

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

Post-Effective
Amendment No. 2

Form S-1

REGISTRATION STATEMENT UNDER
THE SECURITIES ACT OF 1933

Matinas BioPharma Holdings, Inc.
(Exact Name of Registrant as Specified in its Charter)

Delaware	2834	46-3011414
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification No.)

1545 Route 206 South, Suite 302
Bedminster, New Jersey 07921
Telephone: 908-443-1860
*(Address, including zip code, and telephone number,
including area code, of principal executive offices)*

Roelof Rongen
Chief Executive Officer
Matinas BioPharma Holdings, Inc.
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including area code, of agent for service)*

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Approximate date of proposed sale to public: As soon as practicable on or after the effective date of this registration statement.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933 check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

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

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

(Do not check if a smaller reporting company)

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act, as amended, or until this Registration Statement shall become effective on such date as the Commission, acting pursuant to such Section 8(a), may determine.

EXPLANATORY NOTE

On October 4, 2013, we filed a registration statement with the Securities and Exchange Commission, or the SEC, on Form S-1 (File No. 333-193455) (the “Registration Statement”). The Registration Statement, as amended, was declared effective by the SEC on February 12, 2014 to initially register for resale by the selling stockholders identified in the prospectus an aggregate of 28,000,000 shares of our common stock, par value \$0.0001 per share. This post-effective amendment is being filed to (i) include information from our Annual Report on Form 10-K for the year ended December 31, 2014 (the “Annual Report”); and (ii) update certain other information in the prospectus relating to the offering and sale of the shares that were registered for resale on the Form S-1. The Annual Report is incorporated by reference herein and is listed in “Part I—Documents Incorporated by Reference”.

No additional securities are being registered under this post-effective amendment. All applicable registration and filing fees were paid at the time of the original filing of the Registration Statement.

The information in this prospectus is not complete and may be changed. We may not sell these securities until the Securities and Exchange Commission declares our registration statement effective. This prospectus is not an offer to sell these securities and is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

Preliminary Prospectus

Subject to Completion, dated April 17, 2015

Matinas BioPharma Holdings, Inc.

10,382,500 Shares
Common Stock

This prospectus relates to the offer for sale of up to an aggregate of 10,382,500 shares of common stock underlying warrants held by the selling stockholders.

Our common stock is listed for quotation on the OTCQB Market operated by OTC Markets Group, Inc. (or OTCQB) under the ticker symbol "MTNB." On April 13, 2015, the closing price of our common stock was \$1.05.

Following the effectiveness of the registration statement of which this prospectus forms a part, the sale and distribution of securities offered hereby may be effected in one or more transactions that may take place on the OTC Bulletin Board and/or OTCQB Market, including ordinary brokers' transactions, privately negotiated transactions or through sales to one or more dealers for resale of such securities as principals, at market prices prevailing at the time of sale, at prices related to such prevailing market prices or at negotiated prices. Usual and customary or specifically negotiated brokerage fees or commissions may be paid by the selling stockholders. See "Plan of Distribution."

The selling stockholders and intermediaries through whom such securities are sold may be deemed "underwriters" within the meaning of the Securities Act of 1933, as amended, with respect to the securities offered hereby, and any profits realized or commissions received may be deemed underwriting compensation.

We are an "emerging growth company" under the federal securities laws and will be subject to reduced public company reporting requirements. Investing in our common stock is highly speculative and involves a significant degree of risk. See "Risk Factors" beginning on page 5 of this prospectus for a discussion of information that should be considered before making a decision to purchase our common stock.

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

The date of this prospectus is _____, 2015.

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You should rely only on the information contained in this prospectus. We have not authorized any other person to provide you with information different from or in addition to that contained in this prospectus. If anyone provides you with different or inconsistent information, you should not rely on it. We are not making an offer to sell these securities in any jurisdiction where an offer or sale is not permitted. You should assume that the information appearing in this prospectus is accurate only as of the date on the front cover of this prospectus. Our business, financial condition, results of operations and prospects may have changed since that date.

Additional risks and uncertainties not presently known or that are currently deemed immaterial may also impair our business operations. The risks and uncertainties described in this document and other risks and uncertainties which we may face in the future will have a greater impact on those who purchase our common stock. These purchasers will purchase our common stock at the market price or at a privately negotiated price and will run the risk of losing their entire investments.

For investors outside the United States: We have not done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. You are required to inform yourselves about and to observe any restrictions relating to this offering and the distribution of this prospectus.

In this prospectus, we rely on and refer to information and statistics regarding our industry. We obtained this statistical, market and other industry data and forecasts from publicly available information.

PROSPECTUS SUMMARY

This summary highlights information contained in other parts of this prospectus. Because it is a summary, it does not contain all of the information that you should consider in making your investment decision. Before investing in our common stock, you should read the entire prospectus carefully, including our consolidated financial statements and the related notes included in this prospectus and the information set forth under the headings “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations.”

When used herein, unless the context requires otherwise, references to the “Company,” “we,” “our” and “us” refer to Matinas BioPharma Holdings, Inc., a Delaware corporation, collectively with its wholly-owned subsidiaries, Matinas BioPharma, Inc., a Delaware corporation, which we sometimes refer to herein as Matinas BioPharma, and Aquarius Biotechnologies, Inc., a Delaware corporation, which we sometimes refer to herein as Aquarius.

Our Company

On January 29, 2015, we completed the acquisition of Aquarius Biotechnologies Inc., (referred to as the “Aquarius Merger” throughout this document and which is discussed in more detail under “Recent Developments”), a New Jersey-based, early-stage pharmaceutical company focused on the development of differentiated and orally delivered therapeutics based on a proprietary, lipid-based, drug delivery platform called “cochleate delivery technology.” Following the Aquarius Merger, we are a clinical-stage biopharmaceutical company focused on the development of targeted therapeutics using our innovative lipid-based drug delivery platform with an initial focus on the treatment of serious fungal and bacterial infections and the development of lipid-based prescription therapeutics for the treatment of cardiovascular and metabolic conditions.

Our proprietary cochleate delivery technology platform, licensed from Rutgers University on an exclusive worldwide basis, is designed specifically for the targeted and safe delivery of pharmaceuticals directly to the site of infection or inflammation. We believe this platform represents a significant innovation that may result in meaningful improvements to currently available therapies to treat numerous life-threatening diseases, including serious fungal infections and multi-drug resistant, or MDR, gram-negative bacterial infections.

Our lead product candidate for the treatment of infectious diseases is MAT 2203, an oral formulation of a broad spectrum anti-fungal drug called amphotericin B using our acquired cochleate delivery technology, for which a single-dose Phase 1a study has been completed. We expect to commence and complete a Phase 2a study of MAT2203 in collaboration with the National Institute of Allergy and Infectious Diseases, or NIAID, of the National Institutes of Health, or NIH, in 2015, with results expected in the fourth quarter of 2015. We are developing a pipeline of oral products by applying our cochleate delivery technology to a potentially broad array of established pharmaceuticals, including MAT 2501, an application of our cochleate delivery technology to a broad spectrum intravenous(IV)-delivered aminoglycoside antibiotic called amikacin, which is most often used for treating severe, hospital-acquired infections, including Gram-negative bacterial infections. We also continue to focus on identifying and developing novel pharmaceutical lipid-based products, including MAT9001 with an initial indication for the treatment of highly elevated triglycerides, or severe hypertriglyceridemia. Finally, our MAT8800 discovery program is seeking to identify and develop product candidates derived from omega-3 fatty acids for the treatment of non-alcoholic fatty liver disease for which there are currently no therapeutic solutions available.

Implications of Being an Emerging Growth Company

We are an “emerging growth company,” as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act, and, for as long as we continue to be an “emerging growth company,” we may choose to take advantage of exemptions from various reporting requirements applicable to other public companies but not to “emerging growth companies,” including, but not limited to, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. We could be an “emerging growth company” for up to five years, or until the earliest of (i) the last day of the first fiscal year in which our annual gross revenues exceed \$1 billion, (ii) the date that we become a “large accelerated filer” as defined in Rule 12b-2 under the Securities Exchange Act of 1934, as amended, which would occur if the market value of our common stock that is held by non-affiliates exceeds \$700 million as of the last business day of our most recently completed second fiscal quarter, or (iii) the date on which we have issued more than \$1 billion in non-convertible debt during the preceding three-year period. We have taken advantage of reduced reporting requirements in this prospectus. Accordingly, the information contained herein may be different from the information you receive from other public companies in which you hold stock. Also, we have irrevocably elected to “opt out” of the extended transition periods available under the JOBS Act for complying with new or revised accounting standards and, therefore, will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

Corporate Information

Matinas BioPharma Holdings Inc., sometimes referred to herein as Holdings, is a Delaware corporation formed in May 2013. Holdings is the parent company of two operating subsidiaries: Matinas BioPharma, Inc., a Delaware corporation, and Aquarius Biotechnologies Inc., a Delaware corporation. Nereus BioPharma LLC, a Delaware limited liability company (and Matinas BioPharma's predecessor) was formed on August 12, 2011. On February 29, 2012, Nereus BioPharma LLC converted from a limited liability company to a corporation and changed its name to Matinas BioPharma, Inc. On January 29, 2015, we acquired Aquarius Biotechnologies Inc.

Our principal offices are located at 1545 Route 206 South, Suite 302, Bedminster, New Jersey 07921. Our web address is www.matinasbiopharma.com. Information contained in or accessible through our web site is not, and should not be deemed to be, part of this prospectus. You should not rely on our website or any such information in making your decision whether to purchase our common stock.

We currently do not own or license any U.S. federal trademark registrations or applications. Some trademarks referred to in this prospectus are referred to without the ® and ™ symbols, but such references should not be construed as any indicator that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto.

THE OFFERING

Common Stock Outstanding 56,900,670 shares (1)

**Common Stock, including Shares of
Common Stock underlying Warrants,
Offered by Selling Stockholders** 10,382,500 shares (2)

Use of Proceeds We will not receive any proceeds from the sale of the common stock underlying the warrants by the selling stockholders. We would, however, receive proceeds upon the exercise of the warrants held by the selling stockholders which, if such warrants are exercised in full (and assuming no “cashless” exercise features are utilized), would be approximately \$20,765,000. Proceeds, if any, received from the exercise of such warrants will be used for working capital and general corporate purposes. No assurances can be given that any of such warrants will be exercised.

Quotation of Common Stock: Our common stock is listed for quotation on the OTCQB Market operated by OTC Markets Group, Inc. (or OTCQB) under the ticker symbol “MTNB.”

Risk Factors An investment in our company is highly speculative and involves a significant degree of risk. See “Risk Factors” and other information included in this prospectus for a discussion of factors you should carefully consider before deciding to invest in shares of our common stock.

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- (1) Excludes: (i) outstanding options to purchase 6,308,417 shares of our common stock, as of March 31, 2015, at a weighted average exercise price of \$0.96 per share; (ii) up to 2,879,056 shares of our common stock that are available, as of March 31, 2015, for future issuance under our 2013 Equity Compensation Plan; (iii) 7,500,000 shares of our common stock underlying the Investor Warrants, which have an exercise price of \$2.00 per share, issued in our 2013 Private Placement, (iv) 1,000,000 shares of common stock underlying the Merger Warrants, which have an exercise price of \$2.00 per share, issued in connection with the Merger, (v) 500,000 shares of common stock underlying the Private Placement Warrants, which have an exercise price of \$2.00 per share, issued in the warrant private placement, (vi) 4,000,000 shares of our common stock underlying the Formation Warrants, which have an exercise price of \$2.00 per share, issued in connection with the formation of Holdings, (vii) 1,500,000 shares of our common stock underlying warrants, which have an exercise price of \$1.00 per share, issued to the Placement Agent in the 2013 Private Placement, (viii) 750,000 shares of our common stock underlying warrants, which have an exercise price of \$2.00 per share issued to the Placement Agent in the 2013 Private Placement, (ix) 20,000,000 shares of common stock underlying the 2015 Investor Warrants with an exercise price of \$0.75 per share, (x) 2,000,000 shares of common stock underlying warrants issued to the Placement Agent in the 2015 Private Placement with an exercise price of \$0.75 per share and (xi) 2,000,000 shares of common stock underlying warrants issued to the Placement Agent in the 2015 Private Placement with an exercise price of \$0.50 per share.
- (2) Consists of: (i) 7,457,500 shares of our common stock underlying the Investor Warrants, which have an exercise price of \$2.00 per share, (ii) 1,000,000 shares of our common stock underlying the Merger Warrants, which have an exercise price of \$2.00 per share, (iii) 500,000 shares of our common stock underlying the Private Placement Warrants, which have an exercise price of \$2.00 per share, and (iv) 1,425,000 shares of our common stock underlying the Formation Warrants, which have an exercise price of \$2.00 per share.

RISK FACTORS

Investment in our common stock involves risks. Prior to making a decision about investing in our common stock, you should consider carefully the risk factors incorporated by reference in this prospectus, including the risk factors described in the section entitled “Risk Factors” contained in our Annual Report on Form 10-K for the fiscal year ended December 31, 2014, filed with the SEC. Those risks and uncertainties are not the only risks and uncertainties we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial also may impair our business operations. If any of these risks actually occur, our business, results of operations and financial condition could suffer. In that event the trading price of our common stock could decline, and you may lose all or part of your investment.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains “forward-looking statements,” which include information relating to future events, future financial performance, financial projections, strategies, expectations, the competitive environment and regulation. In some cases, you can identify forward-looking statements by terms such as “may,” “will,” “should,” “could,” “would,” “predicts,” “potential,” “continue,” “expects,” “anticipates,” “future,” “intends,” “plans,” “believes,” “estimates,” and similar expressions, as well as statements in future tense. Forward-looking statements should not be read as a guarantee of future performance or results and may not be accurate indications of when such performance or results will be achieved, if at all. Forward-looking statements are based on information we have available to us when such statements are made or on management’s good faith belief as of that time with respect to such future events, and are subject to risks and uncertainties that could cause actual performance or results to differ materially from those expressed in or suggested by the forward-looking statements. Important factors that could cause such differences include, but are not limited to:

- our limited operating history;
- our history of operating losses in each year since inception and the expectation that we will continue to incur operating losses for the foreseeable future;
- our ability to raise additional capital to fund our operations and to develop our product candidates;
- our dependence on product candidates, which are still in an early development stage;
- our ability to integrate our recent acquisition of Aquarius Biotechnologies, Inc.;
- our reliance on proprietary cochleate drug delivery technology, which is licensed to us by Rutgers University;
- our ability to manufacture GMP batches of our product candidates which are required for pre-clinical and clinical trials and, subsequently, our ability to manufacture commercial quantities;
- our ability to complete required clinical trials for our lead product candidate and other product candidates and obtain approval from the FDA or other regulatory agents in different jurisdictions;
- our lack of a sales and marketing organization and our ability to commercialize products, if we obtain regulatory approval;
- our dependence on third-parties, including third-parties to manufacture and third-party CROs to conduct our clinical trials;
- our ability to maintain or protect the validity of our patents and other intellectual property;
- our ability to retain key executive members;
- our ability to internally develop new inventions and intellectual property;
- interpretations of current laws and the passages of future laws
- acceptance of our business model by investors;
- our ability to adequately support growth; and
- the factors listed under the headings “Risk Factors” in the reports that we file with the Securities and Exchange Commission, which are incorporated by reference herein.

The foregoing does not represent an exhaustive list of matters that may cause actual performance or results to differ materially from those expressed in or suggested by forward-looking statements contained herein. Please see “Risk Factors” for additional risks which could adversely impact our business and financial performance.

Moreover, new risks regularly emerge and it is not possible for our management to predict or articulate all of the risks we face, nor can we assess the impact of all risks on our business or the extent to which any risk, or combination of risks, may cause actual results to differ from those contained in any forward-looking statements. Given these uncertainties, you should not place undue reliance on these forward-looking statements. All forward-looking statements included in this prospectus are based on information available to us on the date of this prospectus. Except to the extent required by applicable laws or rules, we undertake no obligation to publicly update or revise any forward-looking statement, whether as a result of new information, future events or otherwise. All subsequent written and oral forward-looking statements attributable to us or persons acting on our behalf are expressly qualified in their entirety by the cautionary statements contained above and throughout this prospectus.

