
**United States
Securities and Exchange Commission
Washington, D.C. 20549**

SCHEDULE 14A

**Proxy Statement Pursuant to Section 14(a) of the
Securities Exchange Act of 1934**

Filed by the Registrant
Filed by a Party other than the Registrant

Check the appropriate box:

- Preliminary Proxy Statement
 Confidential, For Use of the Commission Only (as permitted by Rule 14a-6(e)(2))
 Definitive Proxy Statement
 Definitive Additional Materials
 Soliciting Materials Pursuant to Rule 14a-12

MATINAS BIOPHARMA HOLDINGS, INC.

(Name of Registrant as Specified in Its Charter)

(Name of Person(s) Filing Proxy Statement, if Other Than the Registrant)

Payment of Filing Fee (Check the appropriate box):

- No fee required.

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- Fee paid previously with preliminary materials:
 Fee computed on table in exhibit required by Item 25(b) per Exchange Act Rules 14a-6(i)(1) and 0-11

MATINAS BIOPHARMA HOLDINGS, INC.

**1545 ROUTE 206 SOUTH
SUITE 302
BEDMINSTER NJ 07921**

NOTICE OF ANNUAL MEETING OF STOCKHOLDERS

To be held on November 1, 2023

To the Stockholders of
Matinas BioPharma Holdings, Inc.

NOTICE IS HEREBY GIVEN that the Annual Meeting of Stockholders of Matinas BioPharma Holdings, Inc. (the "Company") will be held via the internet on November 1, 2023, beginning at 9 a.m. local time. Shareholders will be able to listen, vote and ask questions regardless of location via the internet at www.virtualshareholdermeeting.com/MTNB2023 by using the control number included on your notice regarding the availability of proxy materials, proxy card (printed in the box and marked by the arrow) and the instructions that accompanied your proxy materials. **You will not be able to attend the Annual Meeting in person.** At the Annual Meeting, stockholders will act on the following matters:

- To elect seven directors to serve until the next Annual Meeting of Stockholders and until their respective successors shall have been duly elected and qualified;
- To approve, on an advisory basis, the compensation of the Company's named executive officers;
- To ratify the appointment of EisnerAmper LLP as our independent registered public accounting firm for the year ending December 31, 2023;
- To approve an amendment to our Certificate of Incorporation to effect a reverse stock split of our common stock at a ratio in the range of 1-for-2 to 1-for-50, with such reverse stock split to be effected at such ratio, time and date, if at all, as determined by our Board of Directors in its sole discretion, and simultaneously with the reverse stock split, reduce the total number of authorized shares of Common Stock to 250,000,000; and
- To consider any other matters that may properly come before the Annual Meeting.

Only stockholders of record of our common stock at the close of business on September 5, 2023 are entitled to receive notice of and to vote at the Annual Meeting or any postponement or adjournment thereof.

Your vote is important. Whether you plan to attend the meeting virtually or not, you may vote your shares online or by marking, signing, dating and mailing the enclosed proxy card in the envelope provided. If you attend the meeting virtually and prefer to vote during the meeting, you may do so even if you have already voted your shares. You may revoke your proxy in the manner described in the proxy statement at any time before it has been voted at the meeting.

By Order of the Board of Directors

/s/ Jerome D. Jabbour

Jerome D. Jabbour
Chief Executive Officer

September 19, 2023
Bedminster, New Jersey

**MATINAS BIOPHARMA HOLDINGS, INC.
1545 ROUTE 206 SOUTH
SUITE 302
BEDMINSTER NJ 07921**

PROXY STATEMENT

This proxy statement contains information related to the Annual Meeting of Stockholders to be held on November 1, 2023 at 9 a.m. local time via the internet at www.virtualshareholdermeeting.com/MTNB2023, or at such other time and place to which the Annual Meeting may be adjourned or postponed. The enclosed proxy is solicited by the Board of Directors of Matinas BioPharma Holdings, Inc. (the "Board"). The proxy materials relating to the Annual Meeting are being mailed to stockholders entitled to vote at the meeting on or about September 19, 2023.

Important Notice of Availability of Proxy Materials for the Annual Meeting of Stockholders to be held on November 1, 2023.

Our proxy materials, including our Proxy Statement for the 2023 Annual Meeting, our Annual Report for the fiscal year ended December 31, 2022 and proxy card are available on the Internet at www.proxyvote.com. Under Securities and Exchange Commission rules, we are providing access to our proxy materials by notifying you of the availability of our proxy materials on the Internet.

ABOUT THE MEETING

Why are we calling this Annual Meeting?

We are calling the Annual Meeting to seek the approval of our stockholders:

- To elect seven directors to serve until the next Annual Meeting of Stockholders and until their respective successors shall have been duly elected and qualified;
- To approve, on an advisory basis, the compensation of the Company's named executive officers;
- To ratify the appointment of EisnerAmper LLP as our independent registered public accounting firm for the year ending December 31, 2023;
- To approve, an amendment to our Certificate of Incorporation to effect a reverse stock split of our common stock at a ratio in the range of 1-for-2 to 1-for-50, with such reverse stock split to be effected at such ratio, time and date, if at all, as determined by our Board in its sole discretion, and simultaneously with the reverse stock split, reduce the total number of authorized shares of common stock to 250,000,000 (the "Reverse Stock Split Proposal"); and
- To consider any other matters that may properly come before the Annual Meeting.

What are the Board's recommendations?

Our Board believes that the election of the director nominees identified herein, the approval, on an advisory basis, of the executive compensation of the Company's named executive officers, the appointment of EisnerAmper LLP as our independent registered public accounting firm for the year ending December 31, 2023, and the Reverse Stock Split Proposal are advisable and in the best interests of the Company and its stockholders and recommends that you vote FOR these proposals.

Why did I receive a notice in the mail regarding the Internet availability of the proxy materials instead of a paper copy of the proxy materials?

In accordance with rules adopted by the Securities and Exchange Commission (the "SEC"), we have elected to furnish to our stockholders this Proxy Statement and our 2022 Annual Report by providing access to these documents on the Internet rather than mailing printed copies. Accordingly, a Notice of Internet Availability of Proxy Materials (the "Notice") is being mailed to our stockholders of record and beneficial owners which will direct stockholders to a website where they can access our proxy materials and view instructions on how to vote online or by telephone. If you would prefer to receive a paper copy of our proxy materials, please follow the instructions included in the Notice.

Who is entitled to vote at the meeting?

Only stockholders of record of our common stock at the close of business on the record date, September 5, 2023, are entitled to receive notice of the Annual Meeting and to vote the shares of common stock that they held on that date at the meeting, or any postponement or adjournment of the meeting. Holders of our common stock are entitled to one vote per share on each matter to be voted upon.

As of the record date, we had 217,264,526 outstanding shares of common stock.

Who can attend the meeting?

This year's Annual Meeting will take place virtually through the Internet. There will not be a physical meeting location and you will not be able to attend the Annual Meeting in person. We have designed the format of the Annual Meeting to ensure that our stockholders have the same rights and opportunities to participate as they would at an in-person meeting. You will be able to attend the Annual Meeting online, vote your shares online during the Annual Meeting and submit questions online during the Annual Meeting by visiting www.virtualshareholdermeeting.com/MTNB2023. You are entitled to attend and participate in the Annual Meeting only if you were a stockholder of record as of the close of business on September 5, 2023. To be admitted to the Annual Meeting at www.virtualshareholdermeeting.com/MTNB2023, you must enter the 16-digit control number found on your proxy card, notice of internet availability or other proxy materials. If you do not have a control number, please contact the brokerage firm, bank, dealer, or other similar organization that holds your account as soon as possible so that you can be provided with a control number. The Annual Meeting will begin promptly at 9:00 a.m. local time. We encourage you to access the Annual Meeting before it begins. Online check-in will start 15 minutes before the meeting on November 1, 2023. If you encounter any difficulties accessing the virtual meeting during the check-in or meeting time, please call the technical support number that will be posted on the virtual Annual Meeting log-in page.

What constitutes a quorum?

The presence at the Annual Meeting, virtually or by proxy, of the holders of a majority of our common stock outstanding on the record date will constitute a quorum for our meeting. Signed proxies received but not voted and broker non-votes will be included in the calculation of the number of shares considered to be present at the meeting.

How do I vote?

You can vote on matters that come before the Annual Meeting via the Internet, by following the instructions in the Notice at www.virtualshareholdermeeting.com/MTNB2023, or by submitting your proxy card by mail. If you would prefer to vote by mail, please follow the instructions included in the Notice to receive a paper copy of our proxy materials.

Your shares will be voted as you indicate on your proxy card. If you vote the proxy but do not indicate your voting preferences, and with respect to any other matter that properly comes before the meeting, the individuals named on the proxy card will vote your shares FOR the matters submitted at the meeting, or if no recommendation is given, in their own discretion.

If you are a stockholder of record, to submit your proxy by telephone or via the Internet, follow the instructions on the Notice or proxy card. If you hold your shares in street name, you may vote by telephone or via the Internet as instructed by your broker, bank or other nominee.

If you are a stockholder of record, virtually attend the Annual Meeting and prefer to vote online at the Annual Meeting, you may do so even if you have already voted your shares by proxy. If you hold shares in "street name," however, you must provide a legal proxy executed by your broker or other nominee in order to vote your shares at the Annual Meeting.

What if I vote and then change my mind?

You may revoke your proxy at any time before it is exercised by:

- filing with the Secretary of the Company a notice of revocation;
- sending in another duly executed proxy by telephone, internet or mail bearing a later date; or
- attending the meeting and casting your vote online.

Your latest vote will be the vote that is counted.

What is the difference between holding shares as a stockholder of record and as a beneficial owner?

Many of our stockholders hold their shares through a stockbroker, bank or other nominee rather than directly in their own name. As summarized below, there are some distinctions between shares held of record and those owned beneficially.

Stockholder of Record

If your shares are registered directly in your name with our transfer agent, VStock Transfer, LLC, you are considered, with respect to those shares, the stockholder of record. As the stockholder of record, you have the right to grant your voting proxy directly to us or to vote virtually at the Annual Meeting.

Beneficial Owner

If your shares are held in a stock brokerage account or by a bank or other nominee, you are considered the beneficial owner of shares held in street name, and these proxy materials are being forwarded to you by your broker, bank or nominee which is considered, with respect to those shares, the stockholder of record. As the beneficial owner, you have the right to direct your broker as to how to vote and are also invited to attend the Annual Meeting. However, because you are not the stockholder of record, you may not vote these shares online at the Annual Meeting unless you obtain a signed proxy from the record holder giving you the right to vote the shares. If you do not vote your shares or otherwise provide the stockholder of record with voting instructions, your shares may constitute broker non-votes. The effect of broker non-votes is more specifically described in "What vote is required to approve each proposal?" below.

What vote is required to approve each proposal?

The holders of a majority of our shares of common stock outstanding on the record date must be present, virtually or by proxy, at the Annual Meeting in order to have the required quorum for the transaction of business. Pursuant to Delaware corporate law, abstentions and broker non-votes will be counted for the purpose of determining whether a quorum is present.

Assuming that a quorum is present, the following votes will be required:

- With respect to the election of directors (Proposal No. 1), the seven nominees receiving the highest number of FOR votes (from the holders of shares present virtually or represented by proxy) will be elected as directors.
- With respect to the approval, on an advisory basis, of the compensation of the Company's named executive officers (Proposal No. 2), the ratification of the appointment of EisnerAmper LLP as our independent registered public accounting firm (Proposal No. 3), and the Reverse Stock Split Proposal (Proposal No. 4) approval will require the affirmative vote of a majority of the votes cast virtually or represented by proxy at the Annual Meeting.
- With respect to the approval of any other matter that may properly come before the Annual Meeting, approval will require the affirmative vote of a majority of the votes cast virtually or represented by proxy at the Annual Meeting.

Holders of common stock will not have any dissenters' rights of appraisal in connection with any of the matters to be voted on at the meeting.

What are "broker non-votes"?

Broker non-votes occur when nominees, such as banks and brokers holding shares on behalf of beneficial owners, do not receive voting instructions from the beneficial holders at least ten days before the meeting. If that happens, the nominees may vote those shares only on matters deemed "routine". Nominees cannot vote on non-routine matters unless they receive voting instructions from beneficial holders, resulting in so-called "broker non-votes." The determination of which proposals are deemed "routine" versus "non-routine" may not be made by the New York Stock Exchange until after the date on which this proxy statement has been mailed to you. As such, it is important that you provide voting instructions to your bank, broker or other nominee, if you wish to determine the voting of your shares.

How are we soliciting this proxy?

We are soliciting this proxy on behalf of our Board by mail and will pay all expenses associated therewith. We have engaged MacKenzie Partners, Inc. ("MacKenzie") as the proxy solicitor for the Annual Meeting for an approximate fee of \$3,500 plus fees for additional services, if needed. We have also agreed to reimburse MacKenzie for its reasonable out of pocket expenses. Some of our officers and other employees also may, but without compensation other than their regular compensation, solicit proxies by further mailing or personal conversations, or by telephone, facsimile or other electronic means.

We will also, upon request, reimburse brokers and other persons holding stock in their names, or in the names of nominees, for their reasonable out-of-pocket expenses for forwarding proxy materials to the beneficial owners of the capital stock and to obtain proxies.

PROPOSAL NO. 1: ELECTION OF DIRECTORS

At the Annual Meeting, seven directors are to be elected. All directors of the Company will hold office until the next Annual Meeting of Stockholders or until their respective successors are duly elected and qualified or their earlier resignation or removal. The Board has nominated the following individuals for election as directors to serve until the next annual meeting of stockholders and until their successors have been duly elected and qualified: Eric Ende, Jerome D. Jabbour, Herbert Conrad, Kathryn Corzo, Natasha Giordano, James Scibetta and Matthew Wikler. Each of these seven director nominees named in the proxy statement is a current member of the Board.

It is the intention of the persons named in the proxies for the holders of common stock to vote the proxies for the election of the nominees named below, unless otherwise specified in any particular proxy. Our management does not contemplate that the nominees will become unavailable for any reason, but if that should occur before the meeting, proxies will be voted for another nominee, or other nominees, to be selected by our Board. In accordance with our by-laws and Delaware law, a stockholder entitled to vote for the election of directors may withhold authority to vote for certain nominees for directors or may withhold authority to vote for all nominees for directors. The director nominees receiving a plurality of the votes present virtually or by proxy at the meeting and entitled to vote on the election of directors will be elected directors. Broker non-votes will not be treated as a vote for or against any particular director nominee and will not affect the outcome of the election. Stockholders may not vote, or submit a proxy, for a greater number of nominees than the seven nominees named below.

Director Nominees

The following table sets forth the name, age, position and tenure of each of the director nominees up for election at the 2023 Annual Meeting:

Name	Age	Position(s)	Served as an Officer or Director Since
Eric Ende	55	Chairman of the Board*	2017
Jerome D. Jabbour	49	Chief Executive Officer and Director	2013
Kathryn Corzo	61	Director	2021
Natasha Giordano	63	Director	2020
Herbert Conrad	90	Director	2013
James Scibetta	58	Director	2013
Matthew Wikler	73	Director	2018

The following biographical descriptions set forth certain information with respect to the director nominees based on information furnished to the Company by each such individual.

Jerome D. Jabbour See description under "Management."

