SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

SCHEDULE 13G

UNDER THE SECURITIES EXCHANGE ACT OF 1934

(Amendment No. 3)

CABALETTA BIO, INC.

(Name of Issuer)

Common Stock, $0.00001 par value per share

(Title of Class of Securities)

12674W109

(CUSIP Number)

09/30/2026

(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 Number(s):	12674W109

1	**Names of Reporting Persons** Bain Capital Life Sciences Opportunities III, LP
2	**Check the appropriate box if a member of a Group (see instructions)** ☐ (a) ☐ (b)
3	**Sec Use Only**
4	**Citizenship or Place of Organization** DELAWARE

Number of Shares Beneficially Owned by Each Reporting Person With:	5	**Sole Voting Power** 0.00
	6	**Shared Voting Power** 21,209,188.00
	7	**Sole Dispositive Power** 0.00
	8	**Shared Dispositive Power** 21,209,188.00
9	**Aggregate Amount Beneficially Owned by Each Reporting Person** 21,209,188.00	
10	**Check box if the aggregate amount in row (9) excludes certain shares (See Instructions)** ☐	
11	**Percent of class represented by amount in row (9)** 9.57 %	
12	**Type of Reporting Person (See Instructions)** PN	

SCHEDULE 13G

Item 1.

(a) **Name of issuer:**

CABALETTA BIO, INC.

(b) **Address of issuer's principal executive offices:**

2929 Arch Street, Suite 600, Philadelphia, Pennsylvania 19104

Item 2.

(a) **Name of person filing:**

This Schedule 13G is being filed by Bain Capital Life Sciences Opportunities III, L.P., a Delaware limited partnership (the "Reporting Person").

Bain Capital Life Sciences Investors, LLC, a Delaware limited liability company ("BCLSI"), is the manager of Bain Capital Life Sciences III General Partner, LLC, a Delaware limited liability company ("BCLS Fund III GP"), which is the general partner of Bain Capital Life Sciences Fund III, L.P., a Delaware limited partnership ("BCLS Fund III"), which is the sole member of Bain Capital Life Sciences Opportunities III GP, LLC, a Delaware limited liability company (together with the Reporting Person, BCLSI, BCLS Fund III GP and BCLS Fund III, the "Bain Capital Life Sciences Entities"), which is the general partner of the Reporting Person. As a result, BCLSI may be deemed to share voting and dispositive power with respect to the securities held by the Reporting Person.

(b) **Address or principal business office or, if none, residence:**

The principal business address for each of the Bain Capital Life Sciences Entities is 200 Clarendon Street, Boston, Massachusetts 02116.

(c) **Citizenship:**

Each of the Bain Capital Life Sciences Entities is organized under the laws of the State of Delaware.

(d) **Title of class of securities:**

Common Stock, $0.00001 par value per share

(e) **CUSIP No.:**

12674W109

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

(a) Amount beneficially owned:

As of the close of business on September 30, 2026, the Reporting Person held 15,209,188 shares of Common Stock and a pre-funded warrant to purchase up to 6,000,000 shares of Common Stock. The Reporting Person is prohibited from exercising the pre-funded warrant to purchase Common Stock if, as a result of such exercise, the Reporting Person would beneficially own more than 9.99% of the total number of shares of Common Stock then issued and outstanding immediately after giving effect to the exercise.

The percentage of the outstanding shares of Common Stock held by the Reporting Person is based on (i) 215,720,392 shares of Common Stock outstanding as of October 30, 2026, as reported by the Issuer in its Quarterly Report on Form 10-Q for the quarter ended September 30, 2026, filed with the Securities and Exchange Commission on November 5, 2026 and (ii) 6,000,000 shares of Common Stock issuable upon the exercise of the pre-funded warrant held by the Reporting Person.

(b) Percent of class:

See Item 4(a) hereof.

(c) Number of shares as to which the person has:

(i) Sole power to vote or to direct the vote:

0

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

See Item 4(a) hereof.

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

0

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

See Item 4(a) hereof.

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

Not Applicable

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.

Bain Capital Life Sciences Opportunities III, LP

Signature: **/s/ Andrew Hack**

Name/Title: **Andrew Hack, Partner of Bain Capital Life Sciences Investors, LLC**

Date: **11/16/2026**