USE OF PROCEEDS

We will not receive any of the proceeds from the sale of the common stock underlying the warrants by the selling stockholders named in this prospectus. All proceeds from the sale of the common stock will be paid directly to the selling stockholders.

We would, however, receive proceeds upon the exercise of the warrants held by the selling stockholders which, if such warrants are exercised in full (and assuming no “cashless” exercise features are utilized), would be approximately \$20,765,000. Proceeds, if any, received from the exercise of such warrants will be used for working capital and general corporate purposes. No assurances can be given that any of such warrants will be exercised.

DIVIDEND POLICY

We have never paid any cash dividends on our common stock. We anticipate that we will retain funds and future earnings to support operations and to finance the growth and development of our business. Therefore, we do not expect to pay cash dividends in the foreseeable future. Any future determination to pay dividends will be at the discretion of our board of directors and will depend on our financial condition, results of operations, capital requirements and other factors that our board of directors deems relevant. In addition, the terms of any future debt or credit financings may preclude us from paying dividends.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

Other than compensation arrangements for our named executive officers and directors, we describe below each transaction or series of similar transactions, since January 1, 2012, 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.

Formation of Matinas

In connection with our formation in June 2013, we sold an aggregate of 7,500,000 shares of our Common Stock and 3,750,000 warrants (the “Formation Warrants”) to purchase 3,750,000 shares of our Common Stock, at an exercise price of \$2.00 per share, for an aggregate of \$375,000 (at a purchase price of \$0.10 for two shares and one warrant), including 2,000,000 shares and warrants to purchase 1,000,000 shares of our Common Stock to Adam Stern and entities owned by Mr. Stern. Mr. Stern is a member of our board of directors. In addition, at such time, we sold to an entity owned by Mr. Stern Formation Warrants to purchase 250,000 shares of our Common Stock at a purchase price of \$10,000 (a price of \$0.04 per warrant).

2013 Private Placement

In July and August 2013, we completed a private placement, the 2013 Private Placement, under which we sold an aggregate of 15,000,000 shares of our Common Stock and warrants to purchase an aggregate of 7,500,000 shares of our Common Stock with an exercise price of \$2.00 per share, which warrants are exercisable for a period of five years from the initial closing date of July 30, 2013 (the “2013 Investor Warrants”). In the 2013 Private Placement, Herbert Conrad, our chairman of the board, purchased 250,000 shares of Common Stock and 2013 Investor Warrants to purchase 125,000 shares of our Common Stock. Aegis Capital Corp., or Aegis, acted as the placement agent, or Placement Agent, for the 2013 Private Placement. The gross proceeds to us from the 2013 Private Placement were \$15 million.

In connection with the 2013 Private Placement, we paid the Placement Agent (i) a cash fee of \$1,500,000 and (ii) a non-accountable expense allowance equal to \$450,000. Mr. Stern is an affiliate of Aegis. In addition, as part of its compensation for acting as placement agent for the 2013 Private Placement, we issued (x) warrants to the Placement Agent to purchase 750,000 shares of our Common Stock with an exercise price of \$2.00 per share and (y) warrants to the Placement Agent to purchase 1,500,000 shares of our Common Stock with an exercise price of \$1.00 per share. Such warrants, the 2013 Placement Agent Warrants, contain a “cashless exercise” feature and are exercisable at any time prior to July 30, 2018.

In connection with the closing of the 2013 Private Placement, the Placement Agent was granted the right to appoint one member of our Board of Directors for a two-year term from the initial closing. Adam Stern, the Aegis Nominee, was appointed to the Board of Directors at the initial closing and his successor, if any, will be chosen by the Placement Agent, subject to the reasonable approval of the Company and the Voting Agreement described below.

We have agreed to engage the Placement Agent as our warrant solicitation agent in the event the 2013 Investor Warrants are called for redemption and shall pay a warrant solicitation fee to the Placement Agent equal to five (5%) percent of the amount of funds solicited by the Placement Agent upon the exercise of the 2013 Investor Warrants following such call for redemption.

Consulting Agreement

We also entered into a consulting agreement with the Placement Agent in July 2013. The consulting agreement had a term of 12 months pursuant to which we paid the Placement Agent \$20,000 per month. Under the terms of the consulting agreement, the Placement Agent agreed to provide customary financial advisory services as reasonably requested by us, including consulting services for financing and capital markets activity, mergers, acquisitions, joint ventures and licensing agreements. This consulting agreement terminated on July 30, 2014.

Voting Agreement

In connection with the initial closing of the 2013 Private Placement, the stockholders of Matinas BioPharma, Inc. (“Matinas BioPharma”) prior to the 2013 Merger (as defined below) and the 2013 Private Placement (the “Matinas Stockholders”) and the stockholders of the Company prior to the Merger (the “Company Stockholders”), entered into a Voting Agreement (the “Voting Agreement”). Pursuant to the terms of the Voting Agreement, (i) the Matinas Stockholders have the right to nominate four (4) members to our Board (the “Matinas Stockholders’ Nominees”), (ii) the Company Stockholders will vote in favor of the election and removal of the Matinas Stockholders’ Nominees and (iii) the Company Stockholders shall nominate the Aegis Nominee to our Board and (iv) the Matinas Stockholders shall vote in favor of the election and removal of the Aegis Nominee. The Voting Agreement will expire upon the earlier of (i) the approval of at least 75% of the Matinas Stockholders and the Company Stockholders voting together based upon their ownership of our Common Stock or (ii) the closing of a firm commitment underwritten public offering of shares of our Common Stock resulting in gross proceeds of at least \$20 million.

2013 Merger Transaction

In July 2013, Matinas BioPharma, Inc. entered into a merger agreement (the “2013 Merger Agreement”) with Matinas Merger Sub, Inc., a Delaware corporation and our wholly owned subsidiary, or Merger Sub. Pursuant to the terms of the 2013 Merger Agreement, as a condition of and contemporaneously with the initial closing of the 2013 Private Placement, Merger Sub merged (the “2013 Merger”) with and into Matinas BioPharma and Matinas BioPharma became a wholly owned subsidiary of ours. In connection with the 2013 Merger, all shares of common stock and preferred stock of Matinas BioPharma were cancelled and the stockholders of Matinas BioPharma received an aggregate of 9,000,000 shares of our Common Stock and warrants to purchase 1,000,000 shares of our Common Stock at an exercise price of \$2.00 per share (the “Merger Warrants”), including Herbert Conrad, our chairman of the board, who received 351,563 shares of our Common Stock and 250,000 Merger Warrants; Roelof Rongen, our president and chief executive officer, who received 3,417,186 shares of our Common Stock, Abdel A. Fawzy, our executive vice president, pharmaceutical development and supply chain development, who received 1,708,593 shares of our Common Stock; George Bobotas, our executive vice president and chief scientific officer, and his spouse, who received an aggregate of 1,366,875 shares of our Common Stock; Jerome Jabbour, our executive vice president, chief business officer and general counsel, who received 759,374 shares of our Common Stock; and Stefano Ferrari, a member of our board of directors, through an entity controlled by him, who received 351,563 shares of our Common Stock and 250,000 Merger Warrants.

Warrant Private Placement

Contemporaneously with the initial closing of the 2013 Private Placement, we sold 500,000 warrants (“Private Placement Warrants”) in a private placement to Herbert Conrad, our chairman of the board, for a purchase price of \$0.04 per warrant. The Private Placement Warrants have an exercise price of \$2.00 per share. The Private Placement Warrants were offered to all preferred stockholders of Matinas BioPharma prior to the 2013 Merger, including Mr. Conrad. See the section entitled “Description of Capital Stock –Warrants” for a discussion of the terms of the Private Placement Warrants.

Vendor Agreement

Since January 1, 2011, we have submitted orders for the purchase of an omega-3 fatty acid concentrate from KD-Pharma Bexbach GmbH, or KD Pharma, totaling approximately \$326,220. Mr. Ferrari, a member of our board, is the brother of a part owner of the holding company that owns KD Pharma.

2015 Private Placement

In March and April 2015, we completed a private placement, or the 2015 Private Placement, pursuant to which we sold to accredited investors an aggregate of 20,000,000 units at a price of \$0.50 per unit, with each unit consisting of: (i) one share of our Common Stock, and (ii) a five-year warrant to purchase one share of Common Stock at an exercise price of \$0.75 per share (the “2015 Investor Warrants”). The gross proceeds to us from the 2015 Private Placement were \$10.0 million. Certain of our officers, directors and holders of more than 5% of our capital stock purchased units in the 2015 Private Placement as set forth below.

Name	Number of Units Purchased	Aggregate Purchase Price Paid
GJG Life Sciences, LLC	3,935,880	\$ 1,967,940
Laurence G. Allen and affiliated entities	1,200,000	600,000
Herbert Conrad	1,000,000	500,000
Adam Stern and affiliated entities	800,000	400,000
James Scibetta	100,000	50,000
Roelof Rongen	50,000	25,000
Douglas Kling	40,000	20,000
Gary Gaglione	20,000	10,000

We entered into a Placement Agency Agreement with Aegis Capital Corp. pursuant to which Aegis acted as our exclusive placement agent for the 2015 Private Placement. Immediately prior to the 2015 Private Placement, the Placement Agent and its affiliates beneficially owned an aggregate of more than 10% of our outstanding equity securities. In addition, Adam Stern, Head of Private Equity Banking at Aegis, is a member of our board of directors. Pursuant to the terms of the Placement Agency Agreement, in connection with the 2015 Private Placement, we paid the Placement Agent an aggregate cash fee of \$1,000,000 and non-accountable expense allowance of \$300,000 and will issue to the Placement Agent or its designees warrants (substantially similar to the Warrants) to purchase 2,000,000 shares of Common Stock at \$0.50 per share and additional warrants to purchase 2,000,000 shares of Common Stock at \$0.75 per share. In addition, we agreed to engage the Placement Agent as our warrant solicitation agent in the event the 2015 Investor Warrants are called for redemption and shall pay a warrant solicitation fee to the Placement Agent equal to five (5%) percent of the amount of funds solicited by the Placement Agent upon the exercise of the 2015 Investor Warrants following such redemption.

Indemnification Agreements

We entered into indemnification agreements with our directors and executive officers. 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, nonappealable 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 chairman 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 chairman of our audit committee, for review, consideration and approval. In approving or rejecting any such proposal, our audit committee, or the chairman 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.

DESCRIPTION OF CAPITAL STOCK

Our current Certificate of Incorporation authorizes us to issue:

- 150,000,000 shares of Common Stock, par value \$0.0001 per share; and
- 10,000,000 shares of Preferred Stock, par value \$0.0001 per share, none of which have yet been designated.

As of the date of this prospectus, there were 56,900,670 shares of our Common Stock and no shares of our preferred stock outstanding.

The following statements are summaries only of the material provisions of our authorized capital stock and are qualified in their entirety by our Certificate of Incorporation, which is filed as an exhibit to the registration statement of which this prospectus forms a part. You should review these documents for a description of the rights, restrictions and obligations relating to our capital stock.

Common Stock

Voting. The holders of our Common Stock are entitled to one vote for each share held of record on all matters on which the holders are entitled to vote (or consent to).

Dividends. The holders of our Common Stock are entitled to receive, ratably, dividends only if, when and as declared by our Board of Directors out of funds legally available therefor and after provision is made for each class of capital stock having preference over the Common Stock (including the Common Stock).

Liquidation Rights. In the event of our liquidation, dissolution or winding-up, the holders of our Common Stock are entitled to share, ratably, in all assets remaining available for distribution after payment of all liabilities and after provision is made for each class of capital stock having preference over the Common Stock (including the Common Stock).

Conversion Rights. The holders of our Common Stock have no conversion rights.

Preemptive and Similar Rights. The holders of our Common Stock have no preemptive or similar rights.

Redemption/Put Rights. There are no redemption or sinking fund provisions applicable to the Common Stock. All of the outstanding shares of our Common Stock are fully-paid and nonassessable.

Preferred Stock

We are authorized to issue up to 10,000,000 shares of preferred stock, par value \$0.0001 per share, with such designations, rights, and preferences as may be determined from time to time by our Board of Directors. Accordingly, our Board of Directors is empowered, without stockholder approval, to issue preferred stock with dividend, liquidation, conversion, voting, or other rights that could adversely affect the voting power or other rights of the holders of our Common Stock. The issuance of preferred stock could have the effect of restricting dividends on our Common Stock, diluting the voting power of our Common Stock, impairing the liquidation rights of our Common Stock, or delaying or preventing a change in control of our company, all without further action by our stockholders. We have no shares of our preferred stock outstanding.

Warrants

As of the date of this prospectus, we had outstanding warrants (consisting of 2013 Investor Warrants, Private Placement Warrants, warrants issued to the Placement Agent in our 2013 Private Placement, the 2015 Investor Warrants and warrants issued to the Placement Agent in our 2015 Private Placement) to purchase an aggregate of 29,250,000 shares of Common Stock at exercise prices ranging from \$0.50 to \$2.00 per share. These warrants are presently exercisable and have a five-year term. The warrants may be exercised at any time in whole or in part upon payment of the applicable exercise price until expiration of the warrants. No fractional shares will be issued upon the exercise of the warrants. The warrants may be exercised on a “cashless” basis in certain circumstances, except the 2013 Placement Agent Warrants and 2015 Placement Agent Warrants which may be exercised on a “cashless” basis at any time.

The exercise price and the number of warrant shares purchasable upon the exercise of the warrants are subject to adjustment upon the occurrence of certain events, including stock dividends, stock splits, combinations and reclassifications of our capital stock. Additionally, an adjustment would be made in the case of a reclassification or exchange, consolidation or merger of our company with or into another corporation (other than a consolidation or merger in which we are the surviving corporation) or sale of all or substantially all of our assets in order to enable holders of the warrants to acquire the kind and number of shares of stock or other securities or property receivable in such event by a holder of the number of shares Common Stock that might otherwise have been purchased upon the exercise of the warrants.

We may call the 2013 Investor Warrants and the Private Placement Warrants at any time the Common Stock trades above \$5.00 for the twenty (20) consecutive trading days immediately prior to such a call, provided that such warrants can only be called if the registration statement covering the resale of the shares of Common Stock underlying the 2013 Investor Warrants and the Private Placement Warrants is current and remains effective at the time of the call and provided further that we can only call the 2013 Investor Warrants for redemption, if we also call the Private Placement Warrants for redemption on the terms described above. The 2013 Placement Agent Warrants do not have a redemption feature.

We may call the 2015 Investor Warrants at any time the closing bid price for our Common Stock is at or above \$3.00 for the twenty (20) consecutive days immediately prior to such a call and following the effectiveness of the registration statement covering the resale of the shares of Common Stock underlying the 2015 Investor Warrants. The 2015 Investor Warrants can only be called if such registration statement is current and remains effective at the time of the call. The 2015 Placement Agent Warrants do not have a redemption feature.

Options

As of the date of this prospectus, we had outstanding options to purchase an aggregate of 6,308,417 shares of our Common Stock with exercise prices ranging from \$0.41 to \$1.28 per share.

Transfer Agent and Registrar

VStock Transfer, LLC is the transfer agent and registrar for our Common Stock.

Quotation of Securities

Our Common Stock is quoted on the OTCQB. On April 13, 2015, the closing bid of the Common Stock was \$1.05 per share.

Anti-Takeover Effect of Delaware Law, Certain Charter and Bylaw Provisions

Our certificate of incorporation and bylaws contain provisions that could have the effect of discouraging potential acquisition proposals or tender offers or delaying or preventing a change of control of our company. These provisions are as follows:

- they provide that special meetings of stockholders may be called only by the board of directors, President or our Chairman of the Board of Directors, or at the request in writing by stockholders of record owning at least fifty (50%) percent of the issued and outstanding voting shares of Common Stock;
- they do not include a provision for cumulative voting in the election of directors. Under cumulative voting, a minority stockholder holding a sufficient number of shares may be able to ensure the election of one or more directors. The absence of cumulative voting may have the effect of limiting the ability of minority stockholders to effect changes in our board of directors; and
- they allow us to issue, without stockholder approval, up to 10,000,000 shares of preferred stock that could adversely affect the rights and powers of the holders of our Common Stock.