Eric Ende, MD, MBA has served on our Board since April 2017, and was selected to be Chairman of the Board in October 2022. Dr. Ende is president of Ende BioMedical Consulting Group, a privately-held consulting company which is focused on helping life sciences companies raise capital, identify licensing partners, and optimize corporate structure as well as analyzing both private and public investment opportunities for clients within the life sciences industry, a position he has held since 2009. In addition, Dr. Ende consulted with Icahn Enterprises in their efforts to appoint board members at Forest Labs, Genzyme, Biogen IDEC, and Amylin. Dr. Ende served on the board of directors and as a member of the Audit and Risk Management Committee of Genzyme Corp. (NASDAQ: GENZ) from 2010 until it was acquired by Sanofi (NSYE: SNY) in 2011. Through another activist campaign, Dr. Ende served on the board of directors of Progenics Pharmaceuticals, Inc., an oncology company, from 2019 until it was acquired by Lantheus Holdings, Inc. in 2020, as Chair of the Compensation Committee and a member of the Audit and Science Committees. Dr. Ende also serves on the board of directors of Avadel Pharmaceuticals plc, a biopharmaceutical company, as Chair of the Nomination & Corporate Governance Committee and a member of the Audit and Compensation Committees. Dr. Ende is currently serving on the Technology Transfer Committee of Mount Sinai Innovation Partners and served as the Chairman of the Unsecured Creditor's Committee overseeing the bankruptcy of Egenix, Inc. From 2002 through 2008, Dr. Ende was the senior biotechnology analyst at Merrill Lynch. From

2000 through 2002, Dr. Ende was the senior biotechnology analyst at Banc of America Securities and, from 1997 to 2000, he was a biotechnology analyst at Lehman Brothers. Dr. Ende received an MBA in Finance & Accounting from NYU – Stern Business School in 1997, an MD from Mount Sinai School of Medicine in 1994, and a BS in Biology and Psychology from Emory University in 1990. We believe Dr. Ende is qualified to serve on our Board due to his industry experience, including as president of Ende BioMedical Consulting Group and as a biotechnology analyst, and his prior public company board experience.

Herbert Conrad served as our Chairman of the Board from July 2013 until October 2022, as Chairman of the Board of Matinas BioPharma, Inc. from October 2012 until October 2022, and continues to serve as a member of our Board. He also serves on the board of directors of Celldex Therapeutics, Inc. (NASDAQ: CLDX), biopharmaceutical company focused on the development and commercialization of immunotherapies and other targeted biologics, and as an Advisor to the Seaver Autism Center at Mount Sinai Hospital. Mr. Conrad was the President of the U.S. Pharmaceuticals Division of Hoffmann-La Roche, Inc. from 1982 until his retirement in 1993. Prior to that, he held many positions of increasing responsibility at Roche Pharmaceuticals in the United States. Mr. Conrad previously served on the board of directors of Arbutus Biopharma Corporation (NASDAQ: ABUS), Pharmasset, Inc. (chairman), Savient Pharmaceuticals, Inc. (NASDAQ: SVNT), Dura Pharmaceuticals, Inc., UroCor, Inc., GenVec, Inc. (NASDAQ: GNVQ) (chairman), Sicom, Inc., Bone Care International, Inc. (chairman), Sapphire Therapeutics, Inc. (chairman), the medical advisory board of Henry Schein Inc. (NASDAQ: HSIC), and he was a Director and Co-Founder of Reliant Pharmaceuticals. Pharmasset was acquired by Gilead Sciences, Inc. for \$11 billion in 2011 and Reliant was acquired by GlaxoSmithKline for \$1.65 billion in 2007. He received B.S. and M.S. degrees from the Brooklyn College of Pharmacy and an honorary Doctorate in Humane Letters from Long Island University. We believe Mr. Conrad is qualified to serve on our Board due to his extensive expertise and experience in the life sciences industry and his extensive board experience.

Kathryn Corzo, RPh, MBA has served on our Board since September 2021 and is currently the President and Chief Operating Officer of bit.bio. Prior to bit.bio, Ms. Corzo was a partner at Takeda Ventures, Inc., the corporate investment arm of Takeda Pharmaceutical Company Limited, and previously Head, Oncology Cell Therapy Development at Takeda Pharmaceutical Company Limited (TSE: 4502/NYSE: TAK), a global biopharmaceutical company, a position she has held since 2020. Prior to joining Takeda, Ms. Corzo was Vice President R&D Global Pharma Head, Myeloma portfolio from 2015 to 2019 at Sanofi (SAN.PA) and also held positions of increasing responsibility at Sanofi Genzyme, a specialty care global business unit of Sanofi, from 2010 to 2015. Prior to joining Sanofi, Ms. Corzo worked at Hoffman – La Roche, Roche Molecular Systems, Eli Lilly and Syndax from 1989 to 2010, during which time she held management and leadership roles in operations, global clinical development, medical affairs, business development, market access and brand management across multiple therapeutic products and indications. We believe Ms. Corzo is qualified to serve on our Board due to her broad experience in the life sciences industry.

Natasha Giordano has served as a member of our Board since September 2020. Ms. Giordano served as President, Chief Executive Officer of PLx Pharma Inc. (NASDAQ: PLXP), a late stage specialty pharmaceutical company, from January 2016 through July 2023, and continues to serve as a member of the board of PLx. Previously, Ms. Giordano served as Chief Executive Officer of ClearPoint Learning, Inc., a privately held learning and training platform company, from May 2015 through November 2015. She also served on the ClearPoint board of directors from December 2009 through November 2015. Previously, Ms. Giordano served as the Chief Executive Officer of Healthcare Corporation of America (NYSE: HCA), a leading healthcare provider, from January 2014 through August 2014. From June 2009 to August 2012, Ms. Giordano served as Chief Operating Officer and then as Chief Executive Officer, President and a member of the board of directors of Xanodyne Pharmaceuticals, Inc., a privately-held a branded specialty pharmaceutical company with development and commercial capabilities focused on pain management and women's health. Prior to that, she served as President, Americas, for Cegevim Dendrite (formerly Dendrite International Inc.), a global technology services company, from 2007 to 2008 and as Senior Vice President of the Global Customer Business Unit of Cegevim Dendrite from 2004 to 2007. Ms. Giordano holds a Bachelor of Science degree in nursing from Wagner College. We believe Ms. Giordano is qualified to serve on our Board due to her extensive experience in commercialization, general management and knowledge of the pharmaceutical and health care industries.

James S. Scibetta, MBA has served as a member of our Board since November 2013. Mr. Scibetta is currently the Chief Executive Officer of ImmuneID, Inc., a privately held company developing therapies targeting autoimmune disease. Prior to ImmuneID, Mr. Scibetta was Chief Executive Officer of Maverick Therapeutics, a development stage immune-oncology company, from 2017 until 2021 when it was acquired by Takeda Pharmaceutical Company Limited. Prior to Maverick, he was President from 2015 to 2017 and Chief Financial Officer from 2008 to 2015 of Pacira Pharmaceuticals, Inc. (NASDAQ: PCRX), a specialty pharmaceutical company. Prior to joining Pacira in August 2008, he served as a consultant to Genzyme Corporation following the sale of Bioenvision Inc. (NASDAQ: BIVN) to Genzyme in 2007. From 2006 to 2007 Mr. Scibetta was CFO of Bioenvision. From 2001 to 2006, he was Executive Vice President and Chief Financial Officer of Merrimack Pharmaceuticals Inc. (NASDAQ: MACK). Mr. Scibetta has previously served on the board of directors at the following life sciences companies: Aquestive Therapeutics (NASDAQ: AQST), Nephros Inc. (NASDAQ: NEPH), Merrimack Pharmaceuticals and Labopharm Inc. (NASDAQ: DDSS). Prior to his executive management experience, Mr. Scibetta spent over a decade in investment banking where he was responsible for sourcing and executing transactions for a broad range of public and private healthcare and life sciences companies. Mr. Scibetta received his Bachelor of Science in Physics from Wake Forest University and an MBA from the University of Michigan. We believe Mr. Scibetta is qualified to serve on our Board because of his extensive management experience in the pharmaceutical industry, his investment banking experience and his experience as a chief financial officer and audit committee member of several publicly traded companies.

Matthew A. Wikler, MD, MBA has served as a member of our Board since January 2018. Dr. Wikler currently serves as the Principal of Infectious Disease Technology Development Consulting (IDTD Consulting), a privately-held consulting firm, where he provides clinical, medical and regulatory strategic insight to companies developing new technologies for the treatment and prevention of infectious diseases, a position he has held since 2015. Prior to that from 2012 to 2015, Dr. Wikler served at The Medicines Company (NASDAQ: MDCO), a biopharmaceutical company, as VP, New Business Ventures and VP and Medical Director, Infectious Disease Care. Over the course of his career Dr. Wikler held senior leadership positions for a number of pharmaceutical companies, including as Chief Development Officer of Rib-X Pharmaceuticals, Inc., a privately-held biopharmaceutical company developing new antibiotics to provide expanded coverage, safety and convenience for the treatment of serious and life-threatening infections, President and Chief Executive Officer of IASO Pharma Inc., a privately-held clinical stage biotechnology company focused on the development of antibacterial and antifungal therapeutics, the Institute for One World Health, a 501(c)(3) nonprofit drug development organization, Mpex Pharmaceuticals, Inc., a privately-held company focused on developing and manufacturing therapies for antibiotic resistance with focus on gram-negative organisms, Peninsula Pharmaceuticals, Inc., a privately held biopharmaceutical company focused on developing and commercializing antibiotics to treat life-threatening infections (acquired by Johnson & Johnson (NYSE: JNJ)), ViroPharma Incorporated (NASDAQ: VPHM), Bristol-Myers Squibb Company (NYSE: BMY), and Ortho-McNeil Pharmaceutical (a division of Johnson & Johnson). Dr. Wikler began his career at Smith Kline & French/Smith Kline Beecham where he held positions of increasing responsibilities over ten years. Dr. Wikler held a variety of positions at the FDA, including the Deputy Director of the Division of Anti-Infective Drug Products. Dr. Wikler earned a B.A. in Chemistry from Franklin and Marshall College, an M.D. degree from Temple University School of Medicine, and his M.B.A. from the University of Pennsylvania Wharton School of Business. He completed his Infectious Diseases Fellowship at the Hospital of the University of Pennsylvania and is a Fellow of the Infectious Diseases Society of America. We believe Dr. Wikler is qualified to serve on our Board because of his extensive management experience in the pharmaceutical industry and his clinical, drug development and regulatory experience.

There are no family relationships among any of our directors or executive officers.

Vote Required

Directors will be elected by a plurality of the votes cast virtually or by proxy at the annual meeting. Abstentions and broker non-votes will each be counted as present for purposes of determining the presence of a quorum but will have no effect on the vote for election of directors.

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT THE STOCKHOLDERS VOTE FOR THE ELECTION OF THE DIRECTOR NOMINEES.

Corporate Governance Matters

Board of Director Composition

Our Board currently consists of seven members. We have no formal policy regarding board diversity. Our priority in selection of board members is identification of members who will further the interests of our stockholders through his or her established record of professional accomplishment, the ability to contribute positively to the collaborative culture among board members, knowledge of our business and understanding of the competitive landscape.

Board of Director Meetings

Our Board met 5 times in 2022. Each of the directors attended at least 75% of the aggregate of (i) the total number of meetings of our Board (held during the period for which such directors served on the Board) and (ii) the total number of meetings of all committees of our Board on which the director served (during the periods for which the director served on such committee or committees). The Company does not have a formal policy requiring members of the Board to attend our annual meetings. Jerome D. Jabbour, Eric Ende, Herbert Conrad, Kathryn Corzo, Natasha Giordano, James Scibetta and Matthew Wikler attended the 2022 Annual Meeting of Stockholders.

Director Independence

Our common stock is listed on the NYSE American. Our Board undertook a review of its composition, the composition of its committees and the independence of each director. Based on information requested from and provided by each of our directors, our Board has determined that Messrs. Herbert Conrad, Eric Ende, James Scibetta, Matthew Wikler and Mss. Natasha Giordano and Kathryn Corzo are “independent directors” as such term is defined in the rules of the NYSE’s corporate governance requirements and Rule 10A-3 promulgated under the Securities Exchange Act of 1934, as amended.

There are no family relationships among any of our directors or executive officers.

Board Committees

Our Board has three standing committees — an Audit Committee, a Compensation Committee, and a Nominating and Corporate Governance Committee.

Audit Committee. The Audit Committee oversees and monitors our financial reporting process and internal control system, reviews and evaluates the audit performed by our registered independent public accountants and reports to the Board any substantive issues found during the audit. The Audit Committee is directly responsible for the appointment, compensation and oversight of the work of our registered independent public accountants. The Audit Committee reviews and approves all transactions with affiliated parties. James Scibetta, Herbert Conrad and Natasha Giordano currently serve as members of the Audit Committee, with Mr. Scibetta serving as its chair. All members of the Audit Committee have been determined to be financially literate and are considered independent directors as defined under the NYSE MKT’s listing standards and applicable SEC rules and regulations. Mr. Scibetta qualifies as an audit committee “financial expert” as that term is defined by SEC regulations. The Audit Committee met four times during 2022. Our Board has adopted an Audit Committee Charter, which is available for viewing at www.matinasbiopharma.com.

Compensation Committee. The Compensation Committee provides advice and makes recommendations to the Board in the areas of employee salaries, benefit programs and director compensation. The Compensation Committee also reviews the compensation of our executive officers, including our chief executive officer, and makes recommendations in that regard to the Board as a whole. Kathryn Corzo, James Scibetta and Matthew Wikler currently serve as members of the Compensation Committee, with Mr. Scibetta serving as its chair. All members of the Compensation Committee are considered independent directors as defined under the NYSE MKT’s listing standards. The Compensation Committee met six times during 2022. Our Board has adopted a Compensation Committee Charter, which is available for viewing at www.matinasbiopharma.com.

Nominating and Corporate Governance Committee. The Nominating and Corporate Governance Committee nominates individuals to be elected to the full Board by our stockholders. The Nominating and Corporate Governance Committee considers recommendations from stockholders if submitted in a timely manner in accordance with the procedures set forth in our Bylaws and applies the same criteria to all persons being considered. Herbert Conrad, Kathryn Corzo, Eric Ende, and Natasha Giordano currently serve as members of the Nominating and Corporate Governance Committee, with Ms. Giordano serving as its chair. All members of the Nominating and Corporate Governance Committee are considered independent directors as defined under the NYSE MKT’s listing standards. The Nominating and Corporate Governance Committee met four times during 2022. Our Board has adopted a Nominating and Corporate Governance Charter, which is available for viewing at www.matinasbiopharma.com.

Stockholder nominations for directorships

Stockholders may recommend individuals to the Nominating and Corporate Governance Committee for consideration as potential director candidates by submitting their names and backgrounds to the Secretary of the Company at the address set forth below under “Stockholder Communications.” All such recommendations will be forwarded to the Nominating and Corporate Governance Committee, which will review and only consider such recommendations if appropriate biographical and other information is provided, as described below, on a timely basis. All security holder recommendations for director candidates must be received by the Company in the timeframe(s) set forth under the heading “Stockholder Proposals” below.

- the name and address of record of the security holder;
- a representation that the security holder is a record holder of the Company’s securities, or if the security holder is not a record holder, evidence of ownership in accordance with Rule 14a-8(b)(2) of the Securities Exchange Act of 1934;
- the name, age, business and residential address, educational background, current principal occupation or employment, and principal occupation or employment for the preceding five (5) full fiscal years of the proposed director candidate;
- a description of the qualifications and background of the proposed director candidate and a representation that the proposed director candidate meets applicable independence requirements;
- a description of any arrangements or understandings between the security holder and the proposed director candidate; and
- the consent of the proposed director candidate to be named in the proxy statement relating to the Company’s annual meeting of stockholders and to serve as a director if elected at such annual meeting.

