

**PROSPECTUS SUPPLEMENT NO. 1**  
**(To Prospectus dated April 29, 2025)**



**16,894,212 Shares of Common Stock**

This prospectus supplement supplements the prospectus dated April 29, 2025, relating to the resale by the selling stockholders identified in the prospectus (each, a “Selling Stockholder,” and collectively, the “Selling Stockholders”) of up to an aggregate of 16,894,212 shares of Matinas Biopharma Holdings, Inc. (the “Company”) common stock, par value \$0.0001 per share (“Common Stock”) consisting of (i) 5,631,404 shares of Common Stock issuable upon the conversion of 3,300 shares of the Company’s Series C Convertible Preferred Stock, par value \$0.0001 (the “Preferred Stock”), and (ii) 11,262,808 shares of Common Stock (the “Warrant Shares”) issuable upon the exercise of warrants (the “Warrants”).

**This prospectus supplement is being filed solely to update the list of Selling Stockholders to reflect (x) the distribution of (i) 1,406 shares of Preferred Stock and (ii) Warrants to purchase 4,798,636 Warrant Shares, previously issued to Sanitam Partners LLC (“Sanitam”), to its underlying equityholders and (y) the assignment of (i) 265 shares of Preferred Stock and (ii) Warrants to purchase 800,000 Warrant Shares, previously issued to Platinum Point Capital LLC (“Platinum Point”), to SternAegis Ventures LLC Defined Benefit Plan for the Benefit of Adam K. Stern. No additional securities are being registered by this prospectus supplement. The shares covered hereby were previously registered for resale pursuant to the registration statement referenced herein.**

You should read this prospectus supplement, together with the related prospectus and the additional information described under the headings “Incorporation of Certain Information by Reference” and “Where You Can Find More Information” carefully before you invest in any of our securities.

Our Common Stock is listed on the NYSE American LLC (“NYSE American”) under the symbol “MTNB.” On June 18, 2026, the last reported sale price of our Common Stock as reported on NYSE American was \$0.60.

**An investment in our securities involves a high degree of risk. Before deciding whether to invest in our securities, you should consider carefully the risks and uncertainties described in the section captioned “Risk Factors” contained in our Annual Report on Form 10-K for the fiscal year ended December 31, 2025, filed with the Securities and Exchange Commission, or the SEC, on March 31, 2026 and our other filings we make with the SEC from time to time, which are incorporated by reference herein in their entirety, together with other information in this prospectus and the information incorporated by reference herein.**

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

The date of this prospectus supplement is June 22, 2026.

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The following information is provided to update the Selling Stockholders table in the prospectus to reflect (i) the distribution of shares of Preferred Stock and Warrants, previously issued to Sanitam, to its underlying investors and (ii) the assignment of shares of Preferred Stock and Warrants, previously issued to Platinum Point, to SternAegis Ventures LLC Defined Benefit Plan for the Benefit of Adam K. Stern. This prospectus supplement includes information with respect to Selling Stockholders not previously listed in the prospectus.

### SELLING STOCKHOLDERS

The following information is provided as of June 22, 2026 to update the “Selling Shareholders” section of the Prospectus to reflect (i) the pro rata distribution by Sanitam to its equityholders of 1,406 shares of Preferred Stock and Warrants to Purchase 4,798,636 Warrant Shares, and (ii) the assignment by Platinum Point to SternAegis Ventures LLC Defined Benefit Plan for the Benefit of Adam K. Stern of 265 shares of Preferred Stock and Warrants to Purchase 800,000 Warrant Shares, as reflected in the table set forth below.

With respect to only the Selling Shareholders listed in the table below, the information set forth in the table below supersedes and replaces the information regarding such Selling Shareholders in the Prospectus. Information regarding each of the Selling Shareholders listed in the table below is based on information provided by each of them as of the date of this prospectus supplement.