We are subject to the provisions of Section 203 of the General Corporation Law of the State of Delaware, an anti-takeover law. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a “business combination” with an “interested stockholder” for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in the following prescribed manner:

- prior to the time of the transaction, the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the number of shares outstanding (1) shares owned by persons who are directors and also officers and (2) shares owned by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; and
- on or subsequent to the time of the transaction, the business combination is approved by the board and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock which is not owned by the interested stockholder.

Generally, for purposes of Section 203, a “business combination” includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. An “interested stockholder” is a person who, together with affiliates and associates, owns or, within three years prior to the determination of interested stockholder status, owned 15% or more of a corporation’s outstanding voting securities.

SELLING STOCKHOLDERS

The following table sets forth information as of the date of this prospectus, to our knowledge, about the beneficial ownership of our common stock by the selling stockholders both before and immediately after the offering.

All of the selling stockholders received their registrable securities in: (i) our formation, (ii) 2013 Private Placement; and/or (iii) the Warrant Private Placement, in each case prior to the initial filing date of the registration statement of which this prospectus is a part. We believe that the selling stockholders have sole voting and investment power with respect to all of the shares of common stock beneficially owned by them unless otherwise indicated. We believe that all securities purchased by broker-dealers or affiliates of broker-dealers were purchased by such persons and entities in the ordinary course of business and at the time of purchase, such purchasers did not have any agreements or understandings, directly or indirectly, with any person to distribute such securities.

The percent of beneficial ownership for the selling stockholders is based on 56,900,670 shares of common stock outstanding as the date of this prospectus. Warrants to purchase shares of our common stock held by certain investors that are currently exercisable or exercisable within 60 days of the date of this prospectus are considered outstanding and beneficially owned by such investors for the purpose of computing the percentage ownership of their respective percentage ownership but are not treated as outstanding for the purpose of computing the percentage ownership of any other stockholder. Unless otherwise stated below, to our knowledge, none of the selling stockholders has had a material relationship with us other than as a stockholder at any time within the past three years or has ever been one of our officers or directors.

Pursuant to Rules 13d-3 and 13d-5 of the Exchange Act, beneficial ownership includes any shares of our common stock as to which a stockholder has sole or shared voting power or investment power, and also any shares of our common stock which the stockholder has the right to acquire within 60 days, including upon exercise of warrants to purchase shares of our common stock.

The shares of common stock being offered pursuant to this prospectus may be offered for sale from time to time during the period the registration statement of which this prospectus is a part remains effective, by or for the account of the selling stockholders. After the date of effectiveness, the selling stockholders may have sold or transferred, in transactions covered by this prospectus or in transactions exempt from the registration requirements of the Securities Act, some or all of their common stock.

Information about the selling stockholders may change over time. Any changed information will be set forth in an amendment to the registration statement or supplement to this prospectus, to the extent required by law.

Name of Selling Stockholder	Shares Beneficially Owned as of the date of this Prospectus ⁽¹⁾		Shares Offered by this Prospectus	Shares Beneficially Owned After the Offering ⁽¹⁾⁽²⁾	
	Number	Percent		Number	Percent
A. Lauren Rhude Trust ⁽³⁾	30,000	*	10,000	20,000	*
ABBA Properties Partnership ⁽⁴⁾	112,500	*	37,500	75,000	*
Ali Bijan Rafie Trust ⁽⁵⁾	52,500	*	17,500	35,000	*
Andrew Kaufman	155,000	*	25,000	130,000	*
Arnold Estates LLC ⁽⁶⁾	240,625	*	100,000	140,625	*
Aspire Capital Fund LLC ⁽⁷⁾	125,000	*	125,000	-	-
Bel-Cal Joint Venture ⁽⁸⁾	375,000	*	125,000	250,000	*

Blue Ridge Financial Inc. ⁽⁹⁾	12,500	*	12,500	-	-
Bret Shupack	155,000	*	25,000	130,000	*
Christine Hassuk	15,000	*	5,000	10,000	*
Clyde J. Berg 2011 Charitable Remainder Trust 2011 ⁽¹⁰⁾	150,000	*	50,000	100,000	*
Collier Holdings LLC ⁽¹¹⁾	225,000	*	75,000	150,000	*
Craig Benson	240,626	*	100,000	140,626	*
The Langston Family Revocable Trust (12)	750,000	1.3%	250,000	500,000	*
Daniel Cardone	10,000	*	10,000	-	-
Daniel S. Travelle	75,000	*	25,000	50,000	*
David Blonder	337,500	*	112,500	225,000	*
David Filer	75,000	*	25,000	50,000	*
David Kovacs	62,500	*	7,500	55,000	*
David M. Kutz, Patricia A. Kutz	150,000	*	50,000	100,000	*
Deborah Chin	232,500	*	12,500	225,000	*
Dominion Pension Plan Trustees (Jersey) Limited as Trustee of the Raffaele Ricci Pension Trust ⁽¹³⁾	775,000	1.4%	125,000	650,000	1.1%
Douglas P. Kaufman	137,500	*	12,500	125,000	*
Dov Sugarman	37,500	*	12,500	25,000	*
Fabrizio Balestri	37,500	*	12,500	25,000	*
Florence Luvera	15,000	*	5,000	10,000	*
FourJr. Investments LTD. ⁽¹⁴⁾	562,500	*	187,500	375,000	*
Fred A Wagner, Sr. & Rhonda M. Wagner	37,500	*	12,500	25,000	*
Fred A. Wagner, Jr. & Allison K. Wagner	75,000	*	25,000	50,000	*
Frederick B Carson and Barbara Kim Carson Ttee U/A Dtd 2/16/06 Carson Living Trust ⁽¹⁵⁾	30,000	*	10,000	20,000	*

Gerald and Lynnette Hannahs	375,000	*	125,000	250,000	*
Gerald Appel	37,500	*	12,500	25,000	*
Growth Ventures, Inc. Pension Plan & Trust ⁽¹⁶⁾	75,000	*	25,000	50,000	*
Haitham Elsheikh	425,000	*	75,000	350,000	*
Henry Rothman	93,750	*	31,250	62,500	*
Ian Stern	15,000	*	5,000	10,000	*
Jack J. Springer, M.D., A Medical Corporation Defined Benefit Plan & Trust ⁽¹⁷⁾	25,000	*	25,000	-	-
Jack Springer	37,500	*	12,500	25,000	*
Jacob Movtady	15,000	*	5,000	10,000	*
James and Sarah Lawler	46,875	*	15,625	31,250	*
Jan Koe	93,750	*	31,250	62,500	*
Jeffry F. Schoenbaum Revocable Trust U/A 3/4/96 ⁽¹⁸⁾	225,000	*	75,000	150,000	*
Sodi Family Limited Partnership	75,000	*	25,000	50,000	*
JKW Family Ltd ⁽¹⁹⁾	300,000	*	100,000	200,000	*
Joel Kovacs	50,500	*	7,500	43,000	*
John Burgraff	75,000	*	25,000	50,000	*
Joseph A. Scaniffe	50,000	*	25,000	25,000	*
Joseph Sharkey	75,000	*	25,000	50,000	*
Kalman A Barson	15,000	*	5,000	10,000	*
Keith E. Myers	25,000	*	12,500	12,500	*
Ken Chuzi IRA, Raymond James and Assoc. Inc. Custodian	10,000	*	10,000	-	-
Kenneth Weitzman	93,750	*	31,250	62,500	*
Kosir Living Trust ⁽²⁰⁾	93,750	*	31,250	62,500	*
B. Kyle Smith	15,000	*	5,000	10,000	*
John E. Dell, Laura P. Dell ⁽²¹⁾	715,000	1.3%	25,000	690,000	1.2%
Lester Petracca	1,750,000	3.0%	250,000	1,500,000	2.6%
LGA Investments Family Limited Partnership ⁽²²⁾	700,000	1.2%	100,000	600,000	1.1%
Martin and Diana Wolmark	75,000	*	75,000	-	*
Marvin Boehm Family Trust ⁽²³⁾	45,000	*	15,000	30,000	*
Mary L .Marcus - West Declaration of Trust ⁽²⁴⁾	52,500	*	17,500	35,000	*
MAT9 LLC ⁽²⁵⁾	241,875	*	80,625	161,250	*

Matthew D. and Regina M. MacLean	37,500	*	12,500	25,000	*
Maureen Campanella	37,500	*	12,500	25,000	*
Maurice Aaron	75,000	*	25,000	50,000	*
Michael D Ellerson IRA, Raymond James and Assoc. Inc. Custodian	10,000	*	10,000	-	-
Michael F Hannley IRA, Raymond James and Assoc. Inc. Custodian	10,000	*	10,000	-	-
Michael Garnick	1,300,000	2.3%	200,000	1,100,000	1.9%
Michael Lerner	135,000	*	25,000	110,000	*
Michael Marino and Gina Rue	75,000	*	25,000	50,000	*
M.J. Fil Investments LLC ⁽²⁶⁾	12,500	*	12,500	-	-
Moogle Investors LLC ⁽²⁷⁾	300,000	*	100,000	200,000	*
MSSB C/F James Moore IRA Rollover	37,500	*	12,500	25,000	*
MSSB C/F James P. Maher IRA Rollover ⁽²⁸⁾	37,500	*	12,500	25,000	*
MSSB Custodian Bruce Emad IRA Rollover ⁽²⁹⁾	37,500	*	12,500	25,000	*
Nickel River LLC ⁽³⁰⁾	150,000	*	50,000	100,000	*
Option Opportunities Corp. ⁽³¹⁾	25,000	*	25,000	-	-
Patrick Lorenz	175,000	*	25,000	150,000	*
Peter Janssen ⁽³²⁾	94,442	*	18,750	75,672	*
Peter S Sabo	175,000	*	25,000	150,000	*
Plank 2010 Family Trust ⁽³³⁾	120,313	*	50,000	70,313	*
Precedo Fund LP ⁽³⁴⁾	150,000	*	50,000	100,000	*
RBC Capital Markets as Custodian for Barbara S. Dickler	187,500	*	62,500	125,000	*
RBC Custodian FBO Kevin Clarke IRA	15,000	*	5,000	10,000	*
RBC Custodian FBO Jonathan Young IRA	15,000	*	5,000	10,000	*

Robert deRose and Susan deRose Family Trust 11/18/86 ⁽³⁵⁾	300,000	*	100,000	200,000	*
Robert H. Rowley and Dorothy W. Rowley Trust ⁽³⁶⁾	30,000	*	10,000	20,000	*
Robert L. Consley	75,000	*	25,000	50,000	-
Robert L. Montgomery	37,500	*	12,500	25,000	*
Robyn Schreiber	75,000	*	25,000	50,000	*
Investor Company F.B.O. Rosalind Capital Partners L.P. ⁽³⁷⁾	419,350	*	93,750	325,600	-
Investor Company F.B.O. Rosalind Master Fund L.P. ⁽³⁸⁾	230,650	*	56,250	174,400	-
S.T. Organovo LLC ⁽³⁹⁾	750,000	1.3%	250,000	500,000	*
Safier Enterprises LLC ⁽⁴⁰⁾	50,000	*	50,000	-	-
Samuel R Solis	93,750	*	31,250	62,500	*
Serenity Now LLC ⁽⁴¹⁾	92,500	*	12,500	80,000	*
Seymore Goldstein and Danyale English	75,000	*	25,000	50,000	*
SJO Worldwide, LLC ⁽⁴²⁾	900,000	1.5%	300,000	600,000	1.1%
Souheil Haddad	1,037,500	1.8%	12,500	1,025,000	1.8%
Stacy P. Paros	93,750	*	31,250	62,500	*
Steven C. Plank	120,313	*	50,000	70,313	*
Terrence Oi and Patricia McChan ⁽⁴³⁾	115,000	*	25,000	90,000	*
The Robert G. Mulchrone Trust ⁽⁴⁴⁾	97,500	*	32,500	65,000	*
The Wollheim Family Trust ⁽⁴⁵⁾	75,000	*	75,000	-	-
Timothy J Prouty IRA Raymond James and Assoc. Inc. Custodian	10,000	*	10,000	-	-
Timothy McInerney	37,500	*	12,500	25,000	*
Vantage FBO Laurence E. Lof Roth IRA ⁽⁴⁶⁾	75,000	*	25,000	50,000	*
Vantage FBO Regina M. MacLean Roth IRA	37,500	*	12,500	25,000	-
Vekoe Partners LLC ⁽⁴⁷⁾	67,500	*	22,500	45,000	*
Vidonia Holdings, LLC ⁽⁴⁸⁾	240,625	*	100,000	140,625	*
Wachtel Ventures, LLC ⁽⁴⁹⁾	240,626	*	100,000	140,626	*

Warberg Opportunistic Trading Fund LP ⁽⁵⁰⁾	25,000	*	25,000	-	-
William F. Miller, III	225,000	*	75,000	150,000	*
Wiltain Investors LLC ⁽⁵¹⁾	1,062,500	1.8%	737,500	325,000	*
1010 Holdings LLC ⁽⁵²⁾	601,563	1.1%	250,000	351,563	*
SPH Investments Inc. Profit Sharing Plan FBO Stephen Harrington ⁽⁵³⁾	650,000	1.1%	150,000	500,000	*
Sherif Sidhom Salib ⁽⁵⁴⁾	635,000	1.1%	135,000	500,000	*
Northlea Partners, LLLP ⁽⁵⁵⁾	150,000	*	50,000	100,000	*
NSH 2008 Family Trust ⁽⁵⁶⁾	150,000	*	50,000	100,000	*
RBC Capital Markets FBO Laurence G. Allen IRA	150,000	*	50,000	100,000	*
ACP Partners, LP ⁽⁵⁷⁾	75,000	*	25,000	50,000	*
ACP X, LP ⁽⁵⁸⁾	3,586,250	6.1%	500,000	3,086,250	5.3%
George Karfunkel	1,800,000	4.8%	600,000	1,200,000	*
Herbert J. Conrad ⁽⁵⁹⁾	3,783,208	6.4%	875,000	2,908,208	5.0%
Jennifer Lorenzo	75,000	*	75,000	-	-
GJG Life Sciences LLC ⁽⁶⁰⁾	8,746,760	14.2%	875,000	7,871,760	12.9%
Derek Sroufe	261,500	*	87,500	174,000	*
DIT Equity Investors, LLC ⁽⁶¹⁾	291,667	*	125,000	166,667	*
Edward M. Dunn	1,525,000	2.6%	175,000	1,350,000	2.4%
BobCat Property Trust of Angel Fire, New Mexico ⁽⁶²⁾	1,350,000	2.3%	250,000	1,100,000	1.9%
Bruce A. Ferguson IRA Raymond James and Assoc. Inc. Custodian	15,000	*	15,000	-	-
Bruce A. Ferguson and Dawn E. Gunter TIC	45,000	*	15,000	30,000	*
Griffin Value Investors LLC ⁽⁶³⁾	300,000	*	100,000	200,000	*

* Less than 1%.

⁽¹⁾ Share numbers include shares underlying warrants held by the selling stockholder.

- (2) Assumes the sale of all shares offered pursuant to this prospectus.
- (3) A. Lauren Rhude is a trustee with voting and dispositive power over the shares held by the A. Lauren Rhude Trust.
- (4) Avrom Balsam and Nathaniel Abramson are natural persons with voting and dispositive power over the shares held by ABBA Properties Partnership.
- (5) Ali Bijan Rafie is a trustee with voting and dispositive power over the shares held by the Ali Bijan Rafie Trust.
- (6) Steven Ellis is a natural person with voting and dispositive power over the shares held by Arnold Estates LLC.
- (7) Steven G. Martin is a natural person with voting and dispositive power over the shares held by Aspire Capital Fund LLC.
- (8) William Belzberg is a natural person with voting and dispositive power over the shares held by Bel-Cal Joint Venture.
- (9) Nancy J. Cooper and Nicholas Ponzio are natural persons with voting and dispositive power over the shares held by Blue Ridge Financial Inc.
- (10) Carl E. Berg and Carl Warden are co-trustees with voting and dispositive power over the shares held by the Clyde J. Berg 2011 Charitable Remainder Trust 2011.
- (11) Todd Van Emburgh is a natural person with voting and dispositive power over the shares held by Collier Holdings LLC.
- (12) Charles Raymond Langston is a trustee with voting and dispositive power over the shares held by The Langston Family Revocable Trust.
- (13) Dominion Pension Plan Trustees (Jersey) Limited is a trustee with voting and dispositive power over the shares held by the Raffaele Ricci Pension Trust. J.L. Piazza is a control person of Dominion Pension Plan Trustees (Jersey) Limited.
- (14) Robert Burke is a natural person with voting and dispositive power over the shares held by FourJr. Investments LTD.
- (15) Frederick B Carson and Barbara Kim Carson are co-trustees with voting and dispositive power over the shares held by the Carson Living Trust.
- (16) Gary J. McAdam is a trustee with voting and dispositive power over the shares held by the Growth Ventures, Inc. Pension Plan & Trust.