Assuming that appropriate information is provided for candidates recommended by stockholders, the Nominating and Corporate Governance Committee will evaluate those candidates by following substantially the same process, and applying substantially the same criteria, as for candidates submitted by members of the Board or other

persons, as described above and as set forth in its written charter.

Board Leadership Structure and Role in Risk Oversight

The positions of our chairman of the board and chief executive officer are separated. Separating these positions allows our chief executive officer to focus on our day-to-day business, while allowing the chairman of the board to lead the board of directors in its fundamental role of providing advice to and independent oversight of management. Our board of directors recognizes the time, effort and energy that the chief executive officer must devote to his position in the current business environment, as well as the commitment required to serve as our chairman, particularly as the board of directors' oversight responsibilities continue to grow. Our board of directors also believes that this structure ensures a greater role for the independent directors in the oversight of our company and active participation of the independent directors in setting agendas and establishing priorities and procedures for the work of our board of directors. Our board of directors believes its administration of its risk oversight function has not affected its leadership structure.

Although our bylaws do not require our chairman and chief executive officer positions to be separate, our board of directors believes that having separate positions is the appropriate leadership structure for us at this time and demonstrates our commitment to good corporate governance.

Risk is inherent with every business, and how well a business manages risk can ultimately determine its success. Our board of directors is actively involved in oversight of risks that could affect us. This oversight is conducted primarily by our full board of directors, which has responsibility for general oversight of risks, and our standing board committees.

Our board of directors satisfies this responsibility through full reports by each committee chair regarding the committee's considerations and actions, as well as through regular reports directly from officers responsible for oversight of particular risks within our company. Our board of directors believes that full and open communication between management and the board of directors is essential for effective risk management and oversight.

Stockholder Communications

The Board will give appropriate attention to written communications that are submitted by stockholders and other interested parties, and will respond if and as appropriate. Absent unusual circumstances or as contemplated by committee charters, and subject to advice from legal counsel, the Secretary of the Company is primarily responsible for monitoring communications from stockholders and for providing copies or summaries of such communications to the Board as he considers appropriate.

Communications from stockholders and other interested parties will be forwarded to all directors if they relate to important substantive matters or if they include suggestions or comments that the Secretary considers to be important for the Board to know. Communication relating to corporate governance and corporate strategy are more likely to be forwarded to the Board than communications regarding personal grievances, ordinary business matters, and matters as to which the Company tends to receive repetitive or duplicative communications.

Stockholders and other interested parties who wish to send communications to the Board should address such communications to: The Board of Directors, Matinas BioPharma Holdings, Inc., 1545 Route 206 South, Suite 302, Bedminster, NJ 07921, Attn.: Secretary.

Code of Business Conduct and Ethics

We have adopted a written code of business conduct and ethics that applies to our directors, officers and employees, including our principal executive officer, principal financial and accounting officer, or persons performing similar functions. A copy of the code is posted on the corporate governance section of our website, which is located at www.matinasbiopharma.com. If we make any substantive amendments to, or grant waivers from, the code of business conduct and ethics for any officer or director, we will disclose the nature of such amendment or waiver on our website.

PROPOSAL NO. 2: ADVISORY VOTE TO APPROVE NAMED EXECUTIVE OFFICER COMPENSATION

We are asking our stockholders to provide an advisory vote to approve the compensation of our named executive officers, including compensation tables and narrative disclosures as described in this Proxy Statement. This proposal, commonly known as a "say-on-pay" proposal, gives our stockholders the opportunity to express their views on the compensation of our named executive officers.

Please see the compensation tables and the narrative disclosures that accompany the compensation tables for greater detail about our executive compensation programs, including information about the fiscal year 2022 and 2021 compensation of our named executive officers.

We believe that our overall compensation program and philosophy support and help drive the Company's long-term value creation, business strategy and operating performance objectives. We are asking our stockholders to indicate their support for our named executive officer compensation as described in this proxy statement by voting "FOR" the following resolution at the Annual Meeting:

"RESOLVED, that the compensation paid to the Company's named executive officers, as disclosed pursuant to Item 402 of Regulation S-K, including the Compensation Discussion and Analysis, compensation tables and narrative discussion is hereby APPROVED."

While this say-on-pay vote is advisory and does not bind the Company to any particular action, the Board and the Compensation Committee value your opinion. Accordingly, the Board and the Compensation Committee will consider the outcome of this vote when making future compensation decisions for the Company's named executive officers.

Vote Required

The affirmative vote of a majority of the total votes cast virtually or by proxy is required to approve this proposal.

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT THE STOCKHOLDERS VOTE FOR THE APPROVAL OF THE COMPENSATION OF OUR NAMED EXECUTIVE OFFICERS, AS DISCLOSED IN THIS PROXY STATEMENT.

Executive Officers

The following table sets forth certain information regarding our current executive officers:

Name	Age	Position(s)	Served as an Officer Since
Jerome D. Jabbour	49	Chief Executive Officer and Director	2013
James J. Ferguson	70	Chief Medical Officer	2019
Thomas J. Hoover	54	Chief Business Officer	2021
Keith A. Kucinski	53	Chief Financial Officer	2019
Hui Liu	55	Chief Technology Officer	2020
Theresa Matkovits	56	Chief Development Officer	2018

Our executive officers are elected by, and serve at the discretion of, our board of directors. The business experience for the past five years, and in some instances, for prior years, of each of our executive officers is as follows:

Management

Jerome D. Jabbour, JD was appointed Chief Executive Officer in March 2018. He has served as our President since March 2016. Prior to that he served as our Executive Vice President, Chief Business Officer, General Counsel and Secretary since October 2013 and as one of our directors from April 2012 until November 2013. Mr. Jabbour is also a Co-founder of Matinas BioPharma. Prior to joining our management team, he was the Executive Vice President and General Counsel of MediMedia USA, or MediMedia, from 2012 to October 2013, a privately held diversified healthcare services company. Prior to MediMedia, he was the Senior Vice President, Head of Global Legal Affairs of Wockhardt Limited (2008-2012), a global pharmaceutical and biotechnology company, and Senior Counsel and Assistant Secretary at Reliant (2004-2008). Earlier in his career, he held positions as Commercial Counsel at Alpharma, Inc. (2003-2004) and as a Corporate Associate at Lowenstein Sandler LLP (1999-2003). Mr. Jabbour earned his J.D. from Seton Hall University School of Law in New Jersey and a B.A. in Psychology from Loyola University in Baltimore.

James J. Ferguson, MD was appointed Chief Medical Officer in February 2019. Prior to joining the Company, he served as the Cardiovascular and Bone Therapeutic Area Head for U.S. Medical Affairs, at Amgen (NASDAQ: AMGN), multinational biopharmaceutical company, from 2016 to 2019. Prior to Amgen Dr. Ferguson held a number of senior positions at AstraZeneca, a multinational pharmaceutical and biopharmaceutical company, including Vice President of U.S. Cardiovascular Medical and Scientific External Relations, Therapeutic Area Vice President of Cardiovascular Global Medical Affairs, U.S. Development Brand Leader for BRILINTA[®], and Senior Director, Clinical Research. Before joining AstraZeneca he was Vice President of Surgical and Critical Care for The Medicines Company. In addition, Dr. Ferguson had more than 20 years of academic experience as the Associate Director of Clinical Cardiology Research at the Texas Heart Institute, Co-Director of the Cardiology Fellowship Training Program at St. Luke's Episcopal Hospital in Houston, where he was an Associate Professor of Medicine at Baylor College of Medicine, and a Clinical Assistant Professor at the University of Texas Health Science Center at Houston. Dr. Ferguson has served on the Editorial Board of numerous peer-reviewed journals and has over 400 publications and book chapters. Dr. Ferguson received his B.A. (cum laude) in Biology from Harvard University, his M.D. from the University of Pennsylvania School of Medicine and completed his post-graduate training at the University of Michigan Medical Center, Ann Arbor, Michigan and Beth Israel Hospital, Boston, Massachusetts.

Thomas J. Hoover, MBA has served as Chief Business Officer since December 2021. Prior to joining the Company, Mr. Hoover was the Chief Business Officer of Millendo Therapeutics (now Tempest Therapeutics, Inc (NASDAQ: TPST)), a public clinical stage biotech, from 2016 to 2021. Prior to joining Millendo, Mr. Hoover was Vice President of New Product Planning and Corporate Development and Licensing at Sunovion Pharmaceuticals Inc., a global biopharmaceutical company. Mr. Hoover started his pharmaceutical career at GSK in 2001 working in the Global Commercial Strategy group. Earlier in his career, Mr Hoover worked for The Boston Consulting Group. Mr. Hoover holds a M.B.A. from the University of North Carolina and a B.A. from Harvard College.

Keith A. Kucinski, MBA, CPA was appointed Chief Financial Officer in January 2019. He most recently served as Chief Financial Officer at RemedyOne, a privately held healthcare consulting organization, during 2018. Prior to that, he served as Vice President & Treasurer at Par Pharmaceutical Companies, Inc., an operating company of Endo International plc, a leading generics and specialty-branded pharmaceutical company, from 2009 to 2015. In addition, Mr. Kucinski held various roles at Barr Pharmaceuticals, Inc., including Senior Director, Finance & Corporate Development and Assistant Treasurer & Senior Director, Finance. Mr. Kucinski is a Certified Public Accountant. He received his Bachelor of Business Administration in Accounting from the University of Notre Dame and an M.B.A. in Finance & Management from the Leonard N. Stern School of Business at New York University.

Hui Liu, PhD, MBA has served as Chief Technology Officer since December 2020. Prior to joining the Company, Dr. Liu was Director of Formulation and Delivery at Seqirus USA Inc., a privately held global leader in influenza and pandemic response, from 2017 to 2020. Prior to joining Seqirus, Dr. Liu was Director of CMC at Cellics Therapeutics, Inc., a privately held development stage biopharmaceutical company, in 2017, and Senior Technical Lead at Alcon Inc. (SIX/NYSE: ALC), a global leader in eye care, from 2015 to 2017. Earlier in his career, Dr. Liu held positions at Cellics Therapeutics, Inc., a privately held biotech company, and Allergan. Dr. Liu holds a Ph.D. in polymer chemistry from the University of Michigan, an M.B.A. from the University of Massachusetts, Amherst, and a B.S. from The University of Science and Technology of China.

Theresa Matkovits, PhD has served as Chief Development officer since October 2018. She joined the Company after having most recently served as the Chief Operating Officer of ContraVir Pharmaceuticals (NASDAQ: CTRV) (now Hepion Pharmaceuticals), a clinical stage biopharmaceutical company, from 2015 to 2018. From 2013 to 2015, Dr. Matkovits served as Global Program Leader at NPS Pharmaceuticals, a specialty pharmaceutical company that was purchased by Shire in 2015. Prior to her time at NPS, Dr. Matkovits was Vice President, Innovation Leader at The Medicines Company. Earlier in her career, Dr. Matkovits held a number of global leadership positions at Novartis across Global Development and the U.S. Commercial Organization, including as Head, Strategic Planning and Operations, U.S. Medical and Drug Regulatory Affairs. Dr. Matkovits began her career at the Roche Institute of Molecular Biology and Organon where she held positions in clinical development in women's health and research in the area of infertility. Dr. Matkovits serves on the Board of Directors of Appili Therapeutics (TSX: APLI; OTCQX: APLIF), and GoodCap Pharmaceuticals, a privately held pharmaceutical company. Dr. Matkovits earned her Ph.D. in Biochemistry and Molecular Biology from the University of Medicine and Dentistry of NJ.

EXECUTIVE COMPENSATION

Summary Compensation Table – 2022

The following table presents information regarding the total compensation awarded to, earned by, or paid to our chief executive officer and the two most highly-compensated executive officers who were serving as executive officers as of December 31, 2022 for services rendered in all capacities to us for the years ended December 31, 2022 and December 31, 2021. These individuals are our named executive officers for 2021.

Name and Principal Position	Year	Salary (\$)	Bonus (\$)	Option Awards (\$) ⁽¹⁾	All Other Compensation (\$)	Total (\$)
Jerome D. Jabbour	2022	575,000	306,500	792,707	-	1,674,207
Chief Executive Officer	2021	545,000	250,000	2,898,314	-	3,693,314

James J. Ferguson	2022	450,000	169,920	249,179	-	869,099
Chief Medical Officer	2021	422,300	164,000	1,035,637	-	1,621,937
Theresa Matkovits	2022	412,000	189,000	249,179	-	850,179
Chief Development Officer	2021	378,525	147,000	812,636	-	1,338,161

(1) Amounts reflect the grant date fair value of option awards granted in 2022 and 2021 in accordance with Accounting Standards Codification Topic 718. These amounts do not correspond to the actual value that will be recognized by the named executive officers.

Narrative Disclosure to Summary Compensation Table

Employment Agreements with Our Named Executive Officers

Jerome Jabbour

On March 22, 2018, we entered into an employment agreement with Mr. Jabbour, as subsequently amended on March 3, 2023. Under the terms of Mr. Jabbour's employment agreement, Mr. Jabbour received a signing bonus of \$84,000 and a base salary of \$350,000 per year. Mr. Jabbour's current salary is \$598,000. In addition, Mr. Jabbour is eligible to receive an annual bonus, which is targeted at 50% of his base salary but which may be adjusted by our Compensation Committee based on his individual performance and our performance as a whole. Mr. Jabbour is also eligible to receive option grants at the discretion of our Compensation Committee. Mr. Jabbour is eligible to receive option grants and equity grants at the discretion of our Compensation Committee. If we terminate Mr. Jabbour's employment without cause or Mr. Jabbour resigns with good reason (absent a change of control), we are required to pay him severance of up to twelve months of his base salary plus COBRA benefits for twelve months, and his target annual bonus for the year pro rated to the date of termination. In addition, the vesting of 50% of his outstanding options issued prior to December 31, 2021 will be accelerated in full upon such termination and Mr. Jabbour will be provided with an extension through two years after the separation date of the exercise period for his vested stock options. If we terminate Mr. Jabbour's employment without cause during the 24-month period immediately following a change of control or Mr. Jabbour resigns with good reason during the 24-month period immediately following a change of control, we are required to pay him severance of 18 months of his base salary and 1.5 times his target annual bonus plus 18 months of COBRA benefits. In addition, his outstanding options will be vested in full and Mr. Jabbour will be provided with an extension through two years after the separation date of the exercise period for his vested stock options. Mr. Jabbour is also subject to a customary non-disclosure agreement, pursuant to which Mr. Jabbour has agreed to be subject to a non-compete during the term of his employment and for a period of eighteen months following termination of his employment.

James J. Ferguson

On February 22, 2019, we entered into an employment agreement with Mr. Ferguson which was effective as of February 25, 2019, as subsequently amended on March 3, 2023. Under the terms of Mr. Ferguson's employment agreement, Mr. Ferguson base salary was \$375,000 per year, and is currently \$468,000. In addition, Mr. Ferguson is eligible to receive an annual bonus, which is targeted at 40% of his base salary but which may be adjusted by our Compensation Committee based on his individual performance and our performance as a whole. Mr. Ferguson is also eligible to receive option grants at the discretion of our Compensation Committee. If we terminate Mr. Ferguson's employment without cause or Mr. Ferguson resigns with good reason, we are required to pay him severance of up to twelve months of his base salary plus benefits. In addition, the vesting of 50% of his outstanding options issued prior to December 31, 2021 will be accelerated in full upon such termination. If we terminate Mr. Ferguson's employment without cause during the 12-month period immediately following a change of control or Mr. Jabbour resigns with good reason during the 12-month period immediately following a change of control, we are required to pay him severance of 12 months of his base salary and his target annual bonus plus 12 months of COBRA benefits. In addition, his outstanding options will be vested in full. Mr. Ferguson is also subject to a customary non-disclosure agreement, pursuant to which Mr. Ferguson has agreed to be subject to a non-compete during the term of his employment and for a period of eighteen months following termination of his employment.

