As filed with the Securities and Exchange Commission on August 12, 2026

Registration No. 333-

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-8
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

Acumen Pharmaceuticals, Inc.
(Exact name of registrant as specified in its charter)

Delaware	**36-4108129**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**

1210-1220 Washington St., Suite 210
Newton, MA 02465
(617) 344-4190
(Address of principal executive offices, including zip code)

Acumen Pharmaceuticals, Inc. Amended and Restated 2021 Equity Incentive Plan
(Full titles of the plans)

Daniel O'Connell
Chief Executive Officer
Acumen Pharmaceuticals, Inc.
1210-1220 Washington St., Suite 210
Newton, MA 02465
(617) 344-4190
(Name, address and telephone number, including area code, of agent for service)

Copies to:

Thomas J. Danielski	**Derek Meisner**
Ropes & Gray LLP	**Chief Legal Officer**
800 Boylston Street	**Acumen Pharmaceuticals, Inc.**
Boston, MA 02199	**1210-1220 Washington St., Suite 210**
(617) 951-7000	**Newton, MA 02465**
	(617) 344-4190

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒	Smaller reporting company	☒
		Emerging growth company	☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act. ☐

EXPLANATORY NOTE

Acumen Pharmaceuticals, Inc. (the "***Registrant***") is filing this Registration Statement on Form S-8 (this "***Registration Statement***") with the Securities and Exchange Commission (the "***Commission***") for the purpose of registering an additional 10,000,000 shares (the "***Additional Shares***") of the Registrant's common stock, par value $0.0001 per share (the "***Common Stock***"), that may be issued pursuant to the Registrant's Amended and Restated 2021 Equity Incentive Plan (the "***Plan***"), which was adopted by the Registrant's Board of Directors on April 21, 2026 and approved by the Registrant's stockholders at the Registrant's 2026 Annual Meeting of Stockholders held on June 3, 2026.

The Registrant previously registered an aggregate of 19,040,630 shares of its Common Stock for issuance under the Plan under Registration Statements on Form S-8 (File Nos. 333-257666, 333-263947, 333-270902, 333-278267, 333-286176, and 333-294641) filed with the Commission on July 2, 2021, March 29, 2022, March 28, 2023, March 27, 2024, March 27, 2025, and March 26, 2026, respectively (collectively, the "***Prior Registration Statements***"). With the filing of this Registration Statement, the total number of shares of the Registrant's Common Stock registered under the Plan is 29,040,630, inclusive of the Additional Shares, which is equal to the total number of shares authorized for issuance under the Plan.

Pursuant to General Instruction E to Form S-8, the contents of the Prior Registration Statements are incorporated herein by reference, except to the extent supplemented, amended or superseded by the information set forth herein.

PART II

INFORMATION REQUIRED IN REGISTRATION STATEMENT

ITEM 8. EXHIBITS

Exhibit Number	Description	Incorporated by Reference			
		Schedule Form	File Number	Exhibit	Filing Date
3.1	Amended and Restated Certificate of Incorporation of the Registrant.	8-K	001-40551	3.1	June 8, 2023
3.2	Amended and Restated Bylaws of the Registrant.	8-K	001-40551	3.1	March 15, 2023
4.1	Acumen Pharmaceuticals, Inc. Amended and Restated 2021 Equity Incentive Plan and Forms of Stock Option Grant Notice, Award Agreement and Notice of Exercise and RSU Grant Notice and Award Agreement.	10-Q	001-40551	10.1	August 12, 2026
5.1*	Opinion of Ropes & Gray LLP.				
23.1*	Consent of Ropes & Gray LLP (included in Exhibit 5.1).				
23.2*	Consent of Ernst & Young, LLP, independent registered public accounting firm.				
24.1*	Power of Attorney (included on the signature page of this Form S-8).				
107*	Filing fee table				

* Filed herewith.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Newton, Commonwealth of Massachusetts, on August 12, 2026.

ACUMEN PHARMACEUTICALS, INC.

By: /s/ Daniel O’Connell
Daniel O’Connell
Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Daniel O’Connell, William Matthew Zuga and Derek Meisner, and each one of them, as his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him or her and in their name, place or stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement, and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Daniel O’Connell Daniel O’Connell	Chief Executive Officer and Director *(Principal Executive Officer)*	August 12, 2026
/s/ William Matthew Zuga William Matthew Zuga	Chief Financial Officer and Chief Business Officer *(Principal Financial and Accounting Officer)*	August 12, 2026
/s/ Kimberlee C. Drapkin Kimberlee C. Drapkin	Director	August 12, 2026
/s/ Nathan B. Fountain Nathan B. Fountain, M.D.	Director	August 12, 2026
/s/ George Golumbeski George Golumbeski, Ph.D.	Director	August 12, 2026
/s/ Jeffrey L. Ives Jeffrey L. Ives, Ph.D.	Director	August 12, 2026
/s/ Derrell D. Porter Derrell D. Porter, M.D.	Director	August 12, 2026
/s/ Sean Stalfort Sean Stalfort	Director	August 12, 2026
/s/ Laura Stoppel Laura Stoppel, PhD	Director	August 12, 2026

Calculation of Filing Fee Tables

S-8

Acumen Pharmaceuticals, Inc.