- (17) Jack Springer is a trustee with voting and dispositive power over the shares held by the Jack J. Springer, M.D., A Medical Corporation Defined Benefit Plan & Trust.
- (18) Jeffrey F. Schoenbaum and Susan M. Schoenbaum are co-trustees with voting and dispositive power over the shares held by the Jeffrey F. Schoenbaum Revocable Trust U/A 3/4/96.
- (19) Joshua S. Weiss is a natural person with voting and dispositive power over the shares held by JKW Family Ltd.
- (20) B. Ted Kosir and Stojka Kosir are trustees with voting and dispositive power over the shares held by the Kosir Living Trust.
- (21) Includes 75,000 share beneficially owned by Laura P. Dell individually.
- (22) Laurence G. Allen is a natural person with voting and dispositive power over the shares held by LGA Investments Family Limited Partnership, ACP Partners, LP and ACP X, LP.
- (23) Marvin Boehm is a trustee with voting and dispositive power over the shares held by the Marvin Boehm Family Trust.
- (24) Mary L. Marcus-West is a trustee with voting and dispositive power over the shares held by the Mary L. Marcus-West Declaration Trust.
- (25) Ralph Pastore is a natural person with voting and dispositive power over the shares held by MAT9 LLC and S.T. Organovo LLC.
- (26) Jonathan Blumberg is a natural person with voting and dispositive power over the shares held by M.J. Fil Investments LLC, Option Opportunities Corp., Serenity Now LLC, Warberg Opportunistic Trading Fund LP. Mr. Blumberg is affiliated with a FINRA Member firm.
- (27) Stephen Harrington is a natural person with voting and dispositive power over the shares held by Moggle Investors LLC.
- (28) Mr. Maher is a FINRA member.
- (29) Mr. Emad is a FINRA member.
- (30) Brooks McCartney is a natural person with voting and dispositive power over the shares held by Nickel River LLC. Nickel River LLC is affiliated with a FINRA-member broker-dealer.
- (31) Jonathan Blumberg is a natural person with voting and dispositive power over the shares held by M.J. Fil Investments LLC, Option Opportunities Corp., Serenity Now LLC, Warberg Opportunistic Trading Fund LP. Mr. Blumberg is affiliated with a FINRA Member Firm.
- (32) Mr. Janssen is a FINRA member broker-dealer.
- (33) Julie Plank is a trustee with voting and dispositive power over the shares held by the Plank 2010 Family Trust.
- (34) Timothy Moran is a natural person with voting and dispositive power over the shares held by Precedo Fund LP.

- (35) Robert D. DeRose is a trustee with voting and dispositive power over the shares held by the Robert deRose and Susan deRose Family Trust 11/18/86.
- (36) Robert H. Rowley and Dorothy W. Rowley are co-trustees with voting and dispositive power over the shares held by Robert H. Rowley and Dorothy W. Rowley Trust.
- (37) Steven Salamon is a natural person with voting and dispositive power over the shares held by Rosalind Capital Partners L.P. and Rosalind Master Fund L.P.
- (38) Steven Salamon is a natural person with voting and dispositive power over the shares held by Rosalind Capital Partners L.P. and Rosalind Master Fund L.P.
- (39) Ralph Pastore is a natural person with voting and dispositive power over the shares held by MAT9 LLC and S.T. Organovo LLC.
- (40) Jamie Safier is a natural person with voting and dispositive power over the shares held by Safier Enterprises LLC.
- (41) Daniel Warsh and Jonathan Blumberg each individually hold voting and dispositive power over the shares held by Serenity Now LLC. Mr. Blumberg and Mr. Warsh are each affiliated with a FINRA Member Firm.
- (42) Jeremy Office is a natural person with voting and dispositive power over the shares held by SJO Worldwide, LLC.
- (43) Includes 75,000 shares beneficially owned by Terrence Oi individually.
- (44) Robert G. Mulchrone is a trustee with voting and dispositive power over the shares held by the Robert G. Mulchrone Trust.
- (45) Bryan J. Wollheim and Jaclyn S. Wollheim are co-trustee with voting and dispositive power over the shares held by the Wollheim Family Trust.
- (46) Mr. Lof is a FINRA member.
- (47) Jan Koe is a natural person with voting and dispositive power over the shares held by Vekoe Partners LLC.
- (48) Tara Keiter is a natural person with voting and dispositive power over the shares held by Vidonia Holdings, LLC.
- (49) Adam Wachtel is a natural person with voting and dispositive power over the shares held by Wachtel Ventures, LLC.
- (50) Jonathan Blumberg is a natural person with voting and dispositive power over the shares held by M.J. Fil Investments LLC, Option Opportunities Corp., Serenity Now LLC, Warberg Opportunistic Trading Fund LP. Mr. Blumberg is affiliated with a FINRA Member Firm.
- (51) John McCarthy is a natural person with voting and dispositive power over the shares held by Wiltain Investors LLC.
- (52) Stefano Ferrari is a natural person with voting and dispositive power over the shares held by 1010 Holdings LLC.

- (53) Includes 450,000 shares beneficially owned by SPH Investments Inc. Profit Sharing plan FBO Stephen Harrington, and 200,000 shares beneficially owned by SPH Investments, Inc. Stephen Harrington is a natural person with voting and dispositive power over the shares held by SPH Investments Inc. Profit Sharing Plan FBO Stephen Harrington and the shares held by SPH Investments, Inc.
- (54) Share numbers include shares of common stock that are registered in the name of Mr. Salib's individual retirement account.
- (55) John H Abeles is a natural person with voting and dispositive power over the shares held by Northlea Partners, LLLP.
- (56) David Hochman, Cynthia Hochman and Sara Hochman Allard are co-trustees with voting and dispositive power over the shares held by the NSH 2008 Family Trust.
- (57) Laurence G. Allen is a natural person with voting and dispositive power over the shares held by ACP Partners, LP, ACP X, LP and LGA Investments Family Limited Partnership.
- (58) Laurence G. Allen is a natural person with voting and dispositive power over the shares held by ACP Partners, LP, ACP X, LP and LGA Investments Family Limited Partnership.
- (59) Share numbers include shares of common stock issuable upon exercise of options that are exercisable within sixty days of March 1, 2015.
- (60) Jennifer Lorenzo is a natural person with voting and dispositive power over the shares held by GJG Life Sciences LLC.
- (61) Howard Appel is a natural person with voting and dispositive power over the shares held by DIT Equity Investors, LLC.
- (62) Theresa O'Brien is a trustee with voting and dispositive power over the shares held by the BobCat Property Trust of Angel Fire, New Mexico.
- (63) Ernest Bartlett is a natural person with voting and dispositive power over the shares held by Griffin Value Investors LLC.

PLAN OF DISTRIBUTION

The selling stockholders, which as used herein includes donees, pledgees, transferees or other successors-in-interest selling shares of common stock or interests in shares of common stock received after the date of this prospectus from a selling stockholder as a gift, pledge, partnership distribution or other transfer, may, from time to time, sell, transfer or otherwise dispose of any or all of their shares of common stock or interests in shares of common stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions.

The selling stockholders may use any one or more of the following methods when disposing of shares or interests therein:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent, but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- privately negotiated transactions;
- short sales;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- broker-dealers may agree with the selling stockholders to sell a specified number of such shares at a stipulated price per share;
- a combination of any such methods of sale; and
- any other method permitted pursuant to applicable law.

The selling stockholders may, from time to time, pledge or grant a security interest in some or all of the shares of common stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of common stock, from time to time, under this prospectus, or under an amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act amending the list of selling stockholders to include the pledgee, transferee or other successors in interest as selling stockholders under this prospectus. The selling stockholders also may transfer the shares of common stock in other circumstances, in which case the transferees, pledgees or other successors in interest will be the selling beneficial owners for purposes of this prospectus; provided, however, that prior to any such transfer the following information (or such other information as may be required by the federal securities laws from time to time) with respect to each such selling beneficial owner must be added to the prospectus by way of a prospectus supplement or post-effective amendment, as appropriate: (1) the name of the selling beneficial owner; (2) any material relationship the selling beneficial owner has had within the past three years with us or any of our predecessors or affiliates; (3) the amount of securities of the class owned by such beneficial owner before the offering; (4) the amount to be offered for the beneficial owner's account; and (5) the amount and (if one percent or more) the percentage of the class to be owned by such beneficial owner after the offering is complete.

In connection with the sale of our common stock or interests therein, the selling stockholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the common stock in the course of hedging the positions they assume. The selling stockholders may also sell shares of our common stock short and deliver these securities to close out their short positions, or loan or pledge the common stock to broker-dealers that in turn may sell these securities. The selling stockholders may also enter into option or other transactions with broker-dealers or other financial institutions or the creation of one or more derivative securities which require the delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The aggregate proceeds to the selling stockholders from the sale of the common stock offered by them will be the purchase price of the common stock less discounts or commissions, if any. Each of the selling stockholders reserves the right to accept and, together with their agents from time to time, to reject, in whole or in part, any proposed purchase of common stock to be made directly or through agents. We will not receive any of the proceeds from this offering, provided, however, we will receive proceeds from the exercise of the warrants held by certain investors.

The selling stockholders also may resell all or a portion of the shares in open market transactions in reliance upon Rule 144 under the Securities Act of 1933, provided that they meet the criteria and conform to the requirements of that rule.

The selling stockholders and any underwriters, broker-dealers or agents, or their affiliates, that participate in the sale of the common stock or interests therein are “underwriters” within the meaning of Section 2(11) of the Securities Act. Any discounts, commissions, concessions or profit they earn on any resale of the shares may be underwriting discounts and commissions under the Securities Act. Selling stockholders who are “underwriters” within the meaning of Section 2(11) of the Securities Act will be subject to the prospectus delivery requirements of the Securities Act.

To the extent required, the shares of our common stock to be sold, the names of the selling stockholders, the respective purchase prices and public offering prices, the names of any agents, dealer or underwriter, any applicable commissions or discounts with respect to a particular offer will be set forth in an accompanying prospectus supplement or, if appropriate, a post-effective amendment to the registration statement that includes this prospectus.

The maximum amount of compensation to be received by any FINRA member or independent broker-dealer for the sale of any securities registered under this prospectus will not be greater than 8.0% of the gross proceeds from the sale of such securities.

In order to comply with the securities laws of some states, if applicable, the common stock may be sold in these jurisdictions only through registered or licensed brokers or dealers. In addition, in some states the common stock may not be sold unless it has been registered or qualified for sale or an exemption from registration or qualification requirements is available and is complied with.

We have advised the selling stockholders that the anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of shares in the market and to the activities of the selling stockholders and their affiliates. In addition, we will make copies of this prospectus (as it may be supplemented or amended from time to time) available to the selling stockholders for the purpose of satisfying the prospectus delivery requirements of the Securities Act. The selling stockholders may indemnify any broker-dealer that participates in transactions involving the sale of the shares against certain liabilities, including liabilities arising under the Securities Act.

LEGAL MATTERS

The validity of the securities offered in this prospectus is being passed upon for us by Lowenstein Sandler LLP, New York, New York. Partners of the firm beneficially own an aggregate of 100,000 shares, warrants to purchase 25,000 shares of our common stock with an exercise price of \$2.00 per share, and warrants to purchase 50,000 shares of our common stock with an exercise price of \$0.75 per share.

EXPERTS

The consolidated financial statements of Matinas BioPharma Holdings, Inc. incorporated into this prospectus and related registration statement by reference to the Annual Report on Form 10-K for the year ended December 31, 2014 have been audited by EisnerAmper LLP, an independent registered public accounting firm, as set forth in their report (which includes an explanatory paragraph relating to the Company's ability to continue as a going concern as discussed in Note B to the financial statements) thereon and are included in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act, with respect to the common stock offered by this prospectus. This prospectus, which is part of the registration statement, omits certain information, exhibits, schedules and undertakings set forth in the registration statement and the exhibits and schedules filed therewith. For further information pertaining to us and our common stock, reference is made to the registration statement and the exhibits and schedules to the registration statement. Statements contained in this prospectus as to the contents or provisions of any documents referred to in this prospectus are not necessarily complete, and in each instance where a copy of such document has been filed as an exhibit to the registration statement, reference is made to the exhibit for a more complete description of the matters involved.

You may read all or any portion of the registration statement and the exhibits and schedules filed therewith without charge at the office of the SEC at the Public Reference Room, 100 F Street, N.E., Room 1580 Washington, D.C. 20549. Copies of the registration statement may be obtained from such office. Please call the SEC at 1-800-SEC-0330 for further information about the Public Reference Room. In addition, registration statements and certain other filings made with the SEC electronically are publicly available through the SEC's web site at <http://www.sec.gov>. The registration statement, including all exhibits and amendments to the registration statement, has been filed electronically with the SEC.

Contemporaneously with the effectiveness of the registration statement of which this prospectus is a part, we will become subject to the information and periodic reporting requirements of the Exchange Act and, accordingly, will file annual reports containing financial statements audited by an independent public accounting firm, quarterly reports containing unaudited financial data, current reports, and other information with the Securities and Exchange Commission. You will be able to inspect and copy such periodic reports, and other information at the SEC's public reference room, and from the web site of the SEC referred to above.

DOCUMENTS INCORPORATED BY REFERENCE

The SEC allows us to "incorporate by reference" information into this document. This means that we can disclose important information to you by referring you to another document filed separately with the SEC. The information incorporated by reference is considered to be a part of this document, except for any information superseded by information that is included directly in this document or incorporated by reference subsequent to the date of this document.

This prospectus incorporates by reference the documents listed below:

- our Annual Report on Form 10-K for the year ended December 31, 2014, filed with the SEC on March 31, 2015; and
- our Current Reports on Form 8-K filed with the SEC on January 30, 2015, February 2, 2015, March 18, 2015, March 19, 2015, April 6, 2015 and April 10, 2015 (other than any portions thereof deemed furnished and not filed).

You should rely only on the information incorporated by reference or provided in this prospectus. We have not authorized anyone to provide you with different information. You should not assume that the information in this prospectus is accurate as of any date other than the date on the front of this document. Any statement contained in a document incorporated in this prospectus will be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus modifies or supersedes that statement. Any statement that is modified or superseded will not constitute a part of this prospectus, except as modified or superseded.

You may request a copy of these filings, at no cost, by writing or calling us at the following:

Matinas BioPharma Holdings, Inc.
1545 Route 206 South
Suite 302
Bedminster, NJ 07921 US
Attn: Corporate Secretary

Copies of the documents incorporated by reference may also be found on our website at www.matinasbiopharma.com. Except with respect to the documents expressly incorporated by reference above which are accessible at our website, the information contained on our website is not a part of, and should not be construed as being incorporated by reference into, this prospectus.

MATINAS BIOPHARMA HOLDINGS, INC.

**10,382,500 Shares
Common Stock**

PROSPECTUS

[], 2015

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

ITEM 13. OTHER EXPENSES OF ISSUANCE AND DISTRIBUTION

Our estimated expenses in connection with the issuance and distribution of the securities being registered are:

SEC Registration Fee	\$	*
Accounting Fees and Expenses	\$	110,000
Legal Fees and Expenses	\$	220,000
Miscellaneous Fees and Expenses	\$	15,000
Total	\$	<u>349,628</u>

* SEC registration fee was previously paid.

ITEM 14. INDEMNIFICATION OF OFFICERS AND DIRECTORS

Section 145 of the Delaware General Corporation Law (the "DGCL") provides, in general, that a corporation incorporated under the laws of the State of Delaware, as we are, may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding (other than a derivative action by or in the right of the corporation) by reason of the fact that such person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the corporation and, with respect to any criminal action or proceeding, had no reasonable cause to believe such person's conduct was unlawful. In the case of a derivative action, a Delaware corporation may indemnify any such person against expenses (including attorneys' fees) actually and reasonably incurred by such person in connection with the defense or settlement of such action or suit if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the corporation, except that no indemnification will be made in respect of any claim, issue or matter as to which such person will have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery of the State of Delaware or any other court in which such action was brought determines such person is fairly and reasonably entitled to indemnity for such expenses.

