(a)

(b)

3

SEC use only

Source of funds (See Instructions)

4

WC

Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e)

5

Citizenship or place of organization

6

DELAWARE

Sole Voting Power

7

0.00

Number of  
Shares

Shared Voting Power

Beneficially

8

19,103,785.00

Owned by

Each

Sole Dispositive Power

Reporting

9

0.00

Person

With:

Shared Dispositive Power

10

19,103,785.00

Aggregate amount beneficially owned by each reporting person

11

19,103,785.00

Check if the aggregate amount in Row (11) excludes certain shares (See Instructions)

12

Percent of class represented by amount in Row (11)

13

26.8 %

Type of Reporting Person (See Instructions)

14

PN

# SCCHEDULE 13D

## Item 1. Security and Issuer

Title of Class of Securities:

(a)

Common Stock, \$0.0001 par value per share

Name of Issuer:

(b)

ACUMEN PHARMACEUTICALS, INC.

Address of Issuer's Principal Executive Offices:

(c)

1210-1220 Washington St., Suite 210, Newton, MASSACHUSETTS , 02465.

**Item 1 Comment:** 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 Schedule 13D originally filed with the Securities and Exchange Commission (the "SEC") on July 16, 2021, and amended on September 13, 2021, July 25, 2023 and March 31, 2025 (as amended, the "Statement") by the Reporting Persons. 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

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 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) 19,103,785 shares of common stock held directly by the Fund; (ii) 1,300,034 shares of common stock held by RA Capital Nexus Fund II, L.P. (the "Nexus Fund II"); (iii) 588,850 shares of common stock held by a separately managed account (the "Account"); and (iv) a total of 109,000 shares underlying vested stock options (right to buy) held by Dr. Laura Stoppel for the benefit of RA Capital. RA Capital Healthcare Fund GP, LLC is the general partner of the 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 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 II or the Account. The 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's and the Nexus Fund II's portfolio, including the shares of the Issuer's common stock reported herein. Because the Fund and the Nexus Fund II 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 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 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.

(a)

The address of the principal business office of each of the Reporting Persons is 200 Berkeley Street, 18th Floor, Boston, MA 02116.

(b)

The Fund is a private investment vehicle. RA Capital provides investment management services to the Fund, the Nexus Fund II and the Account. The principal occupation of Dr. Kolchinsky and Mr. Shah is investment management.

(c)

During the last five years, none of the Reporting Persons has been convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors).

(d)

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.

(e)

See Item 6 of the cover pages.

(f)

## Item 3. Source and Amount of Funds or Other Consideration

Item 3 of the Statement is hereby amended and supplemented as follows: March 2026 Securities Purchase Agreement On March 13, 2026, the Issuer entered into a securities purchase agreement (the "March 2026 Securities Purchase Agreement") with certain institutional accredited investors (the "March 2026 PIPE Investors"), including the Fund, pursuant to which the Issuer agreed to issue and sell to the March 2026 PIPE Investors in a private placement (the "March 2026 Private Placement") an aggregate of 10,833,331 shares of common stock (the "Shares") at a price of \$3.30 per share. The March 2026 Private Placement closed on March 16, 2026 (the "Closing Date"). The Fund

purchased 6,060,606 shares of common stock in the March 2026 Private Placement, for total consideration of \$19,999,999.80, which was funded by the working capital of the Fund.

Item 5. Interest in Securities of the Issuer

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)

- (a) 60,573,425 shares of common stock outstanding as of November 7, 2025, as reported in the Issuer's Quarterly Report on Form 10-Q filed with the SEC on November 12, 2025 and (ii) 10,833,331 shares of common stock issued in the March 2026 Private Placement, as reported in the Issuer's Current Report on Form 8-K filed with the SEC on March 16, 2026, and giving effect to stock options, to the extent exercisable within 60 days hereof, as referenced herein.
- (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 or to direct the disposition and are incorporated by reference.
- (c) Except as set forth herein, none of the Reporting Persons has effected any transactions with respect to the securities of the Issuer during the past sixty days.
- (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 securities 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: March 2026 Registration Rights Agreement In connection with the March 2026 Private Placement, the Issuer and the March 2026 PIPE Investors entered into a Registration Rights Agreement, dated March 13, 2026 (the "March 2026 Registration Rights Agreement"), providing for the registration for resale of the Shares pursuant to a registration statement (the "Registration Statement") to be filed with the SEC no later than two business days after the date on which the Issuer files with the SEC its Annual Report on Form 10-K for the fiscal year ended December 31, 2025. The Issuer has agreed to use reasonable best efforts to cause the Registration Statement to be declared effective as soon as practicable, but in any event no later than the earlier of (i) the 75th calendar day following the initial filing of the Registration Statement if the SEC notifies the Issuer it will "review" the Registration Statement and (ii) the fifth business day after the date the Issuer is notified (orally or in writing, whichever is earlier) by the SEC that the Registration Statement will not be "reviewed" or will not be subject to further review, and to keep the Registration Statement continuously effective from the date on which the SEC declares the Registration Statement to be effective until (i) the date on which the March 2026 PIPE Investors shall have resold all the Registrable Securities (as such term is defined in the Registration Rights Agreement) covered thereby, and (ii) the date on which the Registrable Securities may be resold by the March 2026 PIPE Investors without registration and without regard to any volume or manner-of-sale limitations by reason of Rule 144 ("Rule 144") as promulgated by the SEC under the Securities Act of 1933, as amended (the "Securities Act"), without the requirement for the Issuer to be in compliance with the current public information requirement under Rule 144 under the Securities Act or any other rule of similar effect. The Issuer has granted the March 2026 PIPE Investors customary indemnification rights in connection with the March 2026 Registration Rights Agreement. The March 2026 PIPE Investors have also granted the Issuer customary indemnification rights in connection with the March 2026 Registration Rights Agreement. The foregoing description of the March 2026 Registration Rights Agreement does not purport to be complete and is qualified in its entirety by reference to the March 2026 Registration Rights Agreement, a copy of which is filed as Exhibit 99.2 hereto 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 31, 2025). Exhibit 99.2 Form of Registration Rights Agreement, dated March 13, 2026, by and among Acumen Pharmaceuticals, Inc. and the investors party thereto (incorporated by reference to Exhibit 10.2 to the Issuer's Current Report on Form 8-K (File No. 001-40551) filed with the SEC on March 16, 2026).

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: 03/17/2026

Peter Kolchinsky

Signature: /s/ Peter Kolchinsky

Name/Title: Peter Kolchinsky

Date: 03/17/2026

Rajeev Shah

Signature: /s/ Rajeev Shah

Name/Title: Rajeev Shah

Date: 03/17/2026

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: 03/17/2026