Information about the Selling Shareholders, including those listed below, may change over time. Since the date of the Prospectus, certain of the Selling Shareholders listed below have sold a portion of their shares of Common Stock registered thereunder and certain other Selling Shareholders may also have sold or otherwise transferred their shares of Common Stock registered thereunder. This prospectus supplement does not provide any updates with respect to any Selling Shareholders not listed in the table below.

<b>Name of Selling Stockholders</b>	<b>Shares Owned prior to Offering</b>	<b>Shares Offered by this Prospectus</b>	<b>Shares Owned after Offering</b>	<b>Percentage of Shares Beneficially Owned after Offering (1)(18)</b>
Cheryl Hintzen (2)	1,535,835(3)	1,535,835	-	-
AKS Family Partners, LP (4)	589,254(5)	517,064	72,190(5)	1.04%
DSN Ventures LLC (6)	1,732,419(7)	1,689,419	43,000	*
Zemel Family Trust (8)	844,709(9)	844,709	-	-
TSSC Outlot LLC (10)	307,167(11)	307,167	-	-
Lester Petracca (12)	767,918(13)	767,918	-	-
John Lipman (14)	1,535,837(15)	1,535,837	-	-
SternAegis Ventures LLC Defined Benefit Plan for the Benefit of Adam K. Stern (16)	1,273,568(17)	1,252,218	21,350(17)	*

