

**PROSPECTUS SUPPLEMENT**  
**(to Prospectus Supplement dated May 1, 2026**  
**and Prospectus dated February 10, 2025)**



**FibroBiologics, Inc.**

**Up to \$7,500,000**  
**Common Stock**

This prospectus supplement (this “Supplement”) amends, modifies, supersedes and supplements certain information contained in, and should be read in conjunction with, our prospectus supplement, dated May 1, 2026 (the “Original Prospectus Supplement”), and the accompanying base prospectus, dated February 10, 2025 (the “Base Prospectus”) and, collectively with the Original Prospectus Supplement, the “Prospectus”) filed as part of our registration statement on Form S-3 (File No. 333-284663) (the “Registration Statement”), as supplemented by the Prospectus, relating to the offering, issuance and sale by us of our Common Stock, par value \$0.00001 per share (the “Common Stock”), from time to time that may be issued and sold under the At The Market Offering Agreement (the “Sales Agreement”), dated May 1, 2026, by and between us and H.C. Wainwright & Co., LLC (“Wainwright”). This Supplement should be read in conjunction with the Prospectus, and is qualified by reference thereto, except to the extent that the information herein amends or supersedes the information contained in the Prospectus. This Supplement is not complete without, and may only be delivered or utilized in connection with, the Prospectus, and any future amendments or supplements thereto.

We are filing this Supplement to amend the Prospectus to update the maximum amount of our Common Stock we are eligible to sell under the Registration Statement pursuant to General Instruction I.B.6 of Form S-3. As a result of these limitations and the current public float of our Common Stock calculated as set forth below, and in accordance with the terms of the Sales Agreement, we may offer and sell our Common Stock having an aggregate offering price of up to \$7,500,000 from time to time through Wainwright, which does not include the Common Stock having an aggregate sales price of approximately \$8.14 million that were sold during the 12 calendar months prior to, and including, the date of this prospectus supplement (but excluding the shares of common stock offered pursuant to this Supplement). We have sold an aggregate of approximately \$0.17 million pursuant to the Original Prospectus Supplement. In the event that we may sell additional amounts under the Sales Agreement and in accordance with General Instruction I.B.6 of Form S-3, we will file another prospectus supplement prior to making such additional sales.

Our Common Stock is traded on the Nasdaq Capital Market (“Nasdaq”), under the symbol “FBLG.” On May 4, 2026, the closing sale price of our Common Stock on Nasdaq was \$1.38 per share.

As of the date of this Supplement, the aggregate market value of our outstanding Common Stock held by non-affiliates was approximately \$47.0 million, which was calculated based on 5,399,112 shares of outstanding Common Stock held by non-affiliates as of May 5, 2026, at a price per share of \$8.70, the closing sale price of our Common Stock on Nasdaq on March 6, 2026. In no event will we sell shares of our Common Stock pursuant to this prospectus supplement and accompanying prospectus with a value exceeding more than one-third of our public float in any 12 calendar month period if, and for so long as, our public float is below \$75 million at the date of measurement. During the 12 calendar months prior to, and including, the date of this Supplement (but excluding the shares of common stock offered pursuant to this Supplement), we have sold approximately \$8.14 million of shares of our Common Stock pursuant to General Instruction I.B.6 of Form S-3.

We are an “emerging growth company” and a “smaller reporting company” as defined under the federal securities laws and, as such, have elected to comply with certain reduced public company reporting requirements for this prospectus and may elect to do so in future filings. See “Prospectus Supplement Summary—Implications of Being an Emerging Growth Company and a Smaller Reporting Company” page S-5 of the Original Prospectus Supplement.

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**Investing in our Common Stock involves a high degree of risk. You should read carefully and consider the information contained in and incorporated by reference under “Risk Factors” beginning on page S-8 of the Original Prospectus Supplement and beginning on page 3 of the base prospectus and under the caption “Risk Factors” in our most recently filed Annual Report on**

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Form 10-K and most recently filed Quarterly Report on Form 10-Q, each as filed with the Securities and Exchange Commission, which are incorporated herein by reference in their entirety.

Neither the Securities and Exchange Commission (the "SEC") nor any state securities commission has approved or disapproved of these securities or determined if this prospectus supplement or the accompanying prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

## **H.C. Wainwright & Co.**

The date of this prospectus supplement is May 5, 2026.

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