Theresa Matkovits

On September 25, 2018, we entered into an employment agreement with Ms. Matkovits which was effective as of October 15, 2018, as subsequently amended on March 3, 2023. Under the terms of Ms. Matkovits' employment agreement, Ms. Matkovits's base salary was \$350,000 per year, and is currently \$430,000. In addition, Ms. Matkovits is eligible to receive an annual bonus, which is targeted at 40% of her base salary but which may be adjusted by our Compensation Committee based on her individual performance and our performance as a whole. Ms. Matkovits is also eligible to receive option grants at the discretion of our Compensation Committee. If we terminate Ms. Matkovits' employment without cause or Ms. Matkovits resigns with good reason, we are required to pay her severance of up to twelve months of his base salary plus benefits. In addition, the vesting of 50% of her outstanding options issued prior to December 31, 2021 will be accelerated in full upon such termination. If we terminate Ms. Matkovits's employment without cause during the 12-month period immediately following a change of control or Matkovits resigns with good reason during the 12-month period immediately following a change of control, we are required to pay her severance of 12 months of her base salary and her target annual bonus plus 12 months of COBRA benefits. In addition, her outstanding options will be vested in full. Ms. Matkovits is also subject to a customary non-disclosure agreement, pursuant to which Ms. Matkovits has agreed to be subject to a non-compete during the term of her employment and for a period of eighteen months following termination of her employment.

Outstanding Equity Awards at Fiscal Year-End Table – 2022

The following table summarizes, for each of the named executive officers, the number of shares of common stock underlying outstanding stock options held as of December 31, 2022.

Name	Option Awards			Option expiration date	
	Number of securities underlying unexercised options (#) exercisable	Number of securities underlying unexercised options (#) unexercisable	Option exercise price (\$)		
Jerome D. Jabbour	-	1,988,300	\$ 0.53	Dec 19, 2032	
	449,014	1,209,086	\$ 0.92	Dec 13, 2031	
	766,667	833,333	\$ 1.36	Dec 31, 2030	
	729,167	270,833	\$ 2.27	Dec 31, 2029	
	718,750	31,250	\$ 1.08	Feb 10, 2029	
	1,000,000	-	\$ 0.98	Mar 21, 2028	
	400,000	-	\$ 3.32	Feb 20, 2027	
	350,000	-	\$ 0.43	Feb 4, 2026	
	175,000	-	\$ 0.41	Jan 27, 2025	
	350,000	-	\$ 1.28	July 20, 2024	
	350,000	-	\$ 0.94	Oct 3, 2023	
	James J. Ferguson	-	625,000	\$ 0.53	Dec 19, 2032

	159,123	428,477	\$	0.92	Dec 13, 2031
	275,521	299,479	\$	1.36	Dec 31, 2030
	364,584	135,416	\$	2.27	Dec 31, 2029
	335,417	14,583	\$	1.09	Feb 24, 2029
Theresa Matkovits	-	625,000	\$	0.53	Dec 19, 2031
	135,400	364,600	\$	0.92	Dec 13, 2031
	203,646	221,354	\$	1.36	Dec 31, 2030
	255,209	94,791	\$	2.27	Dec 31, 2029
	335,417	14,583	\$	1.08	Feb 10, 2029
	350,000	-	\$	0.79	Oct 14, 2028

2013 Equity Compensation Plan

General

On August 2, 2013, our Board adopted the 2013 Equity Compensation Plan pursuant to the terms described herein. The 2013 Equity Compensation Plan was approved by the stockholders on August 7, 2013. Effective May 8, 2014, upon the approval of our Board and our stockholders, we amended and restated our 2013 Equity Compensation Plan, primarily to include “evergreen” provisions, which provides that the number of shares of common stock available for issuance under the Plan is subject to an automatic annual increase on January 1 of each year beginning in 2015 equal to 4% of the number of shares of common stock outstanding on December 31 of the preceding calendar year or a lesser number of shares of common stock determined by the Board; to amend the definition of “fair market value”; and to increase the limits on awards under the Plan. The 2013 Equity Compensation Plan, as amended and restated, is referred to herein as the “2013 Plan.”

The general purpose of the 2013 Plan is to provide an incentive to our employees, directors, consultants and advisors by enabling them to share in the future growth of our business. Our Board believes that the granting of stock options, restricted stock awards, unrestricted stock awards and similar kinds of equity-based compensation promotes continuity of management and increases incentive and personal interest in the welfare of our Company by those who are primarily responsible for shaping and carrying out our long range plans and securing our growth and financial success.

Our Board believes that the 2013 Plan will advance our interests by enhancing our ability to (a) attract and retain employees, consultants, directors and advisors who are in a position to make significant contributions to our success; (b) reward our employees, consultants, directors and advisors for these contributions; and (c) encourage employees, consultants, directors and advisors to take into account our long-term interests through ownership of our shares.

Description of the 2013 Equity Compensation Plan

The following description of the principal terms of the 2013 Plan is a summary and is qualified in its entirety by the full text of the 2013 Plan.

Administration. The 2013 Plan will be administered by the Compensation Committee of our Board, provided that the entire Board may act in lieu of the Compensation Committee on any matter, subject to certain requirements set forth in the 2013 Plan. The Compensation Committee may grant options to purchase shares of our common stock, stock appreciation rights, stock units, restricted shares of our common stock, performance shares, performance units, incentive bonus awards, other cash-based awards and other stock-based awards. The Compensation Committee also has broad authority to determine the terms and conditions of each option or other kind of award, and adopt, amend and rescind rules and regulations for the administration of the 2013 Plan. Subject to applicable law, the Compensation Committee may authorize one or more reporting persons (as defined in the 2013 Plan) or other officers to make awards (other than awards to reporting persons, or other officers whom the Compensation Committee has specifically authorized to make awards). No awards may be granted under the 2013 Plan on or after the ten year anniversary of the adoption of the 2013 Plan by our Board, but awards granted prior to such tenth anniversary may extend beyond that date.

Eligibility. Awards may be granted under the 2013 Plan to any person who is an employee, officer, director, consultant, advisor or other individual service provider of the Company or any subsidiary, or any person who is determined by the Compensation Committee to be a prospective employee, officer, director, consultant, advisor or other individual service provider of the Company or any subsidiary. During 2022, approximately 37 officers and employees, 6 directors, and 50 consultants and advisors were eligible to participate in the 2013 Plan.

Shares Subject to the 2013 Plan. As of September 18, 2023 the aggregate number of shares of common stock available for issuance in connection with awards granted under the 2013 Plan is 54,293,819 shares, subject to customary adjustments for stock splits, stock dividends or similar transactions (the “Initial Limit”). Incentive Stock Options may be granted under the 2013 Plan with respect to all of those shares. The number of shares of common stock available for issuance under the 2013 Plan will automatically increase on January 1st of each year for a period of ten years, commencing on January 1, 2015, in an amount equal to four percent (4%) of the total number of shares of common stock outstanding on December 31st of the preceding calendar year (the “Annual Increase”). Notwithstanding the foregoing, the Board may act prior to the first day of any calendar year, to provide that there shall be no increase in the share reserve for such calendar year or that the Annual Increase in the share reserve for such calendar year shall be a lesser number of shares of common stock than would otherwise occur pursuant to the preceding sentence. The number of shares of common stock which may be issued in respect of Incentive Stock Options is equal to the Current Limit, and will be increased on each January 1, by the Annual Increase for such calendar year.

To the extent that any award under the 2013 Plan payable in shares of common stock is forfeited, cancelled, returned to the Company for failure to satisfy vesting requirements or upon the occurrence of other forfeiture events, or otherwise terminates without payment being made thereunder, the shares of common stock covered thereby will be available for future grants under the 2013 Plan. Shares of common stock that otherwise would have been issued upon the exercise of a stock option or in payment with respect to any other form of award, that are surrendered in payment or partial payment of taxes required to be withheld with respect to the exercise of such stock option or the making of such payment, will also be available for future grants under the 2013 Plan.

Terms and Conditions of Options. Options granted under the 2013 Plan may be either “incentive stock options” that are intended to meet the requirements of Section 422 of the Internal Revenue Code of 1986, as amended (the “Code”) or “nonqualified stock options” that do not meet the requirements of Section 422 of the Code. The Compensation Committee will determine the exercise price of options granted under the 2013 Plan. The exercise price of stock options may not be less than the fair market value, on the date of grant, per share of our common stock issuable upon exercise of the option (or 110% of fair market value in the case of incentive options granted to a ten-percent stockholder).

If on the date of grant the common stock is listed on a stock exchange or national market system, the fair market value shall generally be the closing sale price as of such date, or if there were no trades recorded on such date, then the most recent date preceding such date on which trades were recorded. If on the date of grant the common stock is traded in an over-the-counter market, the fair market will generally be the average of the closing bid and asked prices for the shares of common stock as of such date, or, if there are no closing bid and asked prices for the shares of common stock on such date, then the average of the bid and asked prices for the shares of common stock on the most recent date preceding such date on which such closing bid and asked prices are available. If the common stock is not listed on a national securities exchange or national market system or traded in an over-the-counter market, the fair market value shall be determined by the Compensation Committee in a manner consistent with Section 409A of

the Internal Revenue Code of 1986, as amended. Notwithstanding the foregoing, if on the date of grant the common stock is listed on a stock exchange or is quoted on a national market system, or is traded in an over-the-counter market, then solely for purposes of determining the exercise price of any grant of a stock option or the base price of any grant of a stock appreciation right, the Compensation Committee may, in its discretion, base fair market value on the last sale before or the first sale after the grant, the closing price on the trading day before or the trading day of the grant, the arithmetic mean of the high and low prices on the trading day before or the trading day of the grant, or any other reasonable method using actual transactions of the common stock as reported by the exchange or market on which the common stock is traded. In addition, the determination of fair market value also may be made using any other method permitted under Treasury Regulation section 1.409A-1(b)(5)(iv).

No option may be exercisable for more than ten years from the date of grant (five years in the case of an incentive stock option granted to a ten-percent stockholder). Options granted under the 2013 Plan will be exercisable at such time or times as the Compensation Committee prescribes at the time of grant. No employee may receive incentive stock options that first become exercisable in any calendar year in an amount exceeding \$100,000. The Compensation Committee may, in its discretion, permit a holder of a nonqualified stock option to exercise the option before it has otherwise become exercisable, in which case the shares of our common stock issued to the recipient will continue to be subject to the vesting requirements that applied to the option before exercise.

Generally, the option price may be paid in cash or by bank check, or such other means as the Compensation Committee may accept. As set forth in an award agreement or otherwise determined by the Compensation Committee, in its sole discretion, at or after grant, payment in full or part of the exercise price of an option may be made (a) in the form of shares of common stock that have been held by the participant for such period as the Compensation Committee may deem appropriate for accounting purposes or otherwise, valued at the fair market value of such shares on the date of exercise; (ii) by surrendering to the Company shares of common stock otherwise receivable on exercise of the option; (iii) by a cashless exercise program implemented by the Compensation Committee in connection with the 2013 Plan; and/or (iv) by such other method as may be approved by the Compensation Committee and set forth in an award agreement.

No option may be transferred other than by will or by the laws of descent and distribution, and during a recipient's lifetime an option may be exercised only by the recipient or the recipient's guardian or legal representative. However, the Compensation Committee may permit the transfer of a nonqualified stock option, share-settled stock appreciation right, restricted stock award, performance share or share-settled other stock-based award either (a) by instrument to the participant's immediate family (as defined in the 2013 Plan), (b) by instrument to an inter vivos or testamentary trust (or other entity) in which the award is to be passed to the participant's designated beneficiaries, or (c) by gift to charitable institutions. The Compensation Committee will determine the extent to which a holder of a stock option may exercise the option following termination of service.

Stock Appreciation Rights. The Compensation Committee may grant stock appreciation rights independent of or in connection with an option. The Compensation Committee will determine the terms applicable to stock appreciation rights. The base price of a stock appreciation right will be determined by the Compensation Committee, but will not be less than 100% of the fair market value of a share of our common stock with respect to the date of grant of such stock appreciation right. The maximum term of any SAR granted under the 2013 Plan is ten years from the date of grant. Generally, each SAR stock appreciation right will entitle a participant upon exercise to an amount equal to:

- the excess of the fair market value of a share of common stock on the date of exercise of the stock appreciation right over the base price of such stock appreciation right, multiplied by
- the number of shares as to which such stock appreciation right is exercised.

Payment may be made in shares of our common stock, in cash, or partly in common stock and partly in cash, all as determined by the Compensation Committee.

Restricted Stock and Stock Units. The Compensation Committee may award restricted common stock and/or stock units under the 2013 Plan. Restricted stock awards consist of shares of stock that are transferred to a participant subject to restrictions that may result in forfeiture if specified conditions are not satisfied. Stock units confer the right to receive shares of our common stock, cash, or a combination of shares and cash, at a future date upon or following the attainment of certain conditions specified by the Compensation Committee. The Compensation Committee will determine the restrictions and conditions applicable to each award of restricted stock or stock units, which may include performance-based conditions. Dividends with respect to restricted stock may be paid to the holder of the shares as and when dividends are paid to stockholders or at the times of vesting or other payment of the restricted stock award. Stock unit awards may be granted with dividend equivalent rights, which may be accumulated and may be deemed reinvested in additional stock units, as determined by the Compensation Committee in its discretion. If any dividend equivalents are paid while a stock unit award is subject to restrictions, the dividend equivalents shall be subject to the same restrictions on transferability as the underlying stock units, unless otherwise set forth in an award agreement. Unless the Compensation Committee determines otherwise, holders of restricted stock will have the right to vote the shares.

Performance Shares and Performance Units. The Compensation Committee may award performance shares and/or performance units under the 2013 Plan. Performance shares and performance units are awards which are earned during a specified performance period subject to the attainment of performance criteria, as established by the Compensation Committee. The Compensation Committee will determine the restrictions and conditions applicable to each award of performance shares and performance units.

Incentive Bonus Awards. The Compensation Committee may award Incentive Bonus Awards under the 2013 Plan. Incentive Bonus Awards may be based upon the attainment of specified levels of Company or subsidiary performance as measured by pre-established, objective performance criteria determined at the discretion of the Compensation Committee. Incentive Bonus Awards will be paid in cash or common stock, as set forth in an award agreement.

Other Stock-Based and Cash-Based Awards. The Compensation Committee may award other types of equity-based or cash-based awards under the 2013 Plan, including the grant or offer for sale of unrestricted shares of our common stock and payment in cash or otherwise of amounts based on the value of shares of common stock.

Effect of Certain Corporate Transactions. The Compensation Committee may, at the time of the grant of an award, provide for the effect of a change in control (as defined in the 2013 Plan) on any award, including (i) accelerating or extending the time periods for exercising, vesting in, or realizing gain from any award, (ii) eliminating or modifying the performance or other conditions of an award, (iii) providing for the cash settlement of an award for an equivalent cash value, as determined by the Compensation Committee, or (iv) such other modification or adjustment to an award as the Compensation Committee deems appropriate to maintain and protect the rights and interests of participants upon or following a change in control. The Compensation Committee may, in its discretion and without the need for the consent of any recipient of an award, also take one or more of the following actions contingent upon the occurrence of a change in control: (a) cause any or all outstanding options and stock appreciation rights to become immediately exercisable, in whole or in part; (b) cause any other awards to become non-forfeitable, in whole or in part; (c) cancel any option or stock appreciation right in exchange for a substitute option; (d) cancel any award of restricted stock, stock units, performance shares or performance units in exchange for a similar award of the capital stock of any successor corporation; (e) redeem any restricted stock, stock unit, performance share or performance unit for cash and/or other substitute consideration with a value equal to the fair market value of an unrestricted share of our common stock on the date of the change in control; (f) cancel any option or stock appreciation right in exchange for cash and/or other substitute consideration based on the value of our common stock on the date of the change in control, and cancel any option or stock appreciation right without any payment if its exercise price exceeds the value of our common stock on the date of the change in control; (g) cancel any stock unit or performance unit held by a participant affected by the change in control in exchange for cash and/or other substitute consideration with a value equal to the fair market value per share of common stock on the date of the change in control, or (h) make such other modifications, adjustments or amendments to outstanding awards as the Compensation Committee deems necessary or appropriate.