Our certificate of incorporation and bylaws provide that we will indemnify our directors, officers, employees and agents to the extent and in the manner permitted by the provisions of the DGCL, as amended from time to time, subject to any permissible expansion or limitation of such indemnification, as may be set forth in any stockholders' or directors' resolution or by contract. In addition, we plan to enter into director and officer indemnification agreements with each of our directors and officers that provide, among other things, for the indemnification to the fullest extent permitted or required by Delaware law, provided that no indemnitee will be entitled to indemnification in connection with any claim initiated by the indemnitee against us or our directors or officers unless we join or consent to the initiation of the claim, or the purchase and sale of securities by the indemnitee in violation of Section 16(b) of the Securities Exchange Act of 1934, as amended.

Any repeal or modification of these provisions approved by our stockholders will be prospective only and will not adversely affect any limitation on the liability of any of our directors or officers existing as of the time of such repeal or modification.

In addition, we have entered into indemnification agreements with each of our current directors and executive officers. These agreements will require us to indemnify these individuals to the fullest extent permitted under Delaware law against liabilities that may arise by reason of their service to us and to advance expenses incurred as a result of any proceeding against them as to which they could be indemnified. We also intend to enter into indemnification agreements with our future directors and executive officers.

We are also permitted to apply for insurance on behalf of any director, officer, employee or other agent for liability arising out of his actions, whether or not the DGCL would permit indemnification.

ITEM 15. RECENT SALES OF UNREGISTERED SECURITIES

Since January 1, 2012, we made sales of the following unregistered securities:

Original Issuances of Stock and Warrants

Formation of Holdings

In connection with our formation in June 2013, we sold an aggregate of 7,500,000 shares of our common stock and 3,750,000 warrants to purchase 3,750,000 shares of our common stock, for an aggregate of \$375,000 (\$0.10 for two shares and one warrant), to 31 accredited investors.

2013 Private Placement

In July and August 2013, we sold an aggregate of 15,000,000 shares of our common stock and warrants to purchase an aggregate of 7,500,000 shares of our common stock with an exercise price of \$2.00 per share to 119 accredited investors for an aggregate purchase price of \$15,000,000.

In connection with the 2013 Private Placement, we issued (x) a warrant to the Placement Agent to purchase 750,000 shares of our common stock with an exercise price of \$2.00 per share and (y) a warrant to the Placement Agent to purchase 1,500,000 shares of our common stock with an exercise price of \$1.00 per share.

2013 Merger Transaction

On July 30, 2013, pursuant to the terms of the Merger Agreement between Matinas BioPharma, Holdings and Merger Sub, a wholly owned subsidiary of Holdings, the Merger Sub merged with and into Matinas BioPharma and Matinas BioPharma became a wholly owned subsidiary of Holdings. In connection with the merger, we issued an aggregate of 9,000,000 shares of our common stock and warrants to purchase 1,000,000 shares of our common stock at an exercise price of \$2.00 per share to 15 stockholders of Matinas BioPharma.

Warrant Private Placement

On July 30, 2013, we sold 500,000 warrants to purchase 500,000 shares of our common stock at an exercise price of \$2.00 per share to one accredited investor for a purchase price of \$0.04 per warrant.

Consulting Services

Since January 1, 2012, we issued an aggregate of 792,650 shares of restricted common stock to 5 consultants as compensation for certain consulting services.

Aquarius Merger Transaction

On January 29, 2015, pursuant to the terms of the Agreement and Plan of Merger by and among Matinas Biopharma Holdings, Inc., Aquarius Biotechnologies, Inc., Saffron Merger Sub, Inc., a wholly-owned subsidiary of ours and J. Carl Craft, as the stockholder representative, the Merger Sub merged with and into Aquarius, with Aquarius surviving the merger as a wholly-owned subsidiary of ours. In connection with the merger, we issued an aggregate of 4,608,020 shares of our common stock to 10 former stockholders of Aquarius.

2015 Private Placement

In March and April 2015, we sold an aggregate of 20,000,000 units for an aggregate purchase price of \$10,000,000 to 122 accredited investors. Each unit consisted of one share of our common stock and warrant to purchase one share of our common stock with an exercise price of \$0.75 per share.

In connection with the 2015 Private Placement, we issued to the Placement Agent (i) warrants to purchase an aggregate of 2,000,000 shares of our common stock with an exercise price of \$0.50 per share and (ii) warrants to purchase an aggregate of 2,000,000 shares of our common stock with an exercise price of \$0.75 per share.

Stock Options

Since January 1, 2012, we granted stock options under its 2013 Equity Compensation Plan to purchase an aggregate of 5,540,000 at a weighted average exercise price of \$1.06 per share.

Securities Act Exemptions

We deemed the offers, sales and issuances of the securities described above under “—Original Issuances of Stock and Warrants” to be exempt from registration under the Securities Act in reliance on Section 4(a)(2) of the Securities Act, including Regulation

D and Rule 506(b) promulgated thereunder, relative to transactions by an issuer not involving a public offering. All purchasers of securities in transactions exempt from registration pursuant to Regulation D represented to us that they were accredited investors and were acquiring the shares for investment purposes only and not with a view to, or for sale in connection with, any distribution thereof and that they could bear the risks of the investment and could hold the securities for an indefinite period of time. The purchasers received written disclosures that the securities had not been registered under the Securities Act and that any resale must be made pursuant to a registration statement or an available exemption from such registration.

We deemed the grants of stock options and issuances of common stock upon exercise of such options described above under “—Stock Options” to be exempt from registration under the Securities Act in reliance on Rule 701 of the Securities Act as offers and sales of securities under compensatory benefit plans and contracts relating to compensation in compliance with Rule 701. Each of the recipients of securities in any transaction exempt from registration either received or had adequate access, through employment, business or other relationships, to information about us.

All certificates representing the securities issued in the transactions described in this Item 15 included appropriate legends setting forth that the securities had not been offered or sold pursuant to a registration statement and describing the applicable restrictions on transfer of the securities. There were no underwriters employed in connection with any of the transactions set forth in this Item 15.

ITEM 16. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

Exhibit No.	Description
2.1	Merger Agreement, dated July 11, 2013, by and among the Company, Matinas Merger Sub, Inc., and Matinas BioPharma, Inc. (incorporated by reference to Exhibit 2.1 to Amendment No. 1 to the Company’s Registration Statement on Form S-1 filed with the SEC on February 7, 2014).
2.2	Agreement and Plan of Merger (the “Merger Agreement”) with Aquarius Biotechnologies, Inc., a Delaware corporation (“Aquarius”), Saffron Merger Sub, Inc., a Delaware corporation and a wholly-owned subsidiary of the Company (“Merger Sub”) and J. Carl Craft, as the stockholder representative (incorporated herein by reference to Exhibit 2.1 to the Company’s Current Report on Form 8-K filed with the SEC on January 30, 2015).
3.1	Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to Amendment No. 1 to the Company’s Registration Statement on Form S-1 filed with the SEC on February 7, 2014).
3.2	Bylaws (incorporated by reference to Exhibit 3.2 to Amendment No. 1 to the Company’s Registration Statement on Form S-1 filed with the SEC on February 7, 2014).
4.1	Form of Warrant (incorporated by reference to Exhibit 4.1 to Amendment No. 1 to the Company’s Registration Statement on Form S-1 filed with the SEC on February 7, 2014).
4.2	Form of Placement Agent Warrant (incorporated by reference to Exhibit 4.2 to Amendment No. 1 to the Company’s Registration Statement on Form S-1 filed with the SEC on February 7, 2014).
4.3	Registration Rights Agreement dated July 30, 2013 (incorporated by reference to Exhibit 4.3 to Amendment No. 1 to the Company’s Registration Statement on Form S-1 filed with the SEC on February 7, 2014).
4.4	Form of 2015 Investor Warrant.*
4.5	Form of 2015 Placement Agent Warrant.*
4.6	Registration Rights Agreement dated March 31, 2015 between the Company and the investors named therein*
5.1	Opinion of Lowenstein Sandler LLP (incorporated by reference to Exhibit 5.1 to Amendment No.1 to the Company’s Registration Statement on Form S-1 filed with the SEC on February 7, 2014)
10.1	Placement Agency Agreement, dated July 11, 2013, between the Company and Aegis Capital Corp. (incorporated by reference to Exhibit 10.1 to Amendment No. 1 to the Company’s Registration Statement on Form S-1 filed with the SEC on February 7, 2014).
10.2	Consulting Agreement, dated July 30, 2013, between the Company and Aegis Capital Corp. (incorporated by reference to Exhibit 10.2 to Amendment No. 1 to the Company’s Registration Statement on Form S-1 filed with the SEC on February 7, 2014).
10.3	Form of Subscription Agreement for the Company’s 2013 private placement (incorporated by reference to Exhibit 10.3 to Amendment No. 1 to the Company’s Registration Statement on Form S-1 filed with the SEC on February 7, 2014).
10.4	Form of Subscription Agreement for the Company’s 2013 warrant private placement (incorporated by reference to Exhibit 10.4 to Amendment No. 1 to the Company’s Registration Statement on Form S-1 filed with the SEC on February 7, 2014).
10.5	Voting Agreement, dated July 30, 2013, by and among the Company and the stockholders named therein. (incorporated by reference to Exhibit 10.5 to Amendment No. 1 to the Company’s Registration Statement on Form S-1 filed with the SEC on February 7, 2014).
10.6†	Matinas BioPharma Holdings, Inc. Amended and Restated 2013 Equity Compensation Plan (incorporated herein by reference to Exhibit 10.6 to the Company’s Annual Report on Form 10-K for the year ended December 31, 2014).
10.7†	Form of Incentive Stock Option Agreement (incorporated by reference to Exhibit 10.7 to Amendment No. 1 to the

- 10.8† Form of Non-Qualified Stock Option Agreement (incorporated by reference to Exhibit 10.8 to Amendment No. 1 to the Company's Registration Statement on Form S-1 filed with the SEC on February 7, 2014).
- 10.9† Employment Agreement, dated July 30, 2013, between the Company and Roelof Rongen (incorporated by reference to Exhibit 10.9 to Amendment No. 1 to the Company's Registration Statement on Form S-1 filed with the SEC on February 7, 2014).
- 10.10† Employment Agreement, dated July 30, 2013, between the Company and George Bobotas (incorporated by reference to Exhibit 10.10 to Amendment No. 1 to the Company's Registration Statement on Form S-1 filed with the SEC on February 7, 2014).
- 10.11† Employment Agreement, dated July 30, 2013, between the Company and Abdel A. Fawzy. (incorporated by reference to Exhibit 10.11 to Amendment No. 1 to the Company's Registration Statement on Form S-1 filed with the SEC on February 7, 2014).
- 10.12† Employment Agreement effective as of October 4, 2013 between the Company and Jerome Jabbour (incorporated by reference to Exhibit 10.12 to Amendment No. 1 to the Company's Registration Statement on Form S-1 filed with the SEC on February 7, 2014).
- 10.13† Offer Letter, dated October 31, 2013, between the Company and Gary Gaglione (incorporated by reference to Exhibit 10.13 to Amendment No. 1 to the Company's Registration Statement on Form S-1 filed with the SEC on February 7, 2014).
- 10.14† Form of Indemnification Agreement (incorporated by reference to Exhibit 10.14 to Amendment No. 1 to the Company's Registration Statement on Form S-1 filed with the SEC on February 7, 2014).
- 10.15 Form of Securities Purchase Agreement (Warrants) for the Company's formation private placement (incorporated by reference to Exhibit 10.15 to Amendment No. 1 to the Company's Registration Statement on Form S-1 filed with the SEC on February 7, 2014).
- 10.16 Form of Securities Purchase Agreement (Units) for the Company's formation private placement (incorporated by reference to Exhibit 10.16 to Amendment No. 1 to the Company's Registration Statement on Form S-1 filed with the SEC on February 7, 2014).
- 10.17 Lease, effective as of November 4, 2013, by and between the company and A-K Bedminster Associates, L.P. (incorporated by reference to Exhibit 10.17 to Amendment No. 1 to the Company's Registration Statement on Form S-1 filed with the SEC on February 7, 2014).
- 10.18+ Amended and Restated Exclusive License Agreement dated as of January 29, 2015, by and between Rutgers, the State University of New Jersey and Aquarius Biotechnologies, Inc. (incorporated herein by reference to Exhibit 10.18 to the Company's Annual Report on Form 10-K for the year ended December 31, 2014).
- 10.19† Employment Agreement, dated March 12, 2015, between Matinas Biopharma Holdings, Inc. and Douglas F. Kling. (incorporated herein by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the SEC on March 19, 2015).
- 10.20 Placement Agency Agreement dated March 19, 2015 between the Company and Aegis Capital Corp.*
- 10.21 Form of Subscription Agreement for the Company's 2015 private placement.*
- 21.1 List of Subsidiaries of the Company (incorporated by reference to Exhibit 21.1 to Company's Annual Report on Form 10-K for the year ended December 31, 2014).
- 23.1 Consent of EisnerAmper LLP*
- 23.2 Consent of Lowenstein Sandler LLP (included in Exhibit 5.1)
- 24.1 Power of Attorney (included on the signature page of the Registration Statement)

* Filed herewith.

+ Confidential treatment has been requested for certain provisions of this Exhibit pursuant to Rule 24b-2 promulgated under the Securities Exchange Act of 1934, as amended.

† Indicates a management contract or compensation plan, contract or arrangement.

ITEM 17. UNDERTAKINGS

The undersigned registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
 - (i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;
 - (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Securities and Exchange Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and
 - (iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;
- (2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser, each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A (§230.430A of this chapter), shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use.
- (5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities:

The undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser :

- (i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
- (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;
- (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and
- (iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act of 1933 and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act of 1933 and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act, the registrant 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 April 17, 2015.

MATINAS BIOPHARMA HOLDINGS, INC.

By: /s/ Roelof Rongen

Name: Roelof Rongen

Title: President & Chief Executive Officer

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.

<u>Person</u>	<u>Capacity</u>	<u>Date</u>
<u>/s/ Roelof Rongen</u> Roelof Rongen	President, Chief Executive Officer and Director (Principal Executive Officer)	April 17, 2015
* <u>Gary Gaglione</u>	Acting Chief Financial Officer (Principal Financial and Accounting Officer)	April 17, 2015
* <u>Herbert Conrad</u>	Chairman of the Board	April 17, 2015
* <u>Stefano Ferrari</u>	Director	April 17, 2015
* <u>James S. Scibetta</u>	Director	April 17, 2015
* <u>Adam K. Stern</u>	Director	April 17, 2015

* /s/ Roelof Rongen

Roelof Rongen, Attorney in Fact

Warrant Certificate No. ____

NEITHER THE SECURITIES REPRESENTED BY THIS CERTIFICATE NOR THE SECURITIES ISSUABLE UPON THE EXERCISE OF THIS WARRANT HAVE BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR ANY STATE SECURITIES LAWS, AND NEITHER SUCH SECURITIES NOR ANY INTEREST THEREIN MAY BE OFFERED, SOLD, ASSIGNED OR OTHERWISE TRANSFERRED UNLESS (1) A REGISTRATION STATEMENT WITH RESPECT THERETO IS EFFECTIVE UNDER THE ACT AND ANY APPLICABLE STATE SECURITIES LAWS, OR (2) AN EXEMPTION FROM SUCH REGISTRATION EXISTS AND THE COMPANY RECEIVES AN OPINION OF COUNSEL TO THE HOLDER OF SUCH SECURITIES, WHICH COUNSEL AND OPINION ARE SATISFACTORY TO THE COMPANY, THAT SUCH SECURITIES MAY BE OFFERED, SOLD, PLEDGED, ASSIGNED OR TRANSFERRED IN THE MANNER CONTEMPLATED WITHOUT AN EFFECTIVE REGISTRATION STATEMENT UNDER THE ACT OR APPLICABLE STATE SECURITIES LAWS.