\* Less than 1 percent

- (1) Percentages are based on 6,406,191 shares of Common Stock outstanding as of June 22, 2026.
  - (2) The address of Cheryl Hintzen is 7000 N 16<sup>th</sup> St., Phoenix, AZ 85020.
  - (3) Includes (i) 511,945 shares of Common Stock issuable upon conversion of Preferred Stock and (ii) 1,023,890 shares of Common Stock issuable upon exercise of Warrants.
  - (4) Adam Stern is the General Partner of AKS Family Partners, LP and has voting and investment control over the securities held by AKS Family Partners, LP, AKS Family Foundation, Stern Aegis Ventures, LLC Defined Benefit Plan for the Benefit of Adam K. Stern, Pavillion Capital Partners LLC, Piper Venture Partners LLC, IRA Adam K. Stern - Rollover IRA and Stern Aegis Ventures LLC 401k Plan for the Benefit of Adam K. Stern. The address of AKS Family Partners, LP is 888 C 8th Ave #530, New York, NY 10019.
  - (5) Includes the following shares owned by AKS Family Partners, LP: (i) 172,354 shares of Common Stock issuable upon conversion of Preferred Stock, (ii) 344,710 shares of Common Stock issuable upon exercise of Warrants and (iii) 72,190 shares of Common Stock. Excludes (x) the following shares owned by Stern Aegis Ventures LLC Defined Benefit Plan for the Benefit of Adam K. Stern: (i) 452,218 shares of Common Stock issuable upon conversion of Preferred Stock, (ii) 800,000 shares of Common Stock issuable upon exercise of Warrants and (iii) 21,350 shares of Common Stock, and (y) (i) 28,260 shares of Common Stock owned by Mr. Stern, (ii) 26,500 shares of Common Stock owned by AKS Family Foundation, (iii) 6,000 shares of Common Stock owned by Pavillion Capital Partners LLC of which Mr. Stern is the Managing Member, (iv) 6,000 shares of Common Stock owned by Piper Venture Partners LLC of which Mr. Stern is the Managing Member, (v) 1,000 shares of Common Stock owned by IRA Adam K. Stern - Rollover IRA and (vi) 3,000 shares of Common Stock owned by Stern Aegis Ventures LLC 401k Plan for the Benefit of Adam K. Stern.
  - (6) David Nagelberg is the Manager of DSN Ventures LLC and has voting and investment control over the securities held by DSN Ventures LLC. The address of DSN Ventures LLC is 1100 S. Flagler Drive, Unit 1502, West Palm Beach, FL 33401.
  - (7) Includes (i) 563,139 shares of Common Stock issuable upon conversion of Preferred Stock, (ii) 1,126,280 shares of Common Stock issuable upon exercise of Warrants and (iii) 43,000 shares of Common Stock.
  - (8) Barry Zemel is the Trustee of Zemel Family Trust and has voting and investment control over the securities held by Zemel Family Trust. The address of Zemel Family Trust is PO Box 47638, Phoenix, AZ 85068.
  - (9) Includes (i) 281,569 shares of Common Stock issuable upon conversion of Preferred Stock and (ii) 563,140 shares of Common Stock issuable upon exercise of Warrants.
  - (10) Douglas Gannett is the Manager of TSSC Outlot LLC and has voting and investment control over the securities held by TSSC Outlot LLC. The address of TSSC Outlot LLC is 2871 Eastside Hwy, Stevensville, MT 59870.
  - (11) Includes (i) 102,389 shares of Common Stock issuable upon conversion of Preferred Stock and (ii) 204,778 shares of Common Stock issuable upon exercise of Warrants.
  - (12) The address of Lester Petracca is 25 Bonnie Heights Road, Manhasset, NY 11030.
  - (13) Includes (i) 255,972 shares of Common Stock issuable upon conversion of Preferred Stock and (ii) 511,946 shares of Common Stock issuable upon exercise of Warrants.
  - (14) The address of John Lipman is 55 Buckfield Lane, Greenwich, CT 06831.
  - (15) Includes (i) 511,945 shares of Common Stock issuable upon conversion of Preferred Stock and (ii) 1,023,892 shares of Common Stock issuable upon exercise of Warrants.
  - (16) Adam Stern is the Trustee of Stern Aegis Ventures LLC Defined Benefit Plan for the Benefit of Adam K. Stern and has voting and investment control over the securities held by SternAegis Ventures LLC Defined Benefit Plan for the Benefit of Adam K. Stern, AKS Family Partners, LP, AKS Family Foundation, Pavillion Capital Partners LLC, Piper Venture Partners LLC, IRA Adam K. Stern - Rollover IRA and Stern Aegis Ventures LLC 401k Plan for the Benefit of Adam K. Stern. The address of SternAegis Ventures LLC Defined Benefit Plan for the Benefit of Adam K. Stern is 888 C 8th Ave #530 New York, NY 10019.
  - (17) Includes the following shares owned by Stern Aegis Ventures LLC Defined Benefit Plan for the Benefit of Adam K. Stern: (i) 452,218 shares of Common Stock issuable upon conversion of Preferred Stock, (ii) 800,000 shares of Common Stock issuable upon exercise of Warrants and (iii) 21,350 shares of Common Stock. Excludes (x) the following shares owned by AKS Family Partners, LP: (i) 172,354 shares of Common Stock issuable upon conversion of Preferred Stock, (ii) 344,710 shares of Common Stock issuable upon exercise of Warrants and (iii) 72,190 shares of Common Stock and (y)(i) 28,260 shares of Common Stock owned by Mr. Stern, (ii) 26,500 shares of Common Stock owned by AKS Family Foundation, (iii) 6,000 shares of Common Stock owned by Pavillion Capital Partners LLC of which Mr. Stern is the Managing Member, (iv) 6,000 shares of Common Stock owned by Piper Venture Partners LLC of which Mr. Stern is the Managing Member, (v) 1,000 shares of Common Stock owned by IRA Adam K. Stern - Rollover IRA and (vi) 3,000 shares of Common Stock owned by Stern Aegis Ventures LLC 401k Plan for the Benefit of Adam K. Stern.
  - (18) The actual number of shares that may be acquired by the Selling Shareholder is not currently known. The shares of Common Stock issuable upon conversion of the Preferred Stock are subject to a beneficial ownership limitation of 9.99% and the shares of Common Stock issuable upon exercise of the Warrants are subject to a beneficial ownership limitation of 4.99%, which limitations restrict the Selling Shareholder from converting an amount of Preferred Stock and/or exercising that portion of the Warrants that would result in the Selling Shareholder and its affiliates owning upon such conversion and/or exercise a number of shares of Common Stock in excess of the beneficial ownership limitation of 9.99% or 4.99%, respectively.
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