Amendment, Termination. The Compensation Committee may amend the terms of awards in any manner not inconsistent with the 2013 Plan, provided that no amendment shall

adversely affect the rights of a participant with respect to an outstanding award without the participant's consent. In addition, our board of directors may at any time amend, suspend, or terminate the 2013 Plan, provided that (i) no such amendment, suspension or termination shall materially and adversely affect the rights of any participant under any outstanding award without the consent of such participant and (ii) to the extent necessary and desirable to comply with any applicable law, regulation, or stock exchange rule, the 2013 Plan requires us to obtain stockholder consent. Stockholder approval is required for any plan amendment that increases the number of shares of common stock available for issuance under the 2013 Plan or changes the persons or classes of persons eligible to receive awards.

Tax Withholding

The Company has the power and right to deduct or withhold, or require a participant to remit to the Company, the minimum statutory amount to satisfy federal, state, and local taxes, domestic or foreign, required by law or regulations to be withheld.

Director Compensation

We maintain a policy pursuant to which our non-employee directors receive annualized compensation. The policy provides for the following compensation amounts payable in cash, or upon election by such non-employee director, in shares of unrestricted common stock: (i) each non-employee director is entitled to receive an annual fee of \$50,000; (ii) the chairman of the board is entitled to receive an additional annual fee of \$25,000; (iii) the vice chair, if one is appointed, is entitled to receive an additional annual fee of \$20,000; (iv) the chair of our audit committee is entitled to receive an annual fee of \$15,000 and other members of our audit committee are entitled to receive \$7,500; (v) the chair of our compensation committee is entitled to receive an annual fee of \$10,000 and other members of our compensation committee are entitled to receive \$6,000; and (vi) the chair of our nominating and corporate governance committee is entitled to receive an annual fee of \$8,000 and other members are entitled to receive \$4,000.

As of the date of each annual meeting of the shareholders, each non-employee director will receive an option grant to purchase shares of our common stock valued at \$80,000 as determined by the Black Scholes method on the date of grant under our existing equity incentive plan, or any other equity incentive plan we may adopt in the future, which shall vest in twelve equal monthly installments.

All fees under the director compensation policy are paid on a quarterly basis in arrears and no per meeting fees are paid. All fees may be paid in unrestricted shares of common stock at the election of the director. We also reimburse non-employee directors for reasonable expenses incurred in connection with attending board of director and committee meetings.

Director Compensation Table – 2022

The following table summarizes the annual compensation for our non-employee directors during 2022.

Name	Cash Compensation (\$)	Option Awards (\$ (1))	Total (\$)
Herbert Conrad	90,500	80,000	170,500
Kathryn Corzo	56,000	80,000	136,000
Eric Ende	71,500	80,000	151,500
Natasha Giordano	57,500	80,000	137,500
James S. Scibetta	75,000	80,000	155,000
Matthew Wikler	64,000	80,000	144,000

(1) Amounts reflect the grant date fair value of stock awards and option awards granted in 2022 in accordance with Accounting Standards Codification Topic 718. These amounts do not correspond to the actual value that will be recognized by the directors.

Compensation Committee Interlocks and Insider Participation

The Compensation Committee of the Board of Directors is currently composed of the following three non-employee directors: Kathryn Corzo, James Scibetta, Chair, and Matthew Wikler. No member of the Compensation Committee is or was formerly an officer or an employee of the Company during the last fiscal year. In addition, no executive officer of the Company serves on the Compensation Committee or board of directors of a company for which any of the Company's directors serve as an executive officer.

Security Ownership of Certain Beneficial Owners and Management

The following table sets forth the number of shares of common stock beneficially owned as of September 18, 2023 by:

- each of our stockholders who is known by us to beneficially own 5% or more of our common stock;
- each of our named executive officers;
- each of our directors; and
- all of our directors and current executive officers as a group.

Beneficial ownership is determined based on the rules and regulations of the SEC. A person has beneficial ownership of shares if such individual has the power to vote and/or dispose of shares. This power may be sole or shared and direct or indirect. Applicable percentage ownership in the following table is based on 217,264,526 shares outstanding as of September 18, 2023. In computing the number of shares beneficially owned by a person and the percentage ownership of that person, shares of common stock that are subject to options or warrants held by that person and exercisable as of, or within 60 days of, September 18, 2023 are counted as outstanding. These shares, however, are not counted as outstanding for the purposes of computing the percentage ownership of any other person(s). Except as may be indicated in the footnotes to this table and pursuant to applicable community property laws, each person named in the table has sole voting and dispositive power with respect to the shares of common stock set forth opposite that person's name. Unless indicated below, the address of each individual listed below is c/o Matinas BioPharma Holdings, Inc., 1545 Route 206 South, Suite 302, Bedminster, NJ 07921.

Name of Beneficial Owner	Number of Shares Beneficially Owned	Percentage of Shares Beneficially Owned
<i>Directors and Executive Officers</i>		
Jerome D. Jabbour (1)	5,958,959	2.1%
Herbert Conrad (2)	5,802,917	2.7%
Kathryn Corzo (3)	263,833	*%
Eric Ende (4)	1,264,110	*%

Natasha Giordano (5)	521,456	*%
James Scibetta (6)	1,832,476	*%
Matthew Wikler (7)	1,260,490	*%
James J. Ferguson (8)	1,518,004	*%
Thomas J. Hoover (9)	407,292	*%
Keith A. Kucinski (10)	1,548,656	*%
Hui Liu (11)	564,058	*%
Theresa Matkovits (12)	1,576,031	*%
Directors and Executive Officers as a group (12 persons) (13)	22,518,282	9.6%

* Less than 1%

(1) Includes 5,498,635 shares of common stock issuable upon exercise of options. Does not include 3,360,265 shares of common stock underlying options.

(2) Includes 1,108,351 shares of common stock issuable upon exercise of options.

(3) Includes 263,833 shares of common stock issuable upon exercise of options. Does not include 60,587 shares of common stock underlying options.

(4) Includes 1,120,018 shares of common stock issuable upon exercise of options.

(5) Includes 521,546 shares of common stock issuable upon exercise of options.

(6) Includes 1,182,518 shares of common stock issuable upon exercise of options.

(7) Includes 970,018 shares of common stock issuable upon exercise of options.

(8) Includes 1,518,004 shares of common stock issuable upon exercise of options. Does not include 1,119,596 shares of common stock underlying options.

(9) Does not include 407,292 shares of common stock underlying options. Does not include 917,708 shares of common stock underlying options.

(10) Includes 1,454,156 shares of common stock issuable upon exercise of options. Does not include 1,045,844 shares of common stock underlying options.

(11) Includes 564,058 shares of common stock issuable upon exercise of options. Does not include 935,942 shares of common stock underlying options.

(12) Includes 1,576,031 shares of common stock issuable upon exercise of options. Does not include 1,023,969 shares of common stock underlying options.

(13) See notes (1) through (12).

Securities Authorized for Issuance Under Equity Compensation Plans

The following table provides information with respect to our compensation plans under which equity compensation was authorized as of December 31, 2022.

Plan Category	Number of Shares of Common Stock to be Issued upon Exercise of Outstanding Options (a)	Weighted- Average Exercise Price of Outstanding Options (b)	Number of Options Remaining Available for Future Issuance Under Equity Compensation Plans (excluding securities reflected in column (a)) (c)(2)
Equity compensation plans approved by stockholders(1)	34,739,470	\$ 1.07	6,183,053
Equity compensation plans not approved by stockholders	—	—	—
Total	34,739,470	\$ 1.07	6,183,053

(1) The amounts shown in this row include securities under the Matinas BioPharma Holdings, Inc. Amended and Restated 2013 Equity Incentive Plan (the “2013 Plan”).

(2) In accordance with the “evergreen” provision in our 2013 Plan, an additional 8,690,581 shares were automatically made available for issuance on the first trading day of 2023, which represents 4% of the number of shares outstanding on December 31, 2022; these shares are excluded from this calculation.

Pay Versus Performance Disclosure

In accordance with rules adopted by the Securities and Exchange Commission pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, we provide the following disclosure regarding executive compensation for our principal executive officer (“PEO”) and Non-PEO named executive officers (“NEOs”) and Company performance for the fiscal years listed below. The Compensation Committee did not consider the pay versus performance disclosure below in making its pay decisions for any of the years shown.

Year	Summary Compensation Table Total for Jerome Jabbour ¹ (\$)	Compensation Actually Paid to Jerome Jabbour ^{1,2,3} (\$)	Average Summary Compensation Table Total for Non-PEO NEOs ¹ (\$)	Average Compensation Actually Paid to Non-PEO NEOs ^{1,2,3} (\$)	Value of Initial Fixed \$100 Investment based on: ⁴ TSR (\$)	Net Income (\$ Millions)
(a)	(b)	(c)	(d)	(e)	(f)	(g)

2022	1,674,207	325,448	859,639	392,816	36.76	(21.0)
2021	3,693,314	2,865,409	1,480,049	1,182,626	74.26	(23.3)

1. Jerome Jabbour was our PEO for each year presented. The individuals comprising the Non-PEO named executive officers for each year presented are listed below.

2021-2022	
James Ferguson	
Theresa Matkovits	

2. The amounts shown for Compensation Actually Paid have been calculated in accordance with Item 402(v) of Regulation S-K and do not reflect compensation actually earned, realized, or received by the Company's NEOs. These amounts reflect the Summary Compensation Table Total with certain adjustments as described in footnote 3 below.

3. Compensation Actually Paid reflects the exclusions and inclusions of certain amounts for the PEO and the Non-PEO NEOs as set forth below. Equity values are calculated in accordance with FASB ASC Topic 718. Amounts in the Exclusion of Option Awards column are the amounts from the Option Awards column set forth in the Summary Compensation Table.

Year	Summary Compensation Table Total for Jerome Jabbour (\$)	Exclusion of Option Awards for Jerome Jabbour (\$)	Inclusion of Equity Values for Jerome Jabbour (\$)	Compensation Actually Paid to Jerome Jabbour (\$)
2022	1,674,207	(792,707)	(556,052)	325,448
2021	3,693,314	(2,898,314)	2,070,409	2,865,409

Year	Average Summary Compensation Table Total for Non-PEO NEOs (\$)	Average Exclusion of Stock Awards and Option Awards for Non-PEO NEOs (\$)	Average Inclusion of Equity Values for Non-PEO NEOs (\$)	Average Compensation Actually Paid to Non-PEO NEOs (\$)
2022	859,639	(249,179)	(217,645)	392,815
2021	1,480,049	(924,137)	626,713	1,182,625

The amounts in the Inclusion of Equity Values in the tables above are derived from the amounts set forth in the following tables:

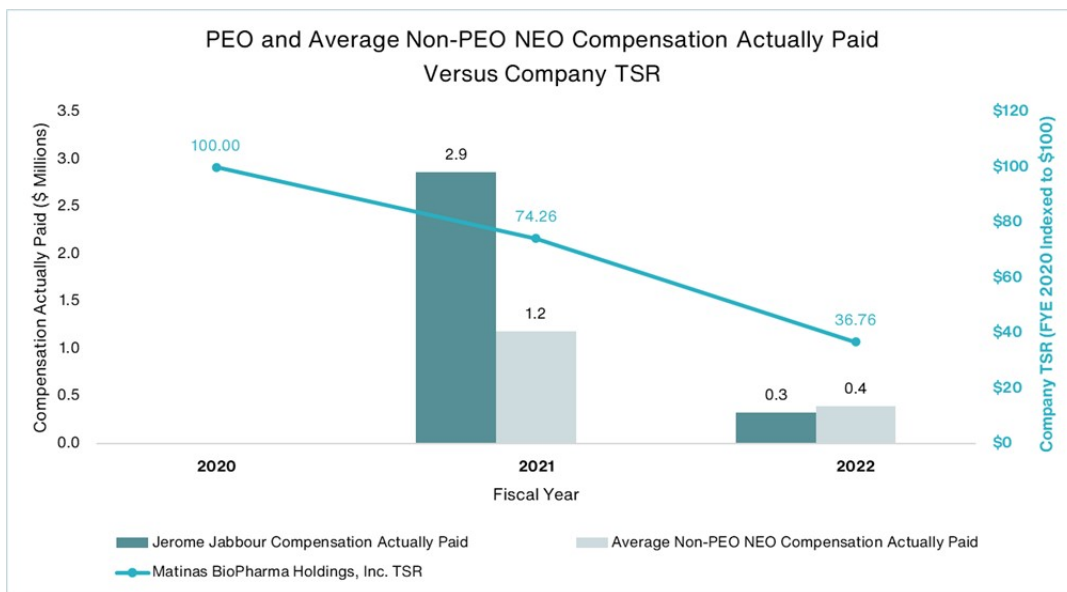
Year	Year-End Fair Value of Equity Awards Granted During Year That Remained Unvested as of Last Day of Year for Jerome Jabbour (\$)	Change in Fair Value from Last Day of Prior Year to Last Day of Year of Unvested Equity Awards for Jerome Jabbour (\$)	Vesting-Date Fair Value of Equity Awards Granted During Year that Vested During Year for Jerome Jabbour (\$)	Change in Fair Value from Last Day of Prior Year to Vesting Date of Unvested Equity Awards that Vested During Year for Jerome Jabbour (\$)	Fair Value at Last Day of Prior Year of Equity Awards Forfeited During Year for Jerome Jabbour (\$)	Total - Inclusion of Equity Values for Jerome Jabbour (\$)
2022	769,338	(976,049)	—	(349,341)	—	(556,052)
2021	2,547,945	(272,983)	—	(204,553)	—	2,070,409

Year	Average Year-End Fair Value of Equity Awards Granted During Year That Remained Unvested as of Last Day of Year for Non-PEO NEOs (\$)	Average Change in Fair Value from Last Day of Prior Year to Last Day of Year of Unvested Equity Awards for Non-PEO NEOs (\$)	Average Vesting-Date Fair Value of Equity Awards Granted During Year that Vested During Year for Non-PEO NEOs (\$)	Average Change in Fair Value from Last Day of Prior Year to Vesting Date of Unvested Equity Awards that Vested During Year for Non-PEO NEOs (\$)	Average Fair Value at Last Day of Prior Year of Equity Awards Forfeited During Year for Non-PEO NEOs (\$)	Total - Average Inclusion of Equity Values for Non-PEO NEOs (\$)
2022	242,628	(330,321)	—	(129,952)	—	(217,645)
2021	819,801	(121,665)	—	(71,423)	—	626,713

4. Assumes \$100 was invested in the Company for the period starting December 31, 2020, through the end of the listed year. Historical stock performance is not necessarily indicative of future stock performance.

