As filed with the Securities and Exchange Commission on August 5, 2026.

Registration No. 333–

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

FORM S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

Braveheart Bio, Inc.
(Exact name of registrant as specified in its charter)

Delaware	2834	99-2981994
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification No.)

One Letterman Drive, Building A, Suite A4-300
San Francisco, CA 94129
(415) 707-6312
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Travis Murdoch
Chief Executive Officer
Braveheart Bio, Inc.
One Letterman Drive, Building A, Suite A4-300
San Francisco, CA 94129
(415) 707-6312
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

Kingsley L. Taft **Gabriela Morales-Rivera** **Alicia Tschirhart** **Goodwin Procter LLP** **100 Northern Avenue** **Boston, MA 02210** **(617) 570-1000**	**Paul Rickey** **Braveheart Bio, Inc.** **One Letterman Drive, Building A, Suite A4-300** **San Francisco, CA 94129**	**Brian K. Rosenzweig** **Alicia Zhang** **Charles A. Dobb** **Covington & Burling LLP** **30 Hudson Yards** **New York, NY 10001** **(212) 841-1000**

Approximate date of commencement of proposed sale to the public: As soon as practicable after the effective date of this registration statement.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box. ☐

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☒ **333-297456**

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

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. ☐

The Registration Statement shall become effective upon filing in accordance with Rule 462(b) promulgated under the Securities Act of 1933, as amended.

EXPLANATORY NOTE AND INCORPORATION BY REFERENCE

This Registration Statement is being filed pursuant to Rule 462(b) under the Securities Act of 1933, as amended (the "Securities Act"), for the sole purpose of increasing the aggregate number of shares of common stock offered by Braveheart Bio, Inc. (the "Registrant") by 2,875,000 shares, 375,000 of which are subject to purchase upon exercise of the underwriters' option to purchase additional shares of the Registrant's common stock. The contents of the Registration Statement on Form S-1, as amended (File No. 333-297456), filed by the Registrant with the Securities and Exchange Commission (the "Commission") pursuant to the Securities Act, which was declared effective by the Commission on August 5, 2026, including all exhibits thereto (the "Prior Registration Statement"), are incorporated by reference into this Registration Statement. The additional shares of common stock that are being registered for issuance and sale pursuant to this Registration Statement are in an amount and at a price that together represents no more than 20% of the maximum aggregate offering price set forth in the filing fee table filed as Exhibit 107 of the Prior Registration Statement.

The required opinion and consents are listed on an Exhibit Index attached hereto and filed herewith.

EXHIBIT INDEX

Exhibit No.	Exhibit Index
5.1	Opinion of Goodwin Procter LLP.
23.1	Consent of Independent Registered Public Accounting Firm.
23.2	Consent of Goodwin Procter LLP (included in Exhibit 5.1)
24.1*	Power of Attorney (included on signature page).
107	Filing Fee Table

* Previously filed on the signature page to the Registrant's Registration Statement on Form S-1, as amended (File No. 333-297456), originally filed with the Securities and Exchange Commission on July 15, 2026 and incorporated by reference herein.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant has duly caused this registration statement on Form S-1 to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of San Francisco, California, on the 5th day of August, 2026.

BRAVEHEART BIO, INC.

By:	/s/ Travis Murdoch
Name:	Travis Murdoch, M.D.
Title:	Chief Executive Officer and President

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement on Form S-1 has been signed by the following person in the capacities and on the date indicated.

Signature	Title	Date
/s/ Travis Murdoch Travis Murdoch, M.D.	President, Chief Executive Officer and Director (*Principal Executive Officer*)	August 5, 2026
/s/ J. Paul Rickey J. Paul Rickey	Chief Financial Officer (*Principal Financial Officer and Principal Accounting Officer*)	August 5, 2026
* Christopher Viehbacher	Chairman of the Board of Directors	August 5, 2026
* Jasper Bos, Ph.D.	Director	August 5, 2026
* Erez Chimovits, M.B.A., M.Sc.	Director	August 5, 2026
* Jason Coloma, Ph.D., M.B.A.	Director	August 5, 2026
* Tim Lohoff, Ph.D.	Director	August 5, 2026
* David C. Lubner	Director	August 5, 2026
* David Malek, M.B.A.	Director	August 5, 2026

* By: /s/ Travis Murdoch
Travis Murdoch
Attorney-in-Fact

Calculation of Filing Fee Tables

S-1

Braveheart Bio, Inc.