Table 1: Newly Registered Securities

	Security Type	Security Class Title	Fee Calculation Rule	Amount Registered	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
1	Equity	Common stock, $0.0001 par value per share	Other	10,000,000	$ 2.29	$ 22,900,000.00	0.0001381	$ 3,162.49
			Total Offering Amounts:			$ 22,900,000.00		$ 3,162.49
			Total Fee Offsets:					$ 0.00
			Net Fee Due:					$ 3,162.49

Offering Note

1

1a. Pursuant to Rule 416(a) promulgated under the Securities Act of 1933, as amended (the "Securities Act"), this Registration Statement on Form S-8 shall also cover any additional shares of common stock of Acumen Pharmaceuticals, Inc. (the "Registrant") that may become issuable under the Registrant's Amended and Restated 2021 Equity Incentive Plan (the "Plan") by reason of any stock dividend, stock split, recapitalization, or other similar transaction effected that results in an increase to the number of outstanding shares of the Registrant's common stock, as applicable.

1b. Estimated solely for purposes of calculating the registration fee pursuant to Rule 457(c) and Rule 457(h) based on the average of the high and low prices of Registrant's Common Stock as reported on the Nasdaq Global Select Market on August 6, 2026.

1c. Represents 10,000,000 shares of Common Stock added to the shares available for issuance pursuant to the Plan, which was adopted by the Registrant's Board of Directors on April 21, 2026 and approved by the Registrant's stockholders at the Registrant's 2026 Annual Meeting of Stockholders held on June 3, 2026.

Table 2: Fee Offset Claims and Sources ☑**Not Applicable**

	Registrant or Filer Name	Form or Filing Type	File Number	Initial Filing Date	Filing Date	Fee Offset Claimed	Security Type Associated with Fee Offset Claimed	Security Title Associated with Fee Offset Claimed	Unsold Securities Associated with Fee Offset Claimed	Unsold Aggregate Offering Amount Associated with Fee Offset Claimed	Fee Paid with Fee Offset Source
Rule 457(p)											
Fee Offset Claims											
Fee Offset Sources											

ROPES & GRAY LLP
PRUDENTIAL TOWER
800 BOYLSTON STREET
BOSTON, MA 02199-3600
WWW.ROPESGRAY.COM

August 12, 2026

Acumen Pharmaceuticals, Inc.
1210-1220 Washington St., Suite 210
Newton, MA 02465

Ladies and Gentlemen:

This opinion is furnished to you in connection with the registration statement on Form S-8 (the “Registration Statement”) filed by Acumen Pharmaceuticals, Inc., a Delaware corporation (the “Company”), with the Securities and Exchange Commission under the Securities Act of 1933, as amended (the “Securities Act”), for the registration of 10,000,000 shares of the common stock, par value $0.0001 per share, of the Company (the “Shares”). The Shares are issuable under the Company’s Amended and Restated 2021 Equity Incentive Plan (the “Plan”).

We are familiar with the actions taken by the Company in connection with the adoption of the Plan. We have examined such certificates, documents and records and have made such investigation of fact and such examination of law as we have deemed appropriate in order to enable us to render the opinions set forth herein. In conducting such investigation, we have relied, without independent verification, upon certificates of officers of the Company, public officials and other appropriate persons.

The opinions expressed below are limited to the Delaware General Corporation Law.

Based upon and subject to the foregoing, we are of the opinion that the Shares have been duly authorized and, when the Shares have been issued and sold in accordance with the terms of the Plan, will be validly issued, fully paid and non-assessable.

We hereby consent to your filing this opinion as an exhibit to the Registration Statement. In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations thereunder.

Very truly yours,
/s/ Ropes & Gray LLP
Ropes & Gray LLP

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statement (Form S-8) pertaining to the Acumen Pharmaceuticals, Inc. Amended and Restated 2021 Equity Incentive Plan of our report dated March 26, 2026, with respect to the financial statements of Acumen Pharmaceuticals, Inc. included in its Annual Report (Form 10-K) for the year ended December 31, 2025, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

Philadelphia, Pennsylvania
August 12, 2026