Effective Date: [_____, 2015]

Void After: March 30, 2020

MATINAS BIOPHARMA HOLDINGS, INC.

WARRANT TO PURCHASE COMMON STOCK

Matinas BioPharma Holdings, Inc., a Delaware corporation (the "**Company**"), for value received on [], 2015 (the "**Effective Date**"), hereby issues to [] (the "**Holder**" or "**Warrant Holder**") this Warrant (the "**Warrant**") to purchase, [] shares (each such share as from time to time adjusted as hereinafter provided being a "**Warrant Share**" and all such shares being the "**Warrant Shares**") of the Company's Common Stock (as defined below), at the Exercise Price (as defined below), as adjusted from time to time as provided herein, on or before March 30, 2020 (the "**Expiration Date**"), all subject to the following terms and conditions. This Warrant is one of a series of warrants of like tenor that have been issued in connection with the Company's private offering solely to accredited investors of units in accordance with, and subject to, the terms and conditions described in the Subscription Agreement, attached to the Confidential Private Placement Memorandum of the Company dated March 19, 2015, as the same may be amended and supplemented from time to time (the "**Subscription Agreement**" and the "**Private Placement Memorandum**" respectively). In addition, the Company has issued other warrants of like tenor in connection with the transactions described in the Private Placement Memorandum (the "**Other Warrants**").

As used in this Warrant, (i) "**Business Day**" means any day other than Saturday, Sunday or any other day on which commercial banks in the City of New York, New York, are authorized or required by law or executive order to close; (ii) "**Common Stock**" means the common stock of the Company, par value \$0.0001 per share, including any securities issued or issuable with respect thereto or into which or for which such shares may be exchanged for, or converted into, pursuant to any stock dividend, stock split, stock combination, recapitalization, reclassification, reorganization or other similar event; (iii) "**Exercise Price**" means \$0.75 per share of Common Stock, subject to adjustment as provided herein; (iv) "**Trading Day**" means any day on which the Common Stock is traded (or available for trading) on its principal trading market; (v) "**Affiliate**" means any person that, directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with, a person, as such terms are used and construed in Rule 144 promulgated under the Securities Act of 1933, as amended (the "**Securities Act**") and (vi) "**Warrantholders**" means the holders of Warrants issued pursuant to the Subscription Agreement and Private Placement Memorandum.

1. DURATION AND EXERCISE OF WARRANTS

(a) Exercise Period. The Holder may exercise this Warrant in whole or in part on any Business Day on or before 5:00 P.M., Eastern Time, on the Expiration Date, at which time this Warrant shall become void and of no value.

(b) Exercise Procedures.

(i) While this Warrant remains outstanding and exercisable in accordance with Section 1(a), in addition to the manner set forth in Section 1(b)(ii) below, the Holder may exercise this Warrant in whole or in part at any time and from time to time by:

(A) delivery to the Company of a duly executed copy of the Notice of Exercise attached as **Exhibit A**;

(B) surrender of this Warrant to the Secretary of the Company at its principal offices or at such other office or agency as the Company may specify in writing to the Holder; and

(C) payment of the then-applicable Exercise Price per share multiplied by the number of Warrant Shares being purchased upon exercise of the Warrant (such amount, the “**Aggregate Exercise Price**”) made in the form of cash, or by certified check, bank draft or money order payable in lawful money of the United States of America or in the form of a Cashless Exercise to the extent permitted in Section 1(b)(ii) below.

(ii) In addition to the provisions of Section 1(b)(i) above, if any time commencing 300 days after the Effective Date, a registration statement covering the resale of the Warrant Shares by the Holder is not effective with the Securities and Exchange Commission (the “**SEC**”), the Holder may, in its sole discretion, exercise all or any part of the Warrant in a “cashless” or “net-issue” exercise (a “**Cashless Exercise**”) by delivering to the Company (1) the Notice of Exercise and (2) the original Warrant, pursuant to which the Holder shall surrender the right to receive upon exercise of this Warrant, a number of Warrant Shares having a value (as determined below) equal to the Aggregate Exercise Price, in which case, the number of Warrant Shares to be issued to the Holder upon such exercise shall be calculated using the following formula:

$$X = \frac{Y * (A - B)}{A}$$

with: X = the number of Warrant Shares to be issued to the Holder

Y = the number of Warrant Shares with respect to which the Warrant is being exercised

A = the fair value per share of Common Stock on the date of exercise of this Warrant

B = the then-current Exercise Price of the Warrant

Solely for the purposes of this paragraph, “**fair value**” per share of Common Stock shall mean the average Closing Price (as defined below) per share of Common Stock for the twenty (20) trading days immediately preceding the date on which the Notice of Exercise is deemed to have been sent to the Company. “**Closing Price**” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on the New York Stock Exchange, the NYSE MKT, the NASDAQ Global Select Market, the NASDAQ Global Market or the NASDAQ Capital Market or any other national securities exchange, the closing price per share of the Common Stock for such date (or the nearest preceding date) on the primary eligible market or exchange on which the Common Stock is then listed or quoted; (b) if prices for the Common Stock are then quoted on the OTC Bulletin Board or any tier of the OTC Markets, the closing bid price per share of the Common Stock for such date (or the nearest preceding date) so quoted; or (c) if prices for the Common Stock are then reported in the “Pink Sheets” published by the National Quotation Bureau Incorporated (or a similar organization or agency succeeding to its functions of reporting prices), the most recent closing bid price per share of the Common Stock so reported. If the Common Stock is not publicly traded as set forth above, the “fair value” per share of Common Stock shall be reasonably and in good faith determined by the Board of Directors of the Company as of the date which the Notice of Exercise is deemed to have been sent to the Company.

Notwithstanding the foregoing, provided that a registration statement covering the resale of the Warrant Shares by the Holder has (x) been declared effective by the SEC and (y) remained effective for a period of one year, any Cashless Exercise right hereunder shall thereupon terminate.

For purposes of Rule 144 promulgated under the Securities Act, it is intended, understood and acknowledged that the Warrant Shares issued in a cashless exercise transaction shall be deemed to have been acquired by the Holder, and the holding period for such shares shall be deemed to have commenced, on the date this Warrant was originally issued.

(iii) Upon the exercise of this Warrant in compliance with the provisions of this Section 1(b), and except as limited pursuant to the last paragraph of Section 1(b)(ii), the Company shall promptly issue and cause to be delivered to the Holder a certificate for the Warrant Shares purchased by the Holder. Each exercise of this Warrant shall be effective immediately prior to the close of business on the date (the “**Date of Exercise**”) that the conditions set forth in Section 1(b) have been satisfied, as the case may be. On the first Business Day following the date on which the Company has received each of the Notice of Exercise and the Aggregate Exercise Price (or notice of a Cashless Exercise in accordance with Section 1(b)(ii)) (the “**Exercise Delivery Documents**”), the Company shall transmit an acknowledgment of receipt of the Exercise Delivery Documents to the Company’s transfer agent (the “**Transfer Agent**”). On or before the third Business Day following the date on which the Company has received all of the Exercise Delivery Documents (the “**Share Delivery Date**”), the Company shall (X) provided that the Transfer Agent is participating in The Depository Trust Company (“**DTC**”) Fast Automated Securities Transfer Program, upon the request of the Holder, credit such aggregate number of shares of Common Stock to which the Holder is entitled pursuant to such exercise to the Holder’s or its designee’s balance account with DTC through its Deposit Withdrawal Agent Commission system, or (Y) if the Transfer Agent is not participating in the DTC Fast Automated Securities Transfer Program, issue and dispatch by overnight courier to the address as specified in the Notice of Exercise, a certificate, registered in the Company’s share register in the name of the Holder or its designee, for the number of shares of Common Stock to which the Holder is entitled pursuant to such exercise. Upon delivery of the Exercise Delivery Documents, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date of delivery of the certificates evidencing such Warrant Shares.

(iv) If the Company shall fail for any reason or for no reason to issue to the Holder, within three (3) Business Days of receipt of the Exercise Delivery Documents, a certificate for the number of shares of Common Stock to which the Holder is entitled and register such shares of Common Stock on the Company’s share register or to credit the Holder’s balance account with DTC for such number of shares of Common Stock to which the Holder is entitled upon the Holder’s exercise of this Warrant, and if on or after such Business Day the Holder purchases (in an open market transaction or otherwise) shares of Common Stock to deliver in satisfaction of a sale by the Holder of shares of Common Stock issuable upon such exercise that the Holder anticipated receiving from the Company (a “**Buy-In**”), then the Company shall, (A) pay in cash to the Holder the amount, if any, by which (x) the Holder’s total purchase price (including brokerage commissions, if any) for the shares of Common Stock so purchased (the “**Buy-In Amount**”) plus the amount paid by the Holder to the Company as the exercise price for the Warrant Shares exceeds (y) the amount obtained by multiplying (1) the number of Warrant Shares that the Company was required to deliver to the Holder in connection with the exercise at issue times (2) the price at which the sell order giving rise to such purchase obligation was executed, and (B) at the option of the Holder, either reinstate the portion of the Warrant and equivalent number of Warrant Shares for which such exercise was not honored or deliver to the Holder the number of shares of Common Stock that would have been issued had the Company timely complied with its exercise and delivery obligations hereunder. For example, if the Holder purchases Common Stock having a total purchase price of \$11,000 to cover a Buy-In with respect to an attempted exercise of shares of Common Stock, and paid the Company \$5,000 as the exercise price, the Holder’s cash outlay would be a total of \$16,000; and if the aggregate sales price of the shares giving rise to such Buy-In obligation was \$10,000, under clause (A) of the immediately preceding sentence the Company shall be required to pay the Holder \$6,000. The Holder shall provide the Company written notice indicating the amounts payable to the Holder in respect of the Buy-In and, upon request of the Company, evidence of the amount of such loss. Nothing herein shall limit a Holder’s right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company’s failure to timely deliver certificates representing shares of Common Stock upon exercise of the Warrant as required pursuant to the terms hereof.

(c) Partial Exercise. This Warrant shall be exercisable, either in its entirety or, from time to time, for part only of the number of Warrant Shares referenced by this Warrant. If this Warrant is submitted in connection with any exercise pursuant to Section 1 and the number of Warrant Shares represented by this Warrant submitted for exercise is greater than the actual number of Warrant Shares being acquired upon such an exercise, then the Company shall as soon as practicable and in no event later than five (5) Business Days after any exercise and at its own expense, issue a new Warrant of like tenor representing the right to purchase the number of Warrant Shares purchasable immediately prior to such exercise under this Warrant, less the number of Warrant Shares with respect to which this Warrant is exercised.

(d) Disputes. In the case of a dispute as to the determination of the Exercise Price or the arithmetic calculation of the Warrant Shares, the Company shall promptly issue to the Holder the number of Warrant Shares that are not disputed and resolve such dispute in accordance with Section 16.

2. ISSUANCE OF WARRANT SHARES

(a) The Company covenants that all Warrant Shares will, upon issuance in accordance with the terms of this Warrant, be (i) duly authorized, fully paid and non-assessable, and (ii) free from all liens, charges and security interests, with the exception of claims arising through the acts or omissions of any Holder and except as arising from applicable Federal and state securities laws.

(b) The Company shall register this Warrant upon records to be maintained by the Company for that purpose in the name of the record holder of such Warrant from time to time. The Company may deem and treat the registered Holder of this Warrant as the absolute owner thereof for the purpose of any exercise thereof, any distribution to the Holder thereof and for all other purposes.

(c) The Company will not, by amendment of its certificate of incorporation, by-laws or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms to be observed or performed hereunder by the Company, but will at all times in good faith assist in the carrying out of all the provisions of this Warrant and in the taking of all action necessary or appropriate in order to protect the rights of the Holder to exercise this Warrant, or against impairment of such rights.

3. ADJUSTMENTS OF EXERCISE PRICE, NUMBER AND TYPE OF WARRANT SHARES

(a) The Exercise Price and the number of shares purchasable upon the exercise of this Warrant shall be subject to adjustment from time to time upon the occurrence of certain events described in this Section 3; provided, that notwithstanding the provisions of this Section 3, the Company shall not be required to make any adjustment if and to the extent that such adjustment would require the Company to issue a number of shares of Common Stock in excess of its authorized but unissued shares of Common Stock, less all amounts of Common Stock that have been reserved for issue upon the conversion of all outstanding securities convertible into shares of Common Stock and the exercise of all outstanding options, warrants and other rights exercisable for shares of Common Stock. If the Company does not have the requisite number of authorized but unissued shares of Common Stock to make any adjustment, the Company shall use its commercially best efforts to obtain the necessary stockholder consent to increase the authorized number of shares of Common Stock to make such an adjustment pursuant to this Section 3.

(i) Subdivision or Combination of Stock. In case the Company shall at any time subdivide (whether by way of stock dividend, stock split or otherwise) its outstanding shares of Common Stock into a greater number of shares, the Exercise Price in effect immediately prior to such subdivision shall be proportionately reduced and the number of Warrant Shares shall be proportionately increased, and conversely, in case the outstanding shares of Common Stock of the Company shall be combined (whether by way of stock combination, reverse stock split or otherwise) into a smaller number of shares, the Exercise Price in effect immediately prior to such combination shall be proportionately increased and the number of Warrant Shares shall be proportionately decreased. The Exercise Price and the Warrant Shares, as so adjusted, shall be readjusted in the same manner upon the happening of any successive event or events described in this Section 3(a)(i).

(ii) Dividends in Stock, Property, Reclassification. If at any time, or from time to time, all of the holders of Common Stock (or any shares of stock or other securities at the time receivable upon the exercise of this Warrant) shall have received or become entitled to receive, without payment therefore:

(A) any shares of stock or other securities that are at any time directly or indirectly convertible into or exchangeable for Common Stock, or any rights or options to subscribe for, purchase or otherwise acquire any of the foregoing by way of dividend or other distribution, or

(B) additional stock or other securities or property (including cash) by way of spin-off, split-up, reclassification, combination of shares or similar corporate rearrangement (other than shares of Common Stock issued as a stock split or adjustments in respect of which shall be covered by the terms of Section 3(a)(i) above),

then and in each such case, the Exercise Price and the number of Warrant Shares to be obtained upon exercise of this Warrant shall be adjusted proportionately, and the Holder hereof shall, upon the exercise of this Warrant, be entitled to receive, in addition to the number of shares of Common Stock receivable thereupon, and without payment of any additional consideration therefor, the amount of stock and other securities and property (including cash in the cases referred to above) that such Holder would hold on the date of such exercise had such Holder been the holder of record of such Common Stock as of the date on which holders of Common Stock received or became entitled to receive such shares or all other additional stock and other securities and property. The Exercise Price and the Warrant Shares, as so adjusted, shall be readjusted in the same manner upon the happening of any successive event or events described in this Section 3(a)(ii).

(i i i) Reorganization, Reclassification, Consolidation, Merger or Sale. If any recapitalization, reclassification or reorganization of the capital stock of the Company, or any consolidation or merger of the Company with another corporation, or the sale of all or substantially all of its assets or other transaction shall be effected in such a way that holders of Common Stock shall be entitled to receive stock, securities, or other assets or property (an “**Organic Change**”), then, as a condition of such Organic Change, lawful and adequate provisions shall be made by the Company whereby the Holder hereof shall thereafter have the right to purchase and receive (in lieu of the shares of the Common Stock of the Company immediately theretofore purchasable and receivable upon the exercise of the rights represented by this Warrant) such shares of stock, securities or other assets or property as may be issued or payable with respect to or in exchange for a number of outstanding shares of such Common Stock equal to the number of shares of such stock immediately theretofore purchasable and receivable assuming the full exercise of the rights represented by this Warrant. In the event of any Organic Change, appropriate provision shall be made by the Company with respect to the rights and interests of the Holder of this Warrant to the end that the provisions hereof (including, without limitation, provisions for adjustments of the Exercise Price and of the number of shares purchasable and receivable upon the exercise of this Warrant and registration rights) shall thereafter be applicable, in relation to any shares of stock, securities or assets thereafter deliverable upon the exercise hereof. The Company will not affect any such consolidation, merger or sale unless, prior to the consummation thereof, the successor corporation (if other than the Company) resulting from such consolidation or merger or the corporation purchasing such assets shall assume by written instrument reasonably satisfactory in form and substance to the Holder executed and mailed or delivered to the registered Holder hereof at the last address of such Holder appearing on the books of the Company, the obligation to deliver to such Holder such shares of stock, securities or assets as, in accordance with the foregoing provisions, such Holder may be entitled to purchase. If there is an Organic Change, then the Company shall cause to be mailed to the Holder at its last address as it shall appear on the books and records of the Company, at least 10 calendar days before the effective date of the Organic Change, a notice stating the date on which such Organic Change is expected to become effective or close, and the date as of which it is expected that holders of the Common Stock of record shall be entitled to exchange their shares for securities, cash, or other property delivered upon such Organic Change; provided, that the failure to mail such notice or any defect therein or in the mailing thereof shall not affect the validity of the corporate action required to be specified in such notice. The Holder is entitled to exercise this Warrant during the 10-day period commencing on the date of such notice to the effective date of the event triggering such notice. In any event, the successor corporation (if other than the Company) resulting from such consolidation or merger or the corporation purchasing such assets shall be deemed to assume such obligation to deliver to such Holder such shares of stock, securities or assets even in the absence of a written instrument assuming such obligation to the extent such assumption occurs by operation of law.