Table 1: Newly Registered and Carry Forward Securities ☐Not Applicable

		Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee	Carry Forward Form Type	Carry Forward File Number	Carry Forward Initial Effective Date	Filing Fee Previously Paid in Connection with Unsold Securities to be Carried Forward
Newly Registered Securities													
Fees to be Paid	1	Equity	Common Stock, par value $0.0001 per share	457(a)	2,875,000	$ 18.00	$ 51,750,000.00	0.0001381	$ 7,146.68				
Fees Previously Paid													
Carry Forward Securities													
Carry Forward Securities													
						Total Offering Amounts:	$ 51,750,000.00		$ 7,146.68				
						Total Fees Previously Paid:			$ 0.00				
						Total Fee Offsets:			$ 0.00				
						Net Fee Due:			$ 7,146.68				

Offering Note

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(a) Represents only the additional number of shares being registered and includes 375,000 shares of common stock that the underwriters have the option to purchase. Does not include the securities that the Registrant previously registered on the Registration Statement on Form S-1 (File No. 333-297456), as amended (the "Prior Registration Statement").
(b) Estimated solely for the purpose of computing the registration fee in accordance with Rule 457(a) under the Securities Act of 1933, as amended (the "Securities Act").
(c) The Registrant previously registered securities on the Prior Registration Statement having a proposed maximum aggregate offering price of $366,562,500.00, which was declared effective by the Securities and Exchange Commission on August 5, 2026. In accordance with Rule 462(b) under the Securities Act, an additional amount of securities having a proposed maximum aggregate offering price of $18.00 per share is hereby registered, which includes shares issuable upon the exercise of the underwriters' option to purchase additional shares.

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
Rules 457(b) and 0-11(a)(2)												
Fee Offset Claims												
Fee Offset Sources												
Rule 457(p)												
Fee Offset Claims												
Fee Offset Sources												

Table 3: Combined Prospectuses ☑Not Applicable

	Security Type	Security Class Title	Amount of Securities Previously Registered	Maximum Aggregate Offering Price of Securities Previously Registered	Form Type	File Number	Initial Effective Date

August 5, 2026

Braveheart Bio, Inc.
One Letterman Drive, Building A, Suite A4-300
San Francisco, CA 94129

Re: Securities Registered under Registration Statement on Form S-1

We have acted as counsel to you in connection with your filing of (i) a Registration Statement on Form S-1 (File No. 333-297456) (as amended or supplemented, the "Initial Registration Statement") pursuant to the Securities Act of 1933, as amended (the "Securities Act") and (ii) a second Registration Statement on Form S-1 filed pursuant to Rule 462(b) promulgated under the Securities Act (the "462(b) Registration Statement," and together with the Initial Registration Statement, the "Registration Statement"). This opinion letter is being furnished to you in connection with your filing of the 462(b) Registration Statement relating to the registration of the offering by Braveheart Bio, Inc., a Delaware corporation (the "Company"), of up to 2,875,000 shares (the "Shares") of the Company's Common Stock, $0.0001 par value per share, including Shares purchasable by the underwriters upon their exercise of an over-allotment option granted to the underwriters by the Company. The Shares are being sold to the several underwriters named in, and pursuant to, an underwriting agreement among the Company and such underwriters (the "Underwriting Agreement").

We have reviewed such documents and made such examination of law as we have deemed appropriate to give the opinions set forth below. We have relied, without independent verification, on certificates of public officials and, as to matters of fact material to the opinions set forth below, on certificates of officers of the Company.

The opinion set forth below is limited to the Delaware General Corporation Law.

Based on the foregoing, we are of the opinion that the Shares have been duly authorized and, when delivered and paid for in accordance with the terms of the Underwriting Agreement, will be validly issued, fully paid and non-assessable.

This opinion letter and the opinion it contains shall be interpreted in accordance with the Core Opinion Principles as published in 74 *Business Lawyer* 815 (Summer 2019).

We hereby consent to the inclusion of this opinion as Exhibit 5.1 to the 462(b) Registration Statement and to the references to our firm under the caption "Legal Matters" in the Registration Statement. In giving our consent, we do not 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/ Goodwin Procter LLP

GOODWIN PROCTER LLP

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statement on Form S-1 filed pursuant to Rule 462(b) of the Securities Act of 1933 of the reference to our firm under the caption “Experts” and to the incorporation by reference of our report dated April 29, 2026 (except for the effects of the reverse stock split described in Note 12, as to which the date is July 29, 2026), with respect to the financial statements of Braveheart Bio, Inc. included in Amendment No. 1 to the Registration Statement (Form S-1 No. 333-297456) and related Prospectus of Braveheart Bio, Inc. for the registration of its common stock.

/s/ Ernst & Young LLP

San Mateo, California
August 5, 2026