UNITED STATES SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM S-8

REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

MATINAS BIOPHARMA HOLDINGS, INC.

(Exact Name of Registrant as Specified in its Charter)

Delaware

(State or Other Jurisdiction of Incorporation or Organization)

46-3011414

(I.R.S. Employer Identification No.)

1545 Route 206 South, Suite 302 Bedminster, New Jersey 07921 (908) 443-1860 (Address of Principal Executive Offices)

MATINAS BIOPHARMA HOLDINGS, INC. 2013 EQUITY COMPENSATION PLAN (as amended and restated)

(Full Title of the Plan)

Jerome D. Jabbour **Chief Executive Officer** Matinas BioPharma Holdings, Inc. 1545 Route 206 South, Suite 302 Bedminster, New Jersey 07921 (Name and Address Including Zip Code, of Agent For Service) (908) 443-1860 Telephone Number, Including Area Code

With copies to:

Michael J. Lerner, Esq. Steven M. Skolnick, Esq. Lowenstein Sandler LLP 1251 Avenue of the Americas New York, New York 10020 Telephone: (212) 262-6700

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer []

Accelerated filer [X]

Non-accelerated filer [] (Do not check if a smaller reporting company) Smaller reporting company [X]

Emerging growth company []

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards pursuant to Section 7(a)(2)(B) of the Securities Act.[]

CALCULATION OF REGISTRATION FEE

	Amount	Proposed Maximum	Proposed Maximum			
Title of Securities	to be	Offering Price		Aggregate	Am	ount of
to be Registered	Registered(1)	 per Share(2)		Offering Price(2)	Registr	ation Fee(2)
Common Stock, \$0.0001 par value per share	11,057,786	\$ 0.64	\$	7,076,983	\$	919

American on March 19, 2020.			

EXPLANATORY NOTE

Pursuant to General Instruction E to Form S-8 under the Securities Act, this Registration Statement is filed by Matinas BioPharma Holdings, Inc. (the "Company") for the purpose of registering additional shares of the Company's common stock, par value \$0.0001 per share (the "Common Stock") under the 2013 Plan. The number of shares of Common Stock available for issuance under the 2013 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 of Directors of the Company (the "Evergreen Provision"). This Registration Statement registers an aggregate of 11,057,786 additional shares of Common Stock available for issuance under the 2013 Plan as a result of the Evergreen Provision, 4,531,507 of which became available as of January 1, 2019, and 6,526,279 of which became available as of January 1, 2020.

The shares of Common Stock registered pursuant to this Registration Statement are of the same class of securities as the shares of Common Stock registered for issuance under the 2013 Plan pursuant to the currently effective Registration Statement on Form S-8 (Registration No. 333-198488) filed on August 29, 2014, Registration Statement on Form S-8 (Registration No. 333-210495) filed on March 30, 2016, Registration Statement on Form S-8 (Registration No. 333-210495) filed on March 30, 2016, Registration Statement on Form S-8 (Registration No. 333-212912) filed on February 7, 2018. The information contained in the Registrant's registration statements on Form S-8 (Registration No. 333-203141, 333-210495, 333-215456 and 333-222912) is hereby incorporated by reference pursuant to General Instruction E.

Part II

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 3. Incorporation of Documents by Reference.

The following documents, which have been filed by the Matinas BioPharma Holdings, Inc. (the "Company") with the Commission, are hereby incorporated by reference in this Registration Statement:

- our Annual Report on Form 10-K for the year ended December 31, 2019, filed with the SEC on March 9, 2020;
- our Definitive Proxy Statement on Schedule 14A, filed with the SEC on September 24, 2019;
- our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2019, June 30, 2019 and September 30, 2019, filed with the SEC on May 13, 2019, August 13, 2019 and November 13, 2019, respectively;
- our Current Reports on Form 8-K filed with the SEC on January 10, 2020, February 20, 2020 and March 9, 2020 (other than any portions thereof deemed furnished and not filed); and
- the description of the Company's common stock contained in its Prospectus dated May 21, 2014 filed pursuant to Rule 424(b)(3) of the Securities Act of 1933, as amended (the "Securities Act") (Registration No. 333-193455).

All documents subsequently filed by the Company pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, after the date of this Registration Statement and prior to the filing of a post-effective amendment to this Registration Statement which indicates that all securities offered hereby have been sold or which deregisters all securities then remaining unsold, shall be deemed to be incorporated by reference in this Registration Statement and to be a part hereof from the date of filing of such documents. Any statement contained in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this Registration Statement to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated by reference herein modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this Registration Statement.

Item 8. Exhibits.

For a list of exhibits, see the Exhibit Index in this Registration Statement, which is incorporated into this Item by reference.

Exhibit Number	Description of Exhibit
4.1	Certificate of Incorporation of Matinas BioPharma Holdings, Inc., filed as Exhibit 3.1 to Form S-1/A (File No. 333-193455) filed on February 7, 2014 and incorporated herein by reference.
4.2	Certificate of Amendment, dated October 29, 2015 to Certificate of Incorporation, filed as Exhibit 3.1 to the Company's Current Report on Form 8-K filed with the SEC on November 5, 2015 and incorporated herein by reference.
4.3	Bylaws of Matinas BioPharma Holdings, Inc., filed as Exhibit 3.2 to Form S-1/A (File No. 333-193455) filed on February 7, 2014 and incorporated herein by reference.
10.1	Amended and Restated 2013 Equity Compensation Plan, filed as Exhibit 10.6 to the Company's Annual Report on Form 10-K for the year ended December 31, 2014 filed on March 31, 2015 and incorporated herein by reference.
5.1	Opinion of Lowenstein Sandler LLP
23.1	Consent of EisnerAmper LLP
23.2	Consent of Lowenstein Sandler LLP (filed as part of Exhibit 5.1).
24.1	Power of Attorney (included on the signature page).