(b) Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment pursuant to this Section 3, the Company at its expense shall promptly compute such adjustment or readjustment in accordance with the terms hereof and furnish to each Holder of this Warrant a certificate setting forth such adjustment or readjustment and showing in detail the facts upon which such adjustment or readjustment is based. The Company shall promptly furnish or cause to be furnished to such Holder a like certificate setting forth: (i) such adjustments and readjustments; and (ii) the number of shares and the amount, if any, of other property which at the time would be received upon the exercise of the Warrant.

(c) Certain Events. If any event occurs as to which the other provisions of this Section 3 are not strictly applicable but the lack of any adjustment would not fairly protect the purchase rights of the Holder under this Warrant in accordance with the basic intent and principles of such provisions, or if strictly applicable would not fairly protect the purchase rights of the Holder under this Warrant in accordance with the basic intent and principles of such provisions, then the Company's Board of Directors will, in good faith, make an appropriate adjustment to protect the rights of the Holder; provided, that no such adjustment pursuant to this Section 3(c) will increase the Exercise Price or decrease the number of Warrant Shares as otherwise determined pursuant to this Section 3.

4. REDEMPTION OF WARRANTS

(a) General. Prior to the Expiration Date, the Company shall have the option, subject to the conditions set forth herein, to redeem all of the Warrants then outstanding upon not less than thirty (30) days nor more than sixty (60) days prior written notice to the Warrant Holders at any time provided that, at the time of delivery of such notice (i) there is an effective registration statement covering the resale of the Warrant Shares, and (ii) the closing bid price of the Company's Common Stock for each of the twenty (20) consecutive trading days immediately prior to the Notice Date, as defined below, is at least \$3.00 per share, as proportionately adjusted to reflect any stock splits, stock dividends, combination of shares or like events.

(b) Notice. Notice of redemption will be effective upon mailing in accordance with this Section 4 and such date may be referred to below as the "**Notice Date.**" Notice of redemption shall be mailed by first class mail, postage prepaid, by the Company not less than 30 days prior to the date fixed for redemption to the Holders of the Warrants to be redeemed at their last addresses as they shall appear on the registration books. Any notice mailed in the manner herein provided shall be conclusively presumed to have been duly given whether or not the Holder received such notice.

(c) Redemption Date and Redemption Price. The notice of redemption shall state the date set for redemption, which date shall be not less than thirty (30) days, or more than sixty (60) days, from the Notice Date (the "**Redemption Date**"). The Company shall not mail the notice of redemption unless all funds necessary to pay for redemption of the Warrants to be redeemed shall have first been set aside by the Company for the benefit of the Warrant Holders so as to be and continue to be available therefor. The redemption price to be paid to the Warrant Holders will be \$0.0001 for each share of Common Stock of the Company to which the Warrant Holder would then be entitled upon exercise of the Warrant being redeemed, as adjusted from time to time as provided herein (the "**Redemption Price**").

(d) Exercise. Following the Notice Date, the Warrant Holders may exercise their Warrants in accordance with Section 1 of this Warrant between the Notice Date and 5:00 p.m. Eastern Time on the Redemption Date and such exercise shall be timely if the form of election to purchase duly executed and the Warrant Exercise Price for the shares of Common Stock to be purchased are actually received by the Company at its principal offices prior to 5:00 p.m. Eastern Time on the Redemption Date.

(e) Mailing. If any Warrant Holder does not wish to exercise any Warrant being redeemed, he should mail such Warrant to the Company at its principal offices after receiving the notice of redemption. On and after 5:00 p.m. Eastern Time on the Redemption Date, notwithstanding that any Warrant subject to redemption shall not have been surrendered for redemption, the obligation evidenced by all Warrants not surrendered for redemption or effectively exercised shall be deemed no longer outstanding, and all rights with respect thereto shall forthwith cease and terminate, except only the right of the holder of each Warrant subject to redemption to receive the Redemption Price for each share of Common Stock to which he would be entitled if he exercised the Warrant upon receiving notice of redemption of the Warrant subject to redemption held by him.

5. TRANSFERS AND EXCHANGES OF WARRANT AND WARRANT SHARES

(a) Registration of Transfers and Exchanges. Subject to Section 5(c), upon the Holder's surrender of this Warrant, with a duly executed copy of the Form of Assignment attached as **Exhibit B**, to the Secretary of the Company at its principal offices or at such other office or agency as the Company may specify in writing to the Holder, the Company shall register the transfer of all or any portion of this Warrant. Upon such registration of transfer, the Company shall issue a new Warrant, in substantially the form of this Warrant, evidencing the acquisition rights transferred to the transferee and a new Warrant, in similar form, evidencing the remaining acquisition rights not transferred, to the Holder requesting the transfer.

(b) Warrant Exchangeable for Different Denominations. The Holder may exchange this Warrant for a new Warrant or Warrants, in substantially the form of this Warrant, evidencing in the aggregate the right to purchase the number of Warrant Shares which may then be purchased hereunder, each of such new Warrants to be dated the date of such exchange and to represent the right to purchase such number of Warrant Shares as shall be designated by the Holder. The Holder shall surrender this Warrant with duly executed instructions regarding such re-certification of this Warrant to the Secretary of the Company at its principal offices or at such other office or agency as the Company may specify in writing to the Holder.

(c) Restrictions on Transfers. This Warrant may not be transferred at any time without (i) registration under the Securities Act or (ii) an exemption from such registration and a written opinion of legal counsel addressed to the Company that the proposed transfer of the Warrant may be effected without registration under the Securities Act, which opinion will be in form and from counsel reasonably satisfactory to the Company.

(d) Permitted Transfers and Assignments. Notwithstanding any provision to the contrary in this Section 5, the Holder may transfer, with or without consideration, this Warrant or any of the Warrant Shares (or a portion thereof) to the Holder's Affiliates (as such term is defined under Rule 144 of the Securities Act) without obtaining the opinion from counsel that may be required by Section 5(c)(ii), provided, that the Holder delivers to the Company and its counsel certification, documentation, and other assurances reasonably required by the Company's counsel to enable the Company's counsel to render an opinion to the Company's Transfer Agent that such transfer does not violate applicable securities laws.

6. MUTILATED OR MISSING WARRANT CERTIFICATE

If this Warrant is mutilated, lost, stolen or destroyed, upon request by the Holder, the Company will, at its expense, issue, in exchange for and upon cancellation of the mutilated Warrant, or in substitution for the lost, stolen or destroyed Warrant, a new Warrant, in substantially the form of this Warrant, representing the right to acquire the equivalent number of Warrant Shares; provided, that, as a prerequisite to the issuance of a substitute Warrant, the Company may require satisfactory evidence of loss, theft or destruction as well as an indemnity from the Holder of a lost, stolen or destroyed Warrant.

7. PAYMENT OF TAXES

The Company will pay all transfer and stock issuance taxes attributable to the preparation, issuance and delivery of this Warrant and the Warrant Shares (and replacement Warrants) including, without limitation, all documentary and stamp taxes; provided, however, that the Company shall not be required to pay any tax in respect of the transfer of this Warrant, or the issuance or delivery of certificates for Warrant Shares or other securities in respect of the Warrant Shares to any person or entity other than to the Holder.

8. FRACTIONAL WARRANT SHARES

No fractional Warrant Shares shall be issued upon exercise of this Warrant. The Company, in lieu of issuing any fractional Warrant Share, shall round up the number of Warrant Shares issuable to nearest whole share.

9. NO STOCK RIGHTS AND LEGEND

No holder of this Warrant, as such, shall be entitled to vote or be deemed the holder of any other securities of the Company that may at any time be issuable on the exercise hereof, nor shall anything contained herein be construed to confer upon the holder of this Warrant, as such, the rights of a stockholder of the Company or the right to vote for the election of directors or upon any matter submitted to stockholders at any meeting thereof, or give or withhold consent to any corporate action or to receive notice of meetings or other actions affecting stockholders (except as provided herein), or to receive dividends or subscription rights or otherwise (except as provide herein).

Each certificate for Warrant Shares initially issued upon the exercise of this Warrant, and each certificate for Warrant Shares issued to any subsequent transferee of any such certificate, shall be stamped or otherwise imprinted with a legend in substantially the following form:

“THE SECURITIES REPRESENTED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE “ACT”), OR ANY STATE SECURITIES LAWS, AND NEITHER SUCH SECURITIES NOR ANY INTEREST THEREIN MAY BE OFFERED, SOLD, PLEDGED, ASSIGNED OR OTHERWISE TRANSFERRED UNLESS (1) A REGISTRATION STATEMENT WITH RESPECT THERETO IS EFFECTIVE UNDER THE ACT AND ANY APPLICABLE STATE SECURITIES LAWS, OR (2) AN EXEMPTION FROM SUCH REGISTRATION EXISTS AND THE COMPANY RECEIVES AN OPINION OF COUNSEL TO THE HOLDER OF SUCH SECURITIES, WHICH COUNSEL AND OPINION ARE REASONABLY SATISFACTORY TO THE COMPANY, THAT SUCH SECURITIES MAY BE OFFERED, SOLD, PLEDGED, ASSIGNED OR TRANSFERRED IN THE MANNER CONTEMPLATED WITHOUT AN EFFECTIVE REGISTRATION STATEMENT UNDER THE ACT OR APPLICABLE STATE SECURITIES LAWS.”

10. REGISTRATION RIGHTS

The Holder shall be entitled to the registration rights as are contained in the Registration Rights Agreement, the provisions of which are deemed incorporated herein by reference.

11. NOTICES

All notices, consents, waivers, and other communications under this Warrant must be in writing and will be deemed given to a party when (a) delivered to the appropriate address by hand or by nationally recognized overnight courier service (costs prepaid); (b) sent by facsimile or e-mail with confirmation of transmission by the transmitting equipment; (c) received or rejected by the addressee, if sent by certified mail, return receipt requested, if to the registered Holder hereof; or (d) seven days after the placement of the notice into the mails (first class postage prepaid), to the Holder at the address, facsimile number, or e-mail address furnished by the registered Holder to the Company in accordance with the Subscription Agreement by and between the Company and the Holder, or if to the Company, to it at 1545 Route 206 South, Suite 302, Bedminster, New Jersey, Attention: Roelof Rongen (or to such other address, facsimile number, or e-mail address as the Holder or the Company as a party may designate by notice the other party).

12. SEVERABILITY

If a court of competent jurisdiction holds any provision of this Warrant invalid or unenforceable, the other provisions of this Warrant will remain in full force and effect. Any provision of this Warrant held invalid or unenforceable only in part or degree will remain in full force and effect to the extent not held invalid or unenforceable.

13. BINDING EFFECT

This Warrant shall be binding upon and inure to the sole and exclusive benefit of the Company, its successors and assigns, the registered Holder or Holders from time to time of this Warrant and the Warrant Shares.

14. SURVIVAL OF RIGHTS AND DUTIES

This Warrant shall terminate and be of no further force and effect on the earlier of 5:00 P.M., Eastern Time, on the Expiration Date or the date on which this Warrant has been exercised in full.

15. GOVERNING LAW

This Warrant will be governed by and construed under the laws of the State of New York without regard to conflicts of laws principles that would require the application of any other law.

16. DISPUTE RESOLUTION

In the case of a dispute as to the determination of the Exercise Price or the arithmetic calculation of the Warrant Shares, the Company shall submit the disputed determinations or arithmetic calculations via facsimile within two Business Days of receipt of the Notice of Exercise giving rise to such dispute, as the case may be, to the Holder. If the Holder and the Company are unable to agree upon such determination or calculation of the Exercise Price or the Warrant Shares within three Business Days of such disputed determination or arithmetic calculation being submitted to the Holder, then the Company shall, within two Business Days, submit via facsimile (a) the disputed determination of the Exercise Price to an independent, reputable investment bank selected by the Company and approved by the Holder or (b) the disputed arithmetic calculation of the Warrant Shares to the Company's independent, outside accountant. The Company shall cause at its expense the investment bank or the accountant, as the case may be, to perform the determinations or calculations and notify the Company and the Holder of the results no later than ten (10) Business Days from the time it receives the disputed determinations or calculations. Such investment bank's or accountant's determination or calculation, as the case may be, shall be binding upon all parties absent demonstrable error.

17. NOTICES OF RECORD DATE

Upon (a) any establishment by the Company of a record date of the holders of any class of securities for the purpose of determining the holders thereof who are entitled to receive any dividend or other distribution, or right or option to acquire securities of the Company, or any other right, or (b) any capital reorganization, reclassification, recapitalization, merger or consolidation of the Company with or into any other corporation, any transfer of all or substantially all the assets of the Company, or any voluntary or involuntary dissolution, liquidation or winding up of the Company, or the sale, in a single transaction, of a majority of the Company's voting stock (whether newly issued, or from treasury, or previously issued and then outstanding, or any combination thereof), the Company shall mail to the Holder at least ten (10) Business Days, or such longer period as may be required by law, prior to the record date specified therein, a notice specifying (i) the date established as the record date for the purpose of such dividend, distribution, option or right and a description of such dividend, option or right, (ii) the date on which any such reorganization, reclassification, transfer, consolidation, merger, dissolution, liquidation or winding up, or sale is expected to become effective and (iii) the date, if any, fixed as to when the holders of record of Common Stock shall be entitled to exchange their shares of Common Stock for securities or other property deliverable upon such reorganization, reclassification, transfer, consolidation, merger, dissolution, liquidation or winding up.

18. RESERVATION OF SHARES

The Company shall reserve and keep available out of its authorized but unissued shares of Common Stock for issuance upon the exercise of this Warrant, free from pre-emptive rights, such number of shares of Common Stock for which this Warrant shall from time to time be exercisable. The Company will take all such reasonable action as may be necessary to assure that such Warrant Shares may be issued as provided herein without violation of any applicable law or regulation. Without limiting the generality of the foregoing, the Company covenants that it will use commercially reasonable efforts to take all such action as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable Warrant Shares upon the exercise of this Warrant and use commercially reasonable efforts to obtain all such authorizations, exemptions or consents, including but not limited to consents from the Company's stockholders or Board of Directors or any public regulatory body, as may be necessary to enable the Company to perform its obligations under this Warrant.

19. NO THIRD PARTY RIGHTS

This Warrant is not intended, and will not be construed, to create any rights in any parties other than the Company and the Holder, and no person or entity may assert any rights as third-party beneficiary hereunder.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the Company has caused this Warrant to be duly executed as of the date first set forth above.

MATINAS BIOPHARMA HOLDINGS, INC.

By: _____

Name: Roelof Rongen

Title: President and Chief Executive Officer

EXHIBIT A

NOTICE OF EXERCISE

(To be executed by the Holder of Warrant if such Holder desires to exercise Warrant)

To Matinas BioPharma Holdings, Inc.:

The undersigned hereby irrevocably elects to exercise this Warrant and to purchase thereunder, _____ full shares of Matinas BioPharma Holdings, Inc. common stock issuable upon exercise of the Warrant and delivery of:

(1) \$_____ (in cash as provided for in the foregoing Warrant) and any applicable taxes payable by the undersigned pursuant to such Warrant; and

(2) _____ shares of Common Stock (pursuant to a Cashless Exercise in accordance with Section 1(b)(ii) of the Warrant) (check here if the undersigned desires to deliver an unspecified number of shares equal the number sufficient to effect a Cashless Exercise []).