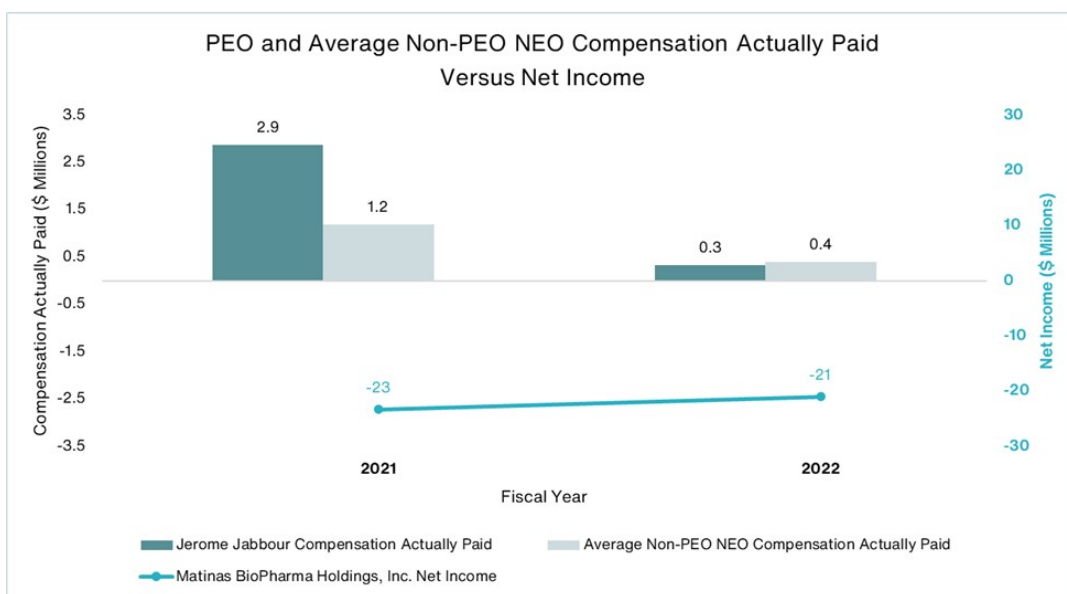
Description of Relationship Between PEO and Non-PEO NEO Compensation Actually Paid and Company Total Shareholder Return ("TSR")

The following chart sets forth the relationship between Compensation Actually Paid to our PEO, the average of Compensation Actually Paid to our Non-PEO NEOs, and the Company's cumulative TSR over the two most recently completed fiscal years.



Description of Relationship Between PEO and Non-PEO NEO Compensation Actually Paid and Net Income

The following chart sets forth the relationship between Compensation Actually Paid to our PEO, the average of Compensation Actually Paid to our Non-PEO NEOs, and our Net Income during the two most recently completed fiscal years.



Certain Relationships and Related Party Transactions

Other than compensation arrangements for our named executive officers and directors, there have been no transaction or series of similar transactions, since January 1, 2022, to which we were a party or will be a party, in which:

- the amounts involved exceeded or will exceed \$120,000; and
- any of our directors, executive officers or holders of more than 5% of our capital stock, or any member of the immediate family of the foregoing persons, had or will have a direct or indirect material interest.

Indemnification Agreements

We entered into indemnification agreements with Messrs. Jabbour and Conrad. The indemnification agreements provide for indemnification against expenses, judgments, fines and penalties actually and reasonably incurred by an indemnitee in connection with threatened, pending or completed actions, suits or other proceedings, subject to certain limitations. The indemnification agreements also provide for the advancement of expenses in connection with a proceeding prior to a final, non-appealable judgment or other adjudication, provided that the indemnitee provides an undertaking to repay to us any amounts advanced if the indemnitee is ultimately found not to be entitled to indemnification by us. The indemnification agreement set forth procedures for making and responding to a request for indemnification or advancement of expenses, as well as dispute resolution procedures that apply to any dispute between us and an indemnitee arising under the Indemnification Agreements.

Policies and Procedures for Related Party Transactions

We have adopted a policy that our executive officers, directors, nominees for election as a director, beneficial owners of more than 5% of any class of our common stock, any members of the immediate family of any of the foregoing persons and any firms, corporations or other entities in which any of the foregoing persons is employed or is a partner or principal or in a similar position or in which such person has a 5% or greater beneficial ownership interest, which we refer to collectively as related parties, are not permitted to enter into a transaction with us without the prior consent of our board of directors acting through the Audit Committee or, in certain circumstances, the Chair of the Audit Committee. Any request for us to enter into a transaction with a related party, in which the amount involved exceeds \$100,000 and such related party would have a direct or indirect interest must first be presented to our Audit Committee, or in certain circumstances the Chair of our Audit Committee, for review, consideration and approval. In

approving or rejecting any such proposal, our Audit Committee, or the Chair of our Audit Committee, is to consider the material facts of the transaction, including, but not limited to, whether the transaction is on terms no less favorable than terms generally available to an unaffiliated third party under the same or similar circumstances, the extent of the benefits to us, the availability of other sources of comparable products or services and the extent of the related party's interest in the transaction.

Director Independence

Based on information requested from and provided by each of our directors, our board of directors has determined that Messrs. Herbert Conrad, Eric Ende, James Scibetta, Matthew Wikler and Ms. Kathryn Corzo and Natasha Giordano are "independent directors" as such term is defined in the rules of the NYSE MKT's corporate governance requirements and Rule 10A-3 promulgated under the Securities Exchange Act of 1934, as amended.

PROPOSAL NO. 3: RATIFY THE APPOINTMENT OF EISNERAMPER LLP AS OUR INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR THE YEAR ENDING DECEMBER 31, 2023

The Audit Committee has reappointed EisnerAmper LLP as our independent registered public accounting firm to audit the financial statements of the Company for the fiscal year ending December 31, 2023, and has further directed that management submit their selection of independent registered public accounting firm for ratification by our stockholders at the Annual Meeting. Neither the accounting firm nor any of its members has any direct or indirect financial interest in or any connection with us in any capacity other than as public registered accounting firm.

Principal Accountant Fees and Services

The following table represents aggregate fees billed to the Company for the fiscal years ended December 31, 2022 and 2021, by EisnerAmper LLP, the Company's independent registered public accounting firm.

	Years Ended December 31,	
	2022	2021
	(in thousands)	
Audit Fees	\$ 265	\$ 249
Audit-Related Fees	-	-
Tax Fees	-	-
Total Fees	<u>\$ 265</u>	<u>\$ 249</u>

Audit Fees consist of fees billed for professional services rendered for the audit of our annual financial statements, audit of internal controls over financial reporting, review of our interim consolidated financial statements and comfort letters.

Audit-Related Fees consist of fees billed for professional services rendered for assurance related services that are reasonably related to the performance of the audit or review of our financial services.

Tax Fees are for tax-related services related primarily to tax consulting and tax planning.

The Audit Committee pre-approves all auditing services and any non-audit services that the independent registered public accounting firm is permitted to render under Section 10A (h) of the Exchange Act. The Audit Committee may delegate the pre-approval to one of its members, provided that if such delegation is made, the full Audit Committee must be presented at its next regularly scheduled meeting with any pre-approval decision made by that member.

Attendance at Annual Meeting

Representatives of EisnerAmper LLP are expected to be present at the Annual Meeting, where they will be available to respond to appropriate questions from stockholders and, if they desire, to make a statement.

Vote Required

The affirmative vote of a majority of the total votes cast virtually or by proxy is required to approve this proposal.

THE BOARD OF DIRECTORS RECOMMENDS THAT THE STOCKHOLDERS VOTE FOR THE RATIFICATION OF THE INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM.

REPORT OF THE AUDIT COMMITTEE*

The undersigned members of the Audit Committee of the Board of Directors of Matinas BioPharma Holdings, Inc. (the "Company") submit this report in connection with the committee's review of the financial reports for the fiscal year ended December 31, 2022 as follows:

1. The Audit Committee has reviewed and discussed with management the audited financial statements for the Company for the fiscal year ended December 31, 2022.
2. The Audit Committee has discussed with representatives of EisnerAmper LLP, the independent public accounting firm, the matters which are required to be discussed with them under the provisions of Auditing Standard No. 1301, *Communications with Audit Committees*.
3. The Audit Committee has discussed with EisnerAmper LLP, the independent public accounting firm, the auditors' independence from management and the Company has received the written disclosures and the letter from the independent auditors required by applicable requirements of the Public Company Accounting Oversight Board.

In addition, the Audit Committee considered whether the provision of non-audit services by EisnerAmper LLP is compatible with maintaining its independence. In reliance on the reviews and discussions referred to above, the Audit Committee recommended to the Board (and the Board has approved) that the audited financial statements be included in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2022 for filing with the Securities and Exchange Commission.

Audit Committee,

James Scibetta, Chair

* The foregoing report of the Audit Committee is not to be deemed “soliciting material” or deemed to be “filed” with the Securities and Exchange Commission (irrespective of any general incorporation language in any document filed with the Securities and Exchange Commission) or subject to Regulation 14A of the Securities Exchange Act of 1934, as amended, or to the liabilities of Section 18 of the Securities Exchange Act of 1934, except to the extent we specifically incorporate it by reference into a document filed with the Securities and Exchange Commission.

PROPOSAL 4: REVERSE STOCK SPLIT PROPOSAL

General

The Board has unanimously approved, and recommended that our stockholders approve, an amendment to our Certificate of Incorporation in substantially the form attached hereto as Annex A (the “Reverse Stock Split Amendment”), to effect a reverse stock split at a ratio in the range of 1-for-2 to 1-for-50 (the “Reverse Stock Split”), to be determined at the discretion of the Board, whereby each outstanding 2 to 50 shares of our common stock would be combined, converted and changed into 1 share of our common stock, and simultaneously with the Reverse Split, reduce the total number of authorized shares of Common Stock from 500,000,000 to 250,000,000 (the “Authorized Share Reduction”). This proposal is referred to in this Proxy Statement as the “Reverse Stock Split Proposal.” If the stockholders approve the Reverse Stock Split Amendment, the Board will have discretion to determine, as it deems to be in the best interest of our stockholders, the specific ratio to be used within the range described above and the timing of the reverse stock split, which must occur any time prior to the first anniversary of its approval by the stockholders.

The Reverse Stock Split will be realized simultaneously for all outstanding shares of common stock and the ratio will be the same for all outstanding shares of common stock. The Reverse Stock Split will affect all holders of our common stock uniformly and each stockholder will hold the same percentage of common stock outstanding immediately following the reverse stock split as that stockholder held immediately prior to the Reverse Stock Split, except for adjustments that may result from the treatment of fractional shares as described below. The Reverse Stock Split Amendment will not change the total number of authorized shares of preferred stock, and the par value of the common stock will remain at \$0.0001 per share.

The Board unanimously approved and recommended seeking stockholder approval of this Reverse Stock Split Proposal on September 7, 2023. The Board may determine in its discretion not to effect any reverse stock split and not to file the Reverse Split Amendment. Subject to approval of the Reverse Stock Split Amendment through the approval of this Reverse Stock Split Proposal, no further action on the part of our stockholders will be required to either implement or abandon the reverse stock split. As detailed below, if the Board does not affect the Reverse Stock Split and Authorized share Reduction by filing the Reverse Stock Split Amendment before the close of business on November 1, 2024, the Board will no longer be permitted to effect the Reverse Stock Split and authorized share Reduction as the authority of the Board to effect the Reverse Stock Split and Authorized Share Reduction will expire as of the close of business on November 1, 2024.

The Board’s determination as to whether and when to effect a Reverse Stock Split and the specific ratio to be used will be based on a number of factors, including the closing bid price for our common stock, prevailing market conditions, existing and expected trading prices for our common stock, actual or forecasted results of operations, and the likely effect of such results on the market price of our common stock.

The Reverse Stock Split Amendment is not being proposed in response to any effort of which we are aware to accumulate shares of our common stock or obtain control of us, nor is it a plan by management to recommend a series of similar actions to our Board or our stockholders.

There are certain risks associated with a reverse stock split, and we cannot accurately predict whether, or assure that, the reverse stock split will produce or maintain the desired results (for more information on the risks, see the section below entitled “Certain Risks Associated with the Reverse Stock Split”). However, our Board believes that the benefits to us and our stockholders outweigh the risks and recommends that you vote in favor of the Reverse Stock Split Proposal.

Purposes of the Proposed Reverse Stock Split

We believe that the Reverse Stock Split could enhance the appeal of our common stock to the financial community, including institutional investors, and the general investing public. We believe that a number of institutional investors and investment funds are reluctant to invest in lower-priced securities and that brokerage firms may be reluctant to recommend lower-priced securities to their clients, which may be due in part to a perception that lower-priced securities are less promising as investments, are less liquid in the event that an investor wishes to sell its shares, or are less likely to be followed by institutional securities research firms and therefore more likely to have less third-party analysis of the company available to investors. We believe that the reduction in the number of issued and outstanding shares of our common stock caused by the Reverse Stock Split, together with the anticipated increased stock price immediately following and resulting from the Reverse Stock Split, may encourage broader interest and trading in our common stock and thus possibly promote greater liquidity for our stockholders, thereby resulting in a broader market for our common stock than that which currently exists.

Moreover, we may in the future determine that submission of an application to the New York Stock Exchange or The NASDAQ Stock Market for “uplisting” of our Common Stock is in the best interest of our shareholders. The New York Stock Exchange and each tier of the Nasdaq has its own listing criteria. We may in the future consider targeting the New York Stock Exchange or NASDAQ Global Market, both of which require, among other criteria, an initial bid price of at least \$4.00 per share and, following initial listing, maintenance of a continued price of at least \$1.00 per share. On the record date, the sale price of our common stock on the NYSE MKT was \$0.16 per share. A decrease in the number of issued and outstanding shares of our common stock resulting from the Reverse Stock Split should, absent other factors, assist in ensuring that our per share market price of our common stock remains above the required price, and will increase our ability to meet the continued listing standards of the NYSE MKT. However, we cannot provide any assurance that (i) we will pursue a listing on the New York Stock Exchange, the Nasdaq Global Market, or any other tier of The NASDAQ Stock Market or (ii) even if we do, our minimum bid price would remain over the minimum bid price requirement of the New York Stock Exchange or tier of the Nasdaq Stock Market on which we may list.

In addition, in order to be included in certain biotechnology and pharmaceutical trading indices and exchange-traded funds (“ETFs”), our stock must meet certain eligibility requirements, including, among other things, minimum daily trading volume and bid price standards. As noted above, we believe that the reduction in the number of issued and outstanding shares of our common stock caused by the Reverse Stock Split, together with the anticipated increased stock price immediately following and resulting from the reverse stock split, should, absent other factors, assist in meeting such requirements. However, we cannot provide any assurance that we will meet any such index or ETF standards or that our common stock will ever be included in any such indices or ETFs following the Reverse Stock Split.

In addition, if the number of our outstanding common shares is reduced dramatically as proposed by the Reverse Stock Split, we will no longer need the number of authorized shares of common stock currently provided in our charter. Moreover, our state franchise tax may be reduced by reducing the number of our authorized shares of common stock. However, the Board has determined that reducing the number of authorized shares by the same ratio as the number of outstanding shares will be reduced by the Reverse Stock Split Amendment may not provide sufficient shares to support the issuance of equity capital by the us in the future. We believe that the availability of additional authorized shares for issuance from time to time at the Board’s discretion in connection with possible future corporate purposes, including future acquisitions, investment opportunities, the establishment of collaboration or other strategic agreements, capital raising transactions involving equity or convertible debt securities, future at the market offerings of common stock, or issuance under current or future employee equity plans, or for other corporate purposes is desirable in order to avoid repeated separate

amendments to our charter and the delay and expense of holding special meetings of stockholders to approve such amendments. Accordingly, the Board has approved the reduction of authorized shares as set forth in Annex A, which balances these two concerns, reducing the number of authorized shares substantially, while retaining a sufficient number of shares for the use by Company for those purposes described above.