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the city of Bedminster, State of New Jersey, on this 20th day of March, 2020.

MATINAS BIOPHARMA HOLDINGS, INC.

By: /s/ Jerome D. Jabbour
Jerome D. Jabbour
Chief Executive Officer

POWER OF ATTORNEY AND SIGNATURES

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoint Jerome Jabbour and Keith Kucinski, and each of them, his attorneys-in-fact, with full power of substitution for him in any and all capacities, to sign any amendments to this Registration Statement, including any and all preeffective and post-effective amendments and to file such amendments thereto, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that said attorneys-in-fact, or their substitute or substitutes, may do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act, this registration statement has been signed below by the following persons in the capacities and on the dates indicated.

Chief Executive Officer and Director (Principal Executive Officer) Chief Financial Officer (Principal Financial and Accounting Officer)	March 20, 2020 March 20, 2020
(Principal Financial and Accounting Officer)	March 20, 2020
Chairman of the Board	March 20, 2020
Vice Chairman of the Board	March 20, 2020
Director	March 20, 2020
	Director Director Director



Matinas BioPharma Holdings, Inc. 1545 Route 206 South, Suite 302 Bedminster, New Jersey 07921

Re: Registration Statement on Form S-8

Matinas BioPharma Holdings, Inc. 2013 Equity Compensation Plan, as amended and restated effective as of May 8, 2014

Ladies and Gentlemen;

We have acted as special counsel to Matinas BioPharma Holdings, Inc., a Delaware corporation (the "Company"), in connection with the Company's filing on the date hereof with the Securities and Exchange Commission of a Registration Statement on Form S-8 (the "Registration Statement") under the Securities Act of 1933, as amended. The Registration Statement relates to the registration of 11,057,786 shares (the "Shares") of the Company's common stock, par value \$0.0001 per share (the "Common Stock"), issuable pursuant to the Company's 2013 Equity Compensation Plan, as amended and restated effective as of May 8, 2014 (the "Plan").

In connection with rendering this opinion, we have examined or are familiar with the Certificate of Incorporation, as amended as of the date hereof, the Bylaws of the Company, as amended as of the date hereof, the corporate proceedings with respect to the authorization of the Registration Statement, and such other certificates, instruments and documents as we have considered necessary or appropriate for purposes of this opinion. In such examination, we have assumed the genuineness of all signatures, the authenticity of all documents submitted to us as originals, conformity to the original documents of all documents submitted to us as copies and the authenticity of the originals of such latter documents. As to any facts material to our opinion, we have, when relevant facts were not independently established, relied upon the Registration Statement and the aforesaid records, certificates and documents.

We assume that the Company has sufficient unissued and unreserved shares of Common Stock and (or will validly amend the Company's Certificate of Incorporation, as amended, to authorize a sufficient number of shares of Common Stock prior to the issuance thereof) available for issuance as provided in the Registration Statement and any related amendment thereto or prospectus supplement.

Based upon such examination and review, we are of the opinion that the Shares will, upon issuance and delivery as contemplated by the Plan, be validly issued, fully paid and nonassessable outstanding shares of Common Stock.

The opinion expressed herein is limited to the corporate laws of the State of Delaware (including the statutory provisions, all applicable provisions of the Delaware Constitution and reported judicial decisions interpreting the foregoing) and we express no opinion as to the effect on the matters covered by this letter of the laws of any other jurisdiction. We assume no obligation to advise you of facts or circumstances that come to our attention or changes in law that occur which could affect the opinions contained herein.

This Firm consents to the filing of this letter as an exhibit to the Registration Statement. In giving this consent, we do not admit that this Firm is in the category of persons whose consent is required under Section 7 of the Securities Act of 1933, as amended, or the rules and regulations of the SEC promulgated thereunder.

Very truly yours,

Lowenstein Sandler LLP

NEW YORK PALO ALTO NEW JERSEY UTAH WASHINGTON, D.C. Lowenstein Sandler LLP



March 20, 2020

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in this Registration Statement of Matinas BioPharma Holdings, Inc. and Subsidiaries on Form S-8 to be filed on or about March 20, 2020 of our report dated March 9, 2020, on our audits of the consolidated financial statements as of December 31, 2019, and for each of the years in the two year period ended, and the effectiveness of Matinas BioPharma Holdings, Inc. and Subsidiaries' internal control over financial reporting as of December 31, 2019, which reports were included in the Annual Report on Form 10-K filed March 9, 2020. Our report includes an explanatory paragraph that refers to a change in the method of accounting for leases due to the adoption of Accounting Standards Update 2016-02, and our report on the effectiveness of the Company's internal control over financial reporting as of December 31, 2019 expresses an adverse opinion because of a material weakness.

/s/ EisnerAmper LLP

EISNERAMPER LLP Iselin, New Jersey March 20, 2020