

PROSPECTUS SUPPLEMENT
(to the Prospectus dated October 7, 2024)



6,189,786 Shares of Common Stock

This prospectus supplement (“Prospectus Supplement”) supplements the prospectus dated October 7, 2024 (the “Base Prospectus”) relating to the resale by the selling stockholders (the “Selling Stockholders”) identified in this Base Prospectus under the section “*The Selling Stockholders*,” or their pledgees, donees, transferees or other successors in interest, from time to time, of (i) up to 506,390 shares of our common stock, par value \$0.001 per share (“Common Stock”), issuable upon exercise of the warrants granted to Oaktree Fund Administration, LLC (“Oaktree”) and certain of its affiliates (the “2024 Selling Stockholders”), pursuant to the senior secured credit agreement dated as of July 25, 2024 by and between Fortress Biotech, Inc. (the “Company”), Oaktree, as administrative agent and the lenders from time to time party thereto (ii) up to 14,450 shares of Common Stock the resale of which is now registrable as a result of the anti-dilution mechanism of the warrants granted to certain of the Selling Stockholders (the “2020 Selling Stockholders”) pursuant to the senior secured credit agreement dated as of August 27, 2020 by and between the Company, Oaktree, as administrative agent and the lenders from time to time party thereto; (iii) up to 202,834 shares of Common Stock issuable upon exercise of the warrants granted to certain affiliates of Harley Capital, LLC (the “Harley Selling Stockholders”) pursuant to the terms of the letter agreement dated December 8, 2022 by and among Harley Capital, LLC, Urica Therapeutics, Inc., a controlled subsidiary of the Company, and the Company; (iv) up to 4,702,753 shares of Common Stock (the “PIPE Warrant Shares”) issuable upon exercise of the warrants sold to certain Selling Stockholders (the “PIPE Selling Stockholders”) pursuant to the terms of certain purchase agreements, each dated September 19, 2024, by and among the PIPE Selling Stockholders and the Company (the “PIPE Purchase Agreements” and each a “PIPE Purchase Agreement”); and (v) 763,359 shares of Common Stock issued to Lindsay A. Rosenwald, M.D., our Chairman, President and Chief Executive Officer, pursuant to a PIPE Purchase Agreement.

The purpose of this Prospectus Supplement is solely to supplement and amend the selling stockholder table set forth under the section “*The Selling Stockholders*” beginning on page 5 of the Base Prospectus to reflect the transfer by Oaktree Loan Acquisition Fund, L.P. of a warrant exercisable for 302,092 shares of our common stock to Oaktree LSL Equity Holdings, LLC and update the holdings of the other selling stockholders included in the Base Prospectus.

This Prospectus Supplement is not complete without, and may not be utilized except in connection with, the Base Prospectus. This Prospectus Supplement is qualified by reference to the Base Prospectus, except to the extent that the information provided by this Prospectus Supplement supersedes information contained in the prospectus.

Our Common Stock is listed on The Nasdaq Capital Market, or Nasdaq, under the symbol “FBIO.” The last reported sale price of our common shares on July 31, 2025, was \$1.85 per share.

Investing in our securities involves a high degree of risk. See “*Risk Factors*” beginning on page 4 of the Base Prospectus as well as the information under the caption “*Risk Factors*” in our Annual Report on Form 10-K for the year ended December 31, 2024 and in our Quarterly Report on Form 10-Q for the quarter ended March 31, 2025, and in the other documents incorporated by reference into this prospectus supplement and the accompanying prospectus for a discussion of the risks and uncertainties you should carefully consider before investing in our securities.

Neither the Securities and Exchange Commission (the “SEC”) nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus supplement or the accompanying prospectus. Any representation to the contrary is a criminal offense.

The date of this Prospectus Supplement is August 1, 2025

THE SELLING STOCKHOLDERS

The table on page 6 of the Base Prospectus sets forth information with respect to the selling stockholders and the respective amounts of shares of Common Stock beneficially owned by each selling stockholder that may be offered pursuant to the Base Prospectus. The purpose of this Prospectus Supplement is to (i) reflect transfer by Oaktree Loan Acquisition Fund, L.P. of a warrant exercisable for 302,092 shares of our common stock to Oaktree LSL Equity Holdings, LLC and (ii) update the holdings of the other selling stockholders included in the Base Prospectus, in each case, by amending and restating that table in its entirety related to the offering of the remaining 6,189,786 shares of our common stock.

Information with respect to shares owned beneficially after the offering assumes the sale of all of the shares offered and no other purchases or sales of common stock. To our knowledge, except set forth on pages 7-8 of the Base Prospectus, no selling stockholder or any of their affiliates has held any position or office with, been employed by, or otherwise has held any material relationship with us or our affiliates during the three years prior to the date of this Prospectus Supplement.

We have prepared the following table based on information given to us by, or on behalf of, the selling stockholders on or before August 1, 2025. We have not independently verified this information. Information about the selling stockholders may change over time. In addition, the selling stockholders may have sold, transferred or otherwise disposed of, or may sell, transfer or otherwise dispose of, at any time and from time to time, shares of our common stock in transactions exempt from the registration requirements of the Securities Act after the date on which they provided the information set forth on the table below.