Lastly, Even if this proposal is approved, the Board will have complete discretion as to whether or not to consummate the Reverse Stock Split and the specific ratio to be used. We cannot assure you that all or any of the anticipated beneficial effects on the trading market for our common stock will occur. The Board cannot predict with certainty what effect the Reverse Stock Split will have on the market price of our common stock, particularly over the longer term. Some investors may view a reverse stock split negatively, which could result in a decrease in our market capitalization. Additionally, any improvement in liquidity due to increased institutional or brokerage interest or lower trading commissions may be offset by the lower number of outstanding shares. In addition, investors might consider the increased proportion of unissued authorized shares to issued shares to have an anti-takeover effect under certain circumstances because the proportion allows for dilutive issuances.

Determination of Ratio

In determining the reverse stock split ratio, the Board will consider numerous factors, including:

- the historical and projected performance of our common stock;
- prevailing market conditions;
- general economic and other related conditions prevailing in our industry and in the marketplace;
- the projected impact of the reverse stock split ratio on trading liquidity in our common stock;
- our capitalization (including the number of shares of our common stock issued and outstanding);
- the prevailing trading price for our common stock and the volume level thereof; and
- potential devaluation of our market capitalization as a result of a reverse stock split.

Principal Effects of the Reverse Stock Split

A reverse stock split refers to a reduction in the number of outstanding shares of a class of a corporation's capital stock, which may be accomplished, as in this case, by reclassifying and combining all of our outstanding shares of common stock into a proportionately smaller number of shares. After the effective date of the Reverse Stock Split, each stockholder will own a reduced number of shares of common stock. For example, if the Board decides to implement the 1-for-4 reverse stock split, then a stockholder holding 10,000 shares of our common stock before the reverse stock split would instead hold 2,500 shares of our common stock immediately after the Reverse Stock Split. However, except for adjustments that may result from the treatment of fractional shares as described below, the proposed reverse stock split will affect all stockholders uniformly and will not affect any stockholder's percentage ownership interest in our company or proportionate voting power as described below. All shares of common stock will also remain validly issued, fully paid and non-assessable.

The proposed Reverse Stock Split will also reduce the number of shares of common stock reserved for future awards under our Amended and Restated 2013 Equity Compensation Plan. The per share exercise price of all outstanding option awards will be increased proportionately and the number of shares of common stock issuable upon the exercise of all outstanding option awards will be reduced proportionately. These adjustments will result in approximately the same aggregate exercise price being required to be paid for all outstanding option awards upon exercise, although the aggregate number of shares issuable upon exercise of such option awards will be reduced proportionately following the reverse stock split. The number of shares of outstanding restricted stock subject to outstanding awards will be reduced proportionately.

We are currently authorized to issue up to 500,000,000 shares of common stock, par value \$0.0001 per share, of which 217,264,526 shares were issued and outstanding as of September 18, 2023, and 10,000,000 shares of preferred stock, par value \$0.0001 per share, none of which were issued and outstanding as of September 18, 2023. If we effect the proposed reverse stock split and file the Reverse Stock Split Amendment, the number of shares of our authorized common stock will simultaneously be reduced to 250,000,000, regardless of the Reverse Stock Split ratio and the number of shares of our authorized preferred stock will remain unchanged. The Reverse Stock Split Amendment will also not affect the par value of our common stock, which, will remain at \$0.0001 per share, or our preferred stock, which will remain at \$0.0001 per share.

The following table contains approximate information relating to our common stock immediately following the reverse stock split under certain possible exchange ratios, based on share information as of September 18, 2023, without giving effect to any adjustments for fractional shares of common stock or the issuance of any derivative securities. All share numbers are rounded down to the nearest whole share but otherwise do not reflect the potential effect of rounding up for fractional shares that may result from the reverse stock split.

	Pre-Reverse Split	1-for-2	1-for-10	1-for-25	1-for-50
Number of authorized shares of Common Stock	500,000,000	250,000,000	250,000,000	250,000,000	250,000,000
Number of outstanding shares of common stock	217,264,526	108,632,263	21,726,452	8,690,581	4,345,291
Number of shares of common stock issuable upon exercise of outstanding stock options	33,309,470	16,654,735	3,330,947	1,332,379	666,189
Number of shares of Common Stock reserved for issuance in connection with future awards under the Company's Amended and Restated 2013 Equity Compensation Plan	16,303,634	8,151,817	1,630,363	652,145	326,073
Number of shares of Common Stock authorized, but unissued and unreserved	233,122,370	116,561,185	23,312,237	9,324,895	4,662,447

In addition, the reverse stock split may increase the number of stockholders who own odd lots (less than 100 shares). Any stockholder who owns fewer than 200 to 1,500 shares of common stock, depending on the final ratio, prior to the reverse stock split will own fewer than 100 shares of common stock following the reverse stock split. Stockholders who hold odd lots typically experience an increase in the cost of selling their shares and may have greater difficulty in effecting sales. Any stockholder who otherwise would be entitled to receive a fractional share because they hold a number of shares not evenly divisible by the Reverse Stock Split ratio will automatically be entitled to receive an additional fraction of a share of common stock to round up to the next whole share, as further described below under "Treatment of Fractional Shares". Although the number of our outstanding shares of common stock would decrease as a result of the reverse stock split, the Board does not intend to use the reverse stock split as a part of, or a first step in, a "going private" transaction within the meaning of Rule 13e-3 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). There is no plan or contemplated plan by our Company to take itself private as of the date of this Proxy Statement.

Our common stock is currently registered under Section 12(b) of the Exchange Act, and we are subject to the periodic reporting and other requirements of the Exchange Act. The proposed reverse stock split will not affect the registration of our common stock under the Exchange Act. If the proposed reverse stock split is implemented, our common stock will continue to be reported on the NYSE American under the symbol "MTNB".

Certain Risks Associated with the Reverse Stock Split

Before voting on the Reverse Stock Split Proposal, you should consider the following risks associated with the implementation of the Reverse Stock Split:

- Although we expect that the Reverse Stock Split will result in an increase in the market price of our common stock, we cannot assure you that the Reverse Stock Split, if implemented, will increase the market price of our common stock in proportion to the reduction in the number of shares of our common stock outstanding or result in a permanent increase in the market price. Accordingly, the total market capitalization of our common stock after the proposed Reverse Stock Split may be lower than the total market capitalization before the proposed Reverse Stock Split and, in the future, the market price of our common stock following the Reverse Stock Split may not exceed or remain higher than the market price prior to the proposed reverse stock split

-
- The effect the Reverse Stock Split may have upon the market price of our common stock cannot be predicted with any certainty, and the history of similar reverse stock splits for companies in similar circumstances to ours is varied. The market price of our common stock is dependent on many factors, including our business and financial performance, general market conditions, prospects for future success and other factors detailed from time to time in the reports we file with the SEC. If the Reverse Stock Split is implemented and the market price of our common stock declines, the percentage decline as an absolute number and as a percentage of our overall market capitalization may be greater than would occur in the absence of the Reverse Stock Split.
 - The Reverse Stock Split may result in some stockholders owning “odd lots” of less than 100 shares of our common stock on a post-split basis. These odd lots may be more difficult to sell, or require greater transaction costs per share to sell, than shares in “round lots” of even multiples of 100 shares.
 - While the Board believes that a higher stock price may help generate investor interest, there can be no assurance that the Reverse Stock Split will result in a per share price that will attract institutional investors or investment funds or that such share price will satisfy the investing guidelines of institutional investors or investment funds. As a result, the trading liquidity of our common stock may not necessarily improve.
 - Although the Board believes that the decrease in the number of shares of our common stock outstanding as a consequence of the Reverse Stock Split and the anticipated increase in the market price of our common stock could encourage interest in our common stock and possibly promote greater liquidity for our stockholders, such liquidity could also be adversely affected by the reduced number of shares outstanding after the reverse stock split.
 - Furthermore, because approval of the Reverse Stock Split Amendment will result in the Authorized Share Reduction, the number of shares of our common stock available for issuance following the implementation of the Reverse Stock Split would increase to the extent the Reverse Stock Split reduces the number of outstanding shares of our common stock relative to the number of authorized shares. Such available shares may be used for future corporate purposes, including future acquisitions, investment opportunities, the establishment of collaboration or other strategic agreements, capital raising transactions involving equity or convertible debt securities, future at the market offerings of common stock, or issuance under current or future employee equity plans, and the issuance of equity securities in connection with such transactions may result in potentially significant dilution of our current stockholders’ ownership interests in us.

Treatment of Fractional Shares

Stockholders will not receive fractional post-Reverse Stock Split shares in connection with the Reverse Stock Split. Instead, record holders of our common stock who otherwise would be entitled to receive a fractional share because they hold a number of shares not evenly divisible by the Reverse Stock Split ratio will automatically be entitled to receive an additional fraction of a share of common stock to round up to the next whole share. In any event, cash will not be paid for fractional shares.

If you believe that you may not hold sufficient shares of our common stock at the effective date of the Reverse Stock Split to receive at least one share in the Reverse Stock Split and you want to continue to hold our common stock after the split, you may do so by either:

- purchasing a sufficient number of shares of our common stock; or
- if you have shares of common stock in more than one account, consolidating your accounts, so that in each case you hold a number of shares of our common stock in each of your accounts prior to the Reverse Stock Split that would entitle you to receive at least one share of our common stock on a post-Reverse Stock Split basis. Common stock held in registered form (that is, shares held by you in your own name on our share register maintained by its transfer agent) and common stock held in “street name” (that is, shares held by you through a bank, broker or other nominee) for the same investor would be considered held in separate accounts and would not be aggregated when implementing the Reverse Stock Split. Also, shares of common stock held in registered form but in separate accounts by the same investor would not be aggregated when implementing the Reverse Stock Split.

Effect on Beneficial Stockholders

Stockholders holding our common stock through a bank, broker or other nominee should note that such banks, brokers or other nominees may have different procedures for processing the Reverse Stock Split than those that would be put in place by us for registered stockholders that hold such shares directly. If you hold your shares with such a bank, broker or other nominee and if you have questions in this regard, you are encouraged to contact your bank, broker or nominee.

Effect on Registered Certificated Shares

Some registered stockholders may hold their shares of common stock in certificate form or a combination of certificate and book-entry form. If any of your shares of our common stock are held in certificate form, you will receive a letter of transmittal from our transfer agent as soon as practicable after the effective date of the reverse stock split. The letter of transmittal will contain instructions on how to surrender your certificate(s) representing your presplit shares to the transfer agent. Upon receipt of your properly completed and executed letter of transmittal and your stock certificate(s), you will be issued the appropriate number of shares either in certificate form or electronically in book-entry form under the direct registration system. No new stock certificates will be issued to a stockholder until such stockholder has surrendered such stockholder’s outstanding certificate(s) together with the properly completed and executed letter of transmittal to the transfer agent.

Beginning on the effective date of the Reverse Stock Split, each certificate representing pre-reverse stock split shares will be deemed for all corporate purposes to evidence ownership of post-Reverse Stock Split shares.

STOCKHOLDERS SHOULD NOT DESTROY ANY PRE-SPLIT STOCK CERTIFICATES AND SHOULD NOT SUBMIT ANY CERTIFICATES UNTIL THEY ARE REQUESTED TO DO SO.

Effect on Registered Book-Entry Holders

Our registered stockholders may hold some or all of their shares electronically in book-entry form under the direct registration system for securities. These stockholders will not have stock certificates evidencing their ownership of our common stock. They are, however, provided with a statement reflecting the number of shares registered in their accounts. If you hold shares in a book-entry form, you do not need to take any action to receive your post-split shares. If you are entitled to post-split shares, a transaction statement will automatically be sent to your address of record indicating the number of shares you hold.

Procedure for Effecting the Reverse Stock Split

If our stockholders approve this proposal, and the Board elects to effect the Reverse Stock Split and the authorized Share Reduction, we will affect the Reverse Stock Split and authorized Share Reduction by filing the Reverse Stock Split Amendment with the Secretary of State of the State of Delaware. The Reverse Stock Split and Authorized share Reduction will become effective, and the combination of, and reduction in, the number of our outstanding shares as a result of the Reverse Stock Split and Authorized share Reduction will occur automatically, at the effective time set forth in the Reverse Stock Split Amendment, without any action on the part of our stockholders and without regard to the date that stock certificates representing any certificated shares prior to the Reverse Stock Split are physically surrendered for new stock certificates. Beginning at the effective time of the Reverse Stock Split, each certificate representing pre-Reverse Stock Split shares will be deemed for all corporate purposes to evidence ownership of post-Reverse Stock Split shares. The text of the Reverse Stock Split Amendment is subject to modification to include such changes as may be required by the office of the Secretary of State of the State of Delaware and as the Board deems necessary and advisable to effect the Reverse Stock Split and Authorized Share Reduction.

The Board reserves the right, notwithstanding stockholder approval and without further action by the stockholders, to elect not to proceed with the reverse stock split if, at any time prior to filing the Reverse Split Amendment, the Board, in its sole discretion, determines that it is no longer in the best interests of us and our stockholders to proceed with the reverse stock split. By voting in favor of the reverse stock split, you are expressly also authorizing the Board to delay (until September 19, 2024) or abandon the reverse stock split. If the Reverse Split Amendment has not been filed with the Secretary of State of the State of Delaware by the close of business on September 19, 2024, the Board will abandon the reverse stock split.

Material U.S. Federal Income Tax Consequences of the Reverse Stock Split

The following is a summary of material U.S. federal income tax consequences of a Reverse Split to our U.S. Holders (as defined below). The summary is based on the Internal Revenue Code of 1986, as amended (the "Code"), applicable Treasury Regulations promulgated thereunder, judicial authority and current administrative rulings and practices as in effect on the date of this Proxy Statement. Changes to the laws could alter the tax consequences described below, possibly with retroactive effect. We have not sought and will not seek an opinion of counsel or a ruling from the Internal Revenue Service regarding the federal income tax consequences of a Reverse Split. This discussion only addresses U.S. Holders who hold common stock as capital assets. It does not purport to be complete and does not address U.S. Holders subject to special tax treatment under the Code, including, without limitation, financial institutions, tax-exempt organizations, insurance companies, dealers in securities, foreign stockholders, stockholders who hold their pre-reverse stock split shares as part of a straddle, hedge or conversion transaction, and stockholders who acquired their pre-reverse stock split shares pursuant to the exercise of employee stock options or otherwise as compensation. If a partnership (or other entity treated as a partnership for U.S. federal income tax purposes) is the beneficial owner of our common stock, the U.S. federal income tax treatment of a partner in the partnership will generally depend on the status of the partner and the activities of the partnership. Accordingly, partnerships (and other entities treated as partnerships for U.S. federal income tax purpose) holding our common stock and the partners in such entities should consult their own tax advisors regarding the U.S. federal income tax consequences of the proposed Reverse Split to them. In addition, the following discussion does not address the tax consequences of the Reverse Split under state, local and foreign tax laws. Furthermore, the following discussion does not address any tax consequences of transactions effectuated before, after or at the same time as the Reverse Split, whether or not they are in connection with the Reverse Split.

For purposes of the discussion below, a "U.S. Holder" is a beneficial owner of shares of the Company's common stock that for U.S. federal income tax purposes is: (i) an individual citizen or resident of the United States; (ii) a corporation (or other entity taxable as a corporation for U.S. federal income tax purposes) created or organized in or under the laws of the United States, any state therein or the District of Columbia; (iii) an estate, the income of which is subject to U.S. federal income taxation regardless of its source; or (iv) a trust with respect to which a U.S. court is able to exercise primary supervision over its administration and one or more U.S. persons have the authority to control all of its substantial decisions of the trust, or that has a valid election in effect to be treated as a U.S. person under applicable U.S. Treasury Regulations.

The Reverse Split is expected to constitute a "recapitalization" for U.S. federal income tax purposes pursuant to Section 368(a)(1)(E) of the Code. A U.S. Holder generally will not recognize gain or loss on the deemed exchange of shares pursuant to the Reverse Split, except potentially with respect to any additional fractions of a share of our common stock received as a result of the rounding up of any fractional shares that otherwise would be issued, as discussed below. Subject to the following discussion regarding a U.S. Holder's receipt of a whole share of the Company's common stock in lieu of a fractional share, a U.S. Holder's aggregate tax basis in the shares of common stock received in the Reverse Split will equal the U.S. Holder's basis in its old shares of common stock and such U.S. Holder's holding period in the shares received will include the holding period in its old shares exchanged. The Treasury Regulations provide detailed rules for allocating the tax basis and holding period of shares of common stock surrendered in a recapitalization to shares received in the recapitalization. U.S. Holders of our common stock acquired on different dates and at different prices should consult their tax advisors regarding the allocation of the tax basis and holding period of such shares.

As described above under "Treatment of Fractional Shares," no fractional shares of the Company's common stock will be issued as a result of the Reverse Split. Instead, record holders of our common stock who otherwise would be entitled to receive a fractional share because they hold a number of shares not evenly divisible by the Approved Split Ratio will automatically be entitled to receive an additional fraction of a share of common stock to round up to the next whole share. A U.S. Holder who receives one whole share of the Company's common stock in lieu of a fractional share may recognize income or gain in an amount not to exceed the excess of the fair market value of such share over the fair market value of the fractional share to which such U.S. Holder was otherwise entitled. The Company is not making any representation as to whether the receipt of one whole share in lieu of a fractional share will result in income or gain to any stockholder, and stockholders are urged to consult their own tax advisors as to the possible tax consequences of receiving a whole share in lieu of a fractional share in the Reverse Split.

We will not recognize any gain or loss as a result of the proposed Reverse Split.

THE PRECEDING DISCUSSION IS INTENDED ONLY AS A SUMMARY OF CERTAIN FEDERAL U.S. INCOME TAX CONSEQUENCES OF THE REVERSE SPLIT AND DOES NOT PURPORT TO BE A COMPLETE ANALYSIS OR DISCUSSION OF ALL POTENTIAL TAX EFFECTS RELEVANT THERETO. YOU SHOULD CONSULT YOUR OWN TAX ADVISORS AS TO THE PARTICULAR FEDERAL, STATE, LOCAL, FOREIGN AND OTHER TAX CONSEQUENCES OF THE REVERSE SPLIT IN LIGHT OF YOUR SPECIFIC CIRCUMSTANCES.

Accounting Matters

The par value per share of our common stock will remain unchanged at \$0.0001 per share after the reverse stock split. As a result, our stated capital, which consists of the par value per share of our common stock multiplied by the aggregate number of shares of our common stock issued and outstanding, will be reduced proportionately at the effective time of the reverse stock split. Correspondingly, our additional paid-in capital, which consists of the difference between our stated capital and the aggregate amount paid to us upon the issuance of all currently outstanding shares of our common stock, will be increased by a number equal to the decrease in stated capital. Further, net loss per share, book value per share and other per share amounts will be increased as a result of the reverse stock split because there will be fewer shares of our common stock outstanding.

No Appraisal Rights

Our stockholders are not entitled to appraisal rights under Delaware law or our Certificate of Incorporation with respect to the Reverse Split Amendment, and we will not independently provide our stockholders with any such right.

Required Vote

Approval of the Reverse Stock Split Proposal requires the affirmative vote of a majority of the total votes cast virtually or by proxy. There will be no broker non-votes with respect to this proposal. Abstentions will have the effect of a vote "AGAINST" this proposal.

Recommendation of the Board

The Board recommends stockholders vote "FOR" the Reverse Stock Split Proposal.

STOCKHOLDER PROPOSALS

Stockholder Proposals for 2024 Annual Meeting

Our by-laws state that a stockholder must provide timely written notice of a proposal to be brought before the meeting and supporting documentation as well as be present at such meeting, either in person or by a representative. Any stockholder proposals submitted for inclusion in our proxy statement and form of proxy for our 2024 Annual Meeting of Stockholders must be timely received by the Company at our principal executive office no later than August 16, 2024 no earlier than July 17, 2024 in order to be considered for inclusion in our proxy statement and form of proxy; provided, however, that in the event the Annual Meeting is scheduled to be held on a date more than thirty (30) days before the anniversary date of the immediately preceding Annual Meeting of Stockholders (the "Anniversary Date") or more than sixty (60) days after the Anniversary Date, a stockholder's notice shall be timely if received by the Company at our principal executive office not later than the close of business on the later of (i) the ninetieth (90th) day prior to the scheduled date of such Annual Meeting; and (ii) the tenth (10th) day following the day on which such public announcement of the date of such Annual Meeting is first made by the Company. Such proposals must also comply with the requirements as to form and substance established by the SEC if such proposals are to be included in the proxy statement and form of proxy. Proxies solicited by our Board will confer discretionary voting authority with respect to these proposals, subject to the SEC's rules and regulations governing the exercise of this authority. Any such proposal shall be mailed to: Matinas BioPharma Holdings, Inc., 1545 Route 206 South, Suite 302, Bedminster, New Jersey 07921, Attn.: Secretary.

ANNUAL REPORT

Copies of our Annual Report on Form 10-K (including an amendment thereto and audited financial statements) filed with the SEC may be obtained without charge by writing to Matinas BioPharma Holdings, Inc., 1545 Route 206 South, Suite 302, Bedminster, New Jersey 07921, Attn.: Secretary. A request for a copy of our Annual Report on Form 10-K must set forth a good-faith representation that the requesting party was either a holder of record or a beneficial owner of our common stock on September 5, 2023. Exhibits to the Form 10-K will be mailed upon similar request and payment of specified fees to cover the costs of copying and mailing such materials.

Our audited financial statements for the fiscal year ended December 31, 2022 and certain other related financial and business information are contained in our 2022 Annual Report to Stockholders, which is being made available to our stockholders along with this proxy statement, but which is not deemed a part of the proxy soliciting material.

HOUSEHOLDING OF ANNUAL MEETING MATERIALS

Some banks, brokers and other nominee record holders may be participating in the practice of "householding" proxy statements. This means that only one copy of this Proxy Statement may have been sent to multiple stockholders in the same household. We will promptly deliver a separate copy of this Proxy Statement to any stockholder upon written or oral request to: Matinas BioPharma Holdings, Inc., 1545 Route 206 South, Suite 302, Bedminster, New Jersey 07921, Attn.: Secretary, or by phone at (908) 484-8805. Any stockholder who wants to receive a separate copy of this Proxy Statement, or of our proxy statements or annual reports in the future, or any stockholder who is receiving multiple copies and would like to receive only one copy per household, should contact the stockholder's bank, broker, or other nominee record holder, or the stockholder may contact us at the address and phone number above.

OTHER MATTERS

As of the date of this proxy statement, the Board does not intend to present at the Annual Meeting of Stockholders any matters other than those described herein and does not presently know of any matters that will be presented by other parties. If any other matter requiring a vote of the stockholders should come before the meeting, it is the intention of the persons named in the proxy to vote with respect to any such matter in accordance with the recommendation of the Board or, in the absence of such a recommendation, in accordance with the best judgment of the proxy holder.

By Order of the Board of Directors

/s/ Jerome D. Jabbour

Jerome D. Jabbour,
Chief Executive Officer

September 19, 2023
Bedminster, New Jersey

Annex A

**CERTIFICATE OF AMENDMENT
OF
CERTIFICATE OF INCORPORATION
OF
MATINAS BIOPHARMA HOLDINGS, INC.**

Pursuant to Section 242 of the General Corporation Law of the State of Delaware, Matinas BioPharma Holdings, Inc., a corporation organized and existing under the laws of the State of Delaware (the "**Corporation**"), does hereby certify as follows:

1. The name of the Corporation is Matinas BioPharma Holdings, Inc. The Corporation was incorporated by the filing of its original Certificate of Incorporation with the Secretary of State of the State of Delaware on May 21, 2013, which was amended by a certificate of amendment filed with the Secretary of State of the State of Delaware on October 29, 2015 (as so amended, the "**Certificate of Incorporation**").

2. The Certificate of Incorporation of the Corporation is hereby amended to increase the authorized shares of the Corporation's common stock by deleting the first

paragraph under Section A of Article V, and replacing such paragraph with the following:

“The total number of shares of capital stock which the Corporation shall have authority to issue is Two Hundred Sixty Million (260,000,000), of which (i) Two Hundred and Fifty Million (250,000,000) shares shall be a class designated as common stock, par value \$0.0001 per share (the “Common Stock”), and (ii) Ten Million Shares (10,000,000) shares shall be a class designated as preferred stock, par value \$0.0001 per share (the “Preferred Stock”). Upon the filing and effectiveness (the “**Effective Time**”) pursuant to the DGCL of this Certificate of Amendment to the Certificate of Incorporation, each [•] shares of the Corporation’s Common Stock issued and outstanding immediately prior to the Effective Time shall, automatically and without any action on the part of the Corporation or respective holders thereof, be combined and converted into one (1) validly issued, fully paid and non-assessable share of Common Stock (the “**Reverse Split**”); provided, however, that the Corporation shall issue no fractional shares as a result of the actions set forth herein but shall instead pay to the holder of such fractional share a sum in cash equal to such fraction multiplied by the closing sales price of the Common Stock as reported on The Nasdaq Capital Market on the last trading day before the Effective Time (as adjusted to give effect to the Reverse Split).”

3. The Board of Directors of the Corporation has duly adopted a resolution pursuant to Section 242 of the General Corporation Law of the State of Delaware setting forth a proposed amendment to the Certificate of Incorporation of the Corporation and declaring said amendment to be advisable. The requisite stockholders of the Corporation have duly approved said proposed amendment in accordance with Section 242 of the General Corporation Law of the State of Delaware.

4. This Certificate of Amendment and the amendment to the Certificate of Incorporation effected hereby shall be effective immediately upon filing.

[Signature Page Follows]

A-1

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to be signed by its Chief Executive Officer on this ___day of _____, 20__.

MATINAS BIOPHARMA HOLDINGS, INC.

By: _____
Name: Jerome D. Jabbour



SCAN TO VIEW MATERIALS & VOTE



MATINAS BIOPHARMA HOLDINGS, INC. 1545 ROUTE 206 SOUTH - SUITE 302 BEDMINSTER, NJ 07921

VOTE BY INTERNET - www.proxyvote.com or scan the QR Barcode above Use the Internet to transmit your voting instructions and for electronic delivery of information up until 11:59 p.m. Eastern Time on October 31, 2023. Have your proxy card in hand when you access the web site and follow the instructions to obtain your records and to create an electronic voting instruction form.

During The Meeting - Go to www.virtualshareholdermeeting.com/MTNB2023 You may attend the meeting via the internet and vote during the meeting. Have the information that is printed in the box marked by the arrow available and follow the instructions.

VOTE BY PHONE - 1-800-690-6903

Use any touch-tone telephone to transmit your voting instructions up until 11:59 p.m. Eastern Time on October 31, 2023. Have your proxy card in hand when you call and then follow the instructions.

VOTE BY MAIL

Mark, sign and date your proxy card and return it in the postage-paid envelope we have provided or return it to Vote Processing, c/o Broadridge, 51 Mercedes Way, Edgewood, NY 11717.

TO VOTE, MARK BLOCKS BELOW IN BLUE OR BLACK INK AS FOLLOWS:

KEEP THIS PORTION FOR YOUR RECORDS DETACH AND RETURN THIS PORTION ONLY

THIS PROXY CARD IS VALID ONLY WHEN SIGNED AND DATED.

Form containing voting instructions, nominee lists, and signature boxes. Includes sections for 'The Board of Directors recommends you vote FOR the following:', 'Nominees', and 'The Board of Directors recommends you vote FOR proposals 2, 3 and 4.'.

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Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting:
The Notice and Proxy Statement and Form 10-K are available at www.proxyvote.com

MATINAS BIOPHARMA HOLDINGS, INC.
Annual Meeting of Stockholders
November 1, 2023 9:00 AM
This proxy is solicited by the Board of Directors

The stockholder hereby appoints Jerome D. Jabbour and Keith Kucinski, or either of them, as proxies, each with the power to appoint their substitute, and hereby authorizes them to represent and to vote, as designated on the reverse side of this ballot, all of the shares of stock of Matinas BioPharma Holdings, Inc. that the stockholder is entitled to vote at the Annual Meeting of Stockholders to be held at 9:00 AM, EST on November 1, 2023, via the internet at www.virtualshareholdermeeting.com/MTNB2023, and any adjournment or postponement thereof.

This proxy, when properly executed, will be voted in the manner directed herein. If no such direction is made, this proxy will be voted in accordance with the Board of Directors' recommendations.

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Continued and to be signed on reverse side

Your **Vote** Counts!

MATINAS BIOPHARMA HOLDINGS, INC.

2023 Annual Meeting

Vote by October 31, 2023

11:59 PM ET

MATINAS BIOPHARMA HOLDINGS, INC.
1545 ROUTE 206 SOUTH - SUITE 302
BEDWINSTER, NJ 07921



You invested in MATINAS BIOPHARMA HOLDINGS, INC. and it's time to vote!
You have the right to vote on proposals being presented at the Annual Meeting. **This is an important notice regarding the availability of proxy material for the stockholder meeting to be held on November 01, 2023.**

Get informed before you vote

View the Notice & Proxy Statement, Form 10-K online OR you can receive a free paper or email copy of the material(s) by requesting prior to October 18, 2023. If you would like to request a copy of the material(s) for this and/or future stockholder meetings, you may (1) visit www.ProxyVote.com, (2) call 1-800-579-1639 or (3) send an email to sendmaterial@proxyvote.com. If sending an email, please include your control number (indicated below) in the subject line. Unless requested, you will not otherwise receive a paper or email copy.



For complete information and to vote, visit www.ProxyVote.com

Control #

Smartphone users

Point your camera here and
vote without entering a
control number



Vote Virtually at the Meeting*

November 01, 2023
9:00 AM EST

Virtually at:
www.virtualshareholdermeeting.com/MTNB2023

*Please check the meeting materials for any special requirements for meeting attendance.

THIS IS NOT A VOTABLE BALLOT

This is an overview of the proposals being presented at the upcoming stockholder meeting. Please follow the instructions on the reverse side to vote these important matters.

Voting Items	Board Recommends
1. Election of Directors Nominees: 01) Herbert Conrad 04) Eric Ende 07) Matthew Wikler 02) Kathryn Corzo 05) Natasha Giordano 03) Jerome Jabbour 06) James Scibetta	☑ For
2. To approve, on an advisory basis, the compensation of the Company's named executive officers.	☑ For
3. To ratify the appointment of EisnerAmper LLP as the Company's independent registered public accounting firm for the year ending December 31, 2023.	☑ For
4. To approve an amendment to the Company's Certificate of Incorporation to effect a reverse stock split of common stock at a ratio in the range of 1-for-2 to 1-for-50, with such reverse stock split to be effected at such ratio, time and date, if at all, as determined by the Company's Board of Directors, and simultaneously with the reverse stock split, reduce the total number of authorized shares of common stock to 250,000,000.	☑ For

NOTE: To consider any other matters that may properly come before the Annual Meeting.

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