Selling Stockholder Information:

Selling Stockholders⁽¹⁾	Shares Owned Immediately Prior to the Offering⁽²⁾	Shares Being Offered for Resale Under this Prospectus⁽³⁾	Number of Shares Beneficially Owned After Sale of Shares⁽⁴⁾	Percentage of Outstanding Shares of Common Stock Beneficially Owned Immediately Following the Sale of Shares⁽⁵⁾
2024 Selling Stockholders				
Oaktree AZ Strategic Lending Fund, L.P.	150,762	150,762	—	* %
Oaktree LSL Equity Holdings, LLC	302,092	302,092	—	* %
Oaktree LSL Fund Delaware Holdings EURRC, L.P.	53,536	53,536	—	* %
2020 Selling Stockholders				
Oaktree-TCDRS Strategic Credit, LLC	6,226	686	5,540	* %
Exelon Strategic Credit Holdings, LLC	3,730	411	3,319	* %
Oaktree-NGP Strategic Credit, LLC	6,251	689	5,562	* %
Oaktree-Minn Strategic Credit LLC	3,020	333	2,687	* %
Oaktree-Forrest Multi-Strategy LLC	5,089	561	4,528	* %
Oaktree-TBMR Strategic Credit Fund C, LLC	2,948	325	2,623	* %
Oaktree-TBMR Strategic Credit Fund F, LLC	4,599	507	4,092	* %
Oaktree-TBMR Strategic Credit Fund G, LLC	7,531	830	6,701	* %
Oaktree-TSE 16 Strategic Credit, LLC	5,746	633	5,113	* %
INPRS Strategic Credit Holdings, LLC	2,518	278	2,240	* %
Oaktree Gilead Investment Fund AIF (Delaware), L.P.	22,526	2,483	20,043	* %
Oaktree Huntington-GCF Investment Fund (Direct Lending AIF) GP, L.P.	2,196	242	1,954	* %
Oaktree Specialty Lending Corporation	31,246	3,445	27,801	* %
Oaktree PRE Life Sciences Fund, L.P.	27,461	3,027	24,434	* %
Harley Selling Stockholders				
Michael Egan	5,000	5,000	—	* %
Amanda Hirsch Tarasoff	10,834	10,834	—	* %
PIPE Selling Stockholders				
Bigger Capital Fund, LP	424,240	212,120	212,120	* %
CVI Investments, Inc. ⁽⁶⁾	1,473,395	500,000	973,395	2.9 %
District 2 Capital Fund LP	484,840	242,420	242,420	* %
Highbridge Tactical Credit Institutional Fund, Ltd. ⁽⁷⁾	409,185	409,185	—	* %
Highbridge Tactical Credit Master Fund, L.P. ⁽⁸⁾	2,325,469	2,325,469	—	* %
Lindsay A. Rosenwald	6,751,497	1,526,718	5,224,779	15.5 %
Richard Molinsky	200,000	100,000	100,000	* %
Robert Forster	300,000	150,000	150,000	* %
Total	14,016,413	6,189,786	7,826,786	23.2 %

* Less than 1%.

- (1) The principal business address and address for notice to the Selling Stockholders will be the address set forth in our books and records.
- (2) This includes, for each Selling Stockholder, any shares of Common Stock beneficially owned by such holder acquired in one or more transactions separate and unrelated from the holder's ownership of any of the 2024 Warrant Shares, the 2020 Warrant Shares, the Harley Warrant Shares, the PIPE Warrant Shares and the Chairman Shares.
- (3) This includes, for each Selling Stockholder, (i) the 2024 Warrant Shares being sold hereunder; (ii) the 2020 Warrant Shares being sold hereunder; (iii) the Harley Shares being sold hereunder; (iv) the PIPE Warrant Shares being sold hereunder; and (v) the Chairman Shares being sold hereunder.
- (4) Assumes the Selling Stockholders sell all of the shares of Common Stock being offered by this prospectus.
- (5) Percentage calculated based upon the assumption that the Selling Stockholders sell all of the shares of Common Stock offered by this prospectus.
- (6) Heights Capital Management, Inc., the authorized agent of CVI Investments, Inc. ("CVI"), has discretionary authority to vote and dispose of the shares held by CVI and may be deemed to be the beneficial owner of these shares. Martin Kobinger, in his capacity as Investment Manager of Heights Capital Management, Inc., may also be deemed to have investment discretion and voting power over the shares held by CVI. Mr. Kobinger disclaims any such beneficial ownership of the shares. CVI Investments, Inc. is affiliated with one or more FINRA members, none of whom are currently expected to participate in the sale pursuant to the prospectus contained in the Registration Statement of Resale Shares purchased by the investor in this private placement of the PIPE Warrants.
- (7) Highbridge Capital Management, LLC is the trading manager of Highbridge Tactical Credit Institutional Fund, Ltd. Highbridge Tactical Credit Institutional Fund, Ltd. disclaims beneficial ownership over these shares. The address of Highbridge Capital Management, LLC is 277 Park Avenue, 23rd Floor, New York, NY 10172, and the address of Highbridge Tactical Credit Institutional Fund, Ltd. is c/o Maples Corporate Services Limited #309 Ugland House, South Church Street, George Town, Grand Cayman KY1-1104, Cayman Islands.
- (8) Highbridge Capital Management, LLC is the trading manager of Highbridge Tactical Credit Master Fund, L.P. Highbridge Tactical Credit Master Fund, L.P. disclaims beneficial ownership over these shares. The address of Highbridge Capital Management, LLC is 277 Park Avenue, 23rd Floor, New York, NY 10172, and the address of Highbridge Tactical Credit Master Fund, L.P. is c/o Maples Corporate Services Limited #309 Ugland House, South Church Street, George Town, Grand Cayman KY1-1104, Cayman Islands.