The undersigned requests that certificates for such shares be issued in the name of:

(Please print name, address and social security or federal employer identification number (if applicable))

If the shares issuable upon this exercise of the Warrant are not all of the Warrant Shares which the Holder is entitled to acquire upon the exercise of the Warrant, the undersigned requests that a new Warrant evidencing the rights not so exercised be issued in the name of and delivered to:

(Please print name, address and social security or federal employer identification number (if applicable))

Name of Holder (print): _____
(Signature): _____
(By:) _____
(Title:) _____
Dated: _____

EXHIBIT B

FORM OF ASSIGNMENT

FOR VALUE RECEIVED, _____ hereby sells, assigns and transfers to each assignee set forth below all of the rights of the undersigned under the Warrant (as defined in and evidenced by the attached Warrant) to acquire the number of Warrant Shares set opposite the name of such assignee below and in and to the foregoing Warrant with respect to said acquisition rights and the shares issuable upon exercise of the Warrant:

Name of Assignee	Address	Number of Shares
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If the total of the Warrant Shares are not all of the Warrant Shares evidenced by the foregoing Warrant, the undersigned requests that a new Warrant evidencing the right to acquire the Warrant Shares not so assigned be issued in the name of and delivered to the undersigned.

Name of Holder (print): _____
(Signature): _____
(By:) _____
(Title): _____
Dated: _____

NEITHER THE SECURITIES REPRESENTED BY THIS CERTIFICATE NOR THE SECURITIES ISSUABLE UPON THE EXERCISE OF THIS WARRANT HAVE BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR ANY STATE SECURITIES LAWS, AND NEITHER SUCH SECURITIES NOR ANY INTEREST THEREIN MAY BE OFFERED, SOLD, ASSIGNED OR OTHERWISE TRANSFERRED UNLESS (1) A REGISTRATION STATEMENT WITH RESPECT THERETO IS EFFECTIVE UNDER THE ACT AND ANY APPLICABLE STATE SECURITIES LAWS, OR (2) AN EXEMPTION FROM SUCH REGISTRATION EXISTS AND THE COMPANY RECEIVES AN OPINION OF COUNSEL TO THE HOLDER OF SUCH SECURITIES, WHICH COUNSEL AND OPINION ARE SATISFACTORY TO THE COMPANY, THAT SUCH SECURITIES MAY BE OFFERED, SOLD, PLEDGED, ASSIGNED OR TRANSFERRED IN THE MANNER CONTEMPLATED WITHOUT AN EFFECTIVE REGISTRATION STATEMENT UNDER THE ACT OR APPLICABLE STATE SECURITIES LAWS.

Effective Date: April 10, 2015

Void After: April 9, 2020

MATINAS BIOPHARMA HOLDINGS, INC.**PLACEMENT AGENT WARRANT**

Matinas BioPharma Holdings, Inc., a Delaware corporation (the "**Company**"), for value received on [_____, 2015] (the "**Effective Date**"), hereby issues to _____ (the "**Holder**") this Warrant (the "**Warrant**") to purchase, _____ shares (each such share as from time to time adjusted as hereinafter provided being a "**Warrant Share**" and all such shares being the "**Warrant Shares**") of the Company's Common Stock (as defined below), at the Exercise Price (as defined below), as adjusted from time to time as provided herein, on or before April 9, 2020 (the "**Expiration Date**"), all subject to the following terms and conditions. This Warrant is being issued pursuant to that certain Placement Agency Agreement dated March 19, 2015 among the Company and Aegis Capital Corp. (the "**Placement Agency Agreement**") and in connection with the Company's private offering to accredited investors of its securities in accordance with, and subject to, the terms and conditions described in that certain Confidential Private Placement Memorandum, dated March 19, 2015, as the same may be amended and supplemented from time to time (the "**Private Placement Memorandum**"). Unless otherwise defined in this Warrant, terms appearing in initial capitalized form shall have the meaning ascribed to them in the Private Placement Memorandum.

As used in this Warrant, (i) “**Business Day**” means any day other than Saturday, Sunday or any other day on which commercial banks in the City of New York, New York, are authorized or required by law or executive order to close; (ii) “**Common Stock**” means the common stock of the Company, par value \$0.0001 per share, including any securities issued or issuable with respect thereto or into which or for which such shares may be exchanged for, or converted into, pursuant to any stock dividend, stock split, stock combination, recapitalization, reclassification, reorganization or other similar event; (iii) “**Exercise Price**” means [\$___] per share of Common Stock, subject to adjustment as provided herein; (iv) “**Trading Day**” means any day on which the Common Stock is traded on the primary national or regional stock exchange on which the Common Stock is listed, or if not so listed, the OTCQX, the OTCBB, or any other market quoted by OTC Markets Group Inc. (or any successors to any of the foregoing), if quoted thereon, is open for the transaction of business; and (v) “**Affiliate**” means any person that, directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with, a person, as such terms are used and construed in Rule 144 promulgated under the Securities Act of 1933, as amended (the “**Securities Act**”).

1. DURATION AND EXERCISE OF WARRANTS

(a) Exercise Period. The Holder may exercise this Warrant in whole or in part on any Business Day on or before 5:00 P.M., Eastern Time, on the Expiration Date, at which time this Warrant shall become void and of no value.

(b) Exercise Procedures.

(i) While this Warrant remains outstanding and exercisable in accordance with Section 1(a), in addition to the manner set forth in Section 1(b)(ii) below, the Holder may exercise this Warrant in whole or in part at any time and from time to time by:

(A) delivery to the Company of a duly executed copy of the Notice of Exercise attached as **Exhibit A**;

(B) surrender of this Warrant to the Secretary of the Company at its principal offices or at such other office or agency as the Company may specify in writing to the Holder; and

(C) payment of the then-applicable Exercise Price per share multiplied by the number of Warrant Shares being purchased upon exercise of the Warrant (such amount, the “**Aggregate Exercise Price**”) made in the form of cash, or by certified check, bank draft or money order payable in lawful money of the United States of America or in the form of a Cashless Exercise to the extent permitted in Section 1(b)(ii) below.

(ii) At any time, the Holder may, in its sole discretion, exercise all or any part of the Warrant in a “cashless” or “net-issue” exercise (a “**Cashless Exercise**”) by delivering to the Company (1) the Notice of Exercise and (2) the original Warrant, pursuant to which the Holder shall surrender the right to receive upon exercise of this Warrant, a number of Warrant Shares having a value (as determined below) equal to the Aggregate Exercise Price, in which case, the number of Warrant Shares to be issued to the Holder upon such exercise shall be calculated using the following formula:

$$X = \frac{Y * (A - B)}{A}$$

with: X = the number of Warrant Shares to be issued to the Holder
Y = the number of Warrant Shares with respect to which the Warrant is being exercised
A = the fair value per share of Common Stock on the date of exercise of this Warrant
B = the then-current Exercise Price of the Warrant

Solely for the purposes of this paragraph, “**fair value**” per share of Common Stock shall mean the average Closing Price (as defined below) per share of Common Stock for the twenty (20) trading days immediately preceding the date on which the Notice of Exercise is deemed to have been sent to the Company. “**Closing Price**” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Stock is then listed or quoted on the New York Stock Exchange, the NYSE MKT, the NASDAQ Global Select Market, the NASDAQ Global Market or the NASDAQ Capital Market or any other national securities exchange, the closing price per share of the Common Stock for such date (or the nearest preceding date) on the primary eligible market or exchange on which the Common Stock is then listed or quoted; (b) if prices for the Common Stock are then quoted on the OTC Bulletin Board or any tier of the OTC Markets, the closing bid price per share of the Common Stock for such date (or the nearest preceding date) so quoted; or (c) if prices for the Common Stock are then reported in the “Pink Sheets” published by the National Quotation Bureau Incorporated (or a similar organization or agency succeeding to its functions of reporting prices), the most recent closing bid price per share of the Common Stock so reported. If the Common Stock is not publicly traded as set forth above, the “fair value” per share of Common Stock shall be reasonably and in good faith determined by the Board of Directors of the Company as of the date which the Notice of Exercise is deemed to have been sent to the Company.

Notwithstanding the foregoing provisions of this Section 1(b)(ii), the Holder may not make a Cashless Exercise if and to the extent that such exercise would require the Company to issue a number of shares of Common Stock in excess of its authorized but unissued shares of Common Stock, less all amounts of Common Stock that have been reserved for issue upon the conversion of all outstanding securities convertible into shares of Common Stock and the exercise of all outstanding options, warrants and other rights exercisable for shares of Common Stock. If the Company does not have the requisite number of authorized but unissued shares of Common Stock to permit the Holder to make a Cashless Exercise, the Company shall use commercially reasonable efforts to obtain the necessary stockholder consent to increase the authorized number of shares of Common Stock to permit such Holder to make a Cashless Exercise pursuant to this Section 1(b)(ii).

(iii) Upon the exercise of this Warrant in compliance with the provisions of this Section 1(b), and except as limited pursuant to the last paragraph of Section 1(b)(ii), the Company shall promptly issue and cause to be delivered to the Holder a certificate for the Warrant Shares purchased by the Holder. Each exercise of this Warrant shall be effective immediately prior to the close of business on the date (the “**Date of Exercise**”) that the conditions set forth in Section 1(b) have been satisfied, as the case may be. On the first Business Day following the date on which the Company has received each of the Notice of Exercise and the Aggregate Exercise Price (or notice of a Cashless Exercise in accordance with Section 1(b)(ii)) (the “**Exercise Delivery Documents**”), the Company shall transmit an acknowledgment of receipt of the Exercise Delivery Documents to the Company’s transfer agent (the “**Transfer Agent**”) (it being understood that the term Transfer Agent shall be deemed to include the Secretary or other officer of the Company, if the Company does not have a Transfer Agent at the time of any exercise of this Warrant). On or before the third Business Day following the date on which the Company has received all of the Exercise Delivery Documents (the “**Share Delivery Date**”), the Company shall (X) provided that the Transfer Agent is participating in The Depository Trust Company (“**DTC**”) Fast Automated Securities Transfer Program, upon the request of the Holder, credit such aggregate number of shares of Common Stock to which the Holder is entitled pursuant to such exercise to the Holder’s or its designee’s balance account with DTC through its Deposit Withdrawal Agent Commission system, or (Y) if the Transfer Agent is not participating in the DTC Fast Automated Securities Transfer Program, issue and dispatch by overnight courier to the address as specified in the Notice of Exercise, a certificate, registered in the Company’s share register in the name of the Holder or its designee, for the number of shares of Common Stock to which the Holder is entitled pursuant to such exercise. Upon delivery of the Exercise Delivery Documents, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date of delivery of the certificates evidencing such Warrant Shares. If this Warrant is submitted in connection with any exercise pursuant to Section 1(a) and the number of Warrant Shares represented by this Warrant submitted for exercise is greater than the actual number of Warrant Shares being acquired upon such an exercise, then the Company shall as soon as practicable and in no event later than three (3) Business Days after any exercise and at its own expense, issue a new Warrant of like tenor representing the right to purchase the number of Warrant Shares purchasable immediately prior to such exercise under this Warrant, less the number of Warrant Shares with respect to which this Warrant is exercised.

(iv) If the Company shall fail for any reason or for no reason to issue to the Holder, within three (3) Business Days of receipt of the Exercise Delivery Documents, a certificate for the number of shares of Common Stock to which the Holder is entitled and register such shares of Common Stock on the Company's share register or to credit the Holder's balance account with DTC for such number of shares of Common Stock to which the Holder is entitled upon the Holder's exercise of this Warrant, and if on or after such Business Day the Holder purchases (in an open market transaction or otherwise) shares of Common Stock to deliver in satisfaction of a sale by the Holder of shares of Common Stock issuable upon such exercise that the Holder anticipated receiving from the Company (a "**Buy-In**"), then the Company shall, (A) pay in cash to the Holder the amount, if any, by which (x) the Holder's total purchase price (including brokerage commissions, if any) for the shares of Common Stock so purchased (the "**Buy-In Amount**") plus the amount paid by the Holder to the Company as the exercise price for the Warrant Shares exceeds (y) the amount obtained by multiplying (1) the number of Warrant Shares that the Company was required to deliver to the Holder in connection with the exercise at issue times (2) the price at which the sell order giving rise to such purchase obligation was executed, and (B) at the option of the Holder, either reinstate the portion of the Warrant and equivalent number of Warrant Shares for which such exercise was not honored or deliver to the Holder the number of shares of Common Stock that would have been issued had the Company timely complied with its exercise and delivery obligations hereunder. For example, if the Holder purchases Common Stock having a total purchase price of \$11,000 to cover a Buy-In with respect to an attempted exercise of shares of Common Stock, and paid the Company \$5,000 as the exercise price, the Holder's cash outlay would be a total of \$16,000; and if the aggregate sales price of the shares giving rise to such Buy-In obligation was \$10,000, under clause (A) of the immediately preceding sentence the Company shall be required to pay the Holder \$6,000. The Holder shall provide the Company written notice indicating the amounts payable to the Holder in respect of the Buy-In and, upon request of the Company, evidence of the amount of such loss. Nothing herein shall limit a Holder's right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company's failure to timely deliver certificates representing shares of Common Stock upon exercise of the Warrant as required pursuant to the terms hereof.

(c) Partial Exercise. This Warrant shall be exercisable, either in its entirety or, from time to time, for part only of the number of Warrant Shares referenced by this Warrant. If this Warrant is exercised in part, the Company shall issue, at its expense, a new Warrant, in substantially the form of this Warrant, referencing such reduced number of Warrant Shares that remain subject to this Warrant.

(d) Disputes. In the case of a dispute as to the determination of the Exercise Price or the arithmetic calculation of the Warrant Shares, the Company shall promptly issue to the Holder the number of Warrant Shares that are not disputed and, provided the Company is then subject to the reporting obligations of the Exchange Act, resolve such dispute in accordance with Section 15.

2. ISSUANCE OF WARRANT SHARES

(a) The Company covenants that all Warrant Shares will, upon issuance in accordance with the terms of this Warrant, be (i) duly authorized, fully paid and non-assessable, and (ii) free from all liens, charges and security interests, with the exception of claims arising through the acts or omissions of any Holder and except as arising from applicable Federal and state securities laws.

(b) The Company shall register this Warrant upon records to be maintained by the Company for that purpose in the name of the record holder of such Warrant from time to time. The Company may deem and treat the registered Holder of this Warrant as the absolute owner thereof for the purpose of any exercise thereof, any distribution to the Holder thereof and for all other purposes.

(c) The Company will not, by amendment of its certificate of incorporation, by-laws or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms to be observed or performed hereunder by the Company, but will at all times in good faith assist in the carrying out of all the provisions of this Warrant and in the taking of all action necessary or appropriate in order to protect the rights of the Holder to exercise this Warrant, or against impairment of such rights.

3. ADJUSTMENTS OF EXERCISE PRICE, NUMBER AND TYPE OF WARRANT SHARES

(a) The Exercise Price and the number of shares purchasable upon the exercise of this Warrant shall be subject to adjustment from time to time upon the occurrence of certain events described in this Section 3(a); provided, that notwithstanding the provisions of this Section 3, the Company shall not be required to make any adjustment if and to the extent that such adjustment would require the Company to issue a number of shares of Common Stock in excess of its authorized but unissued shares of Common Stock, less all amounts of Common Stock that have been reserved for issue upon the conversion of all outstanding securities convertible into shares of Common Stock and the exercise of all outstanding options, warrants and other rights exercisable for shares of Common Stock. If the Company does not have the requisite number of authorized but unissued shares of Common Stock to make any adjustment, the Company shall use its commercially best efforts to obtain the necessary stockholder consent to increase the authorized number of shares of Common Stock to make such an adjustment pursuant to this Section 3(a).

(i) Subdivision or Combination of Stock. In case the Company shall at any time subdivide (whether by way of stock dividend, stock split or otherwise) its outstanding shares of Common Stock into a greater number of shares, the Exercise Price in effect immediately prior to such subdivision shall be proportionately reduced and the number of Warrant Shares shall be proportionately increased, and conversely, in case the outstanding shares of Common Stock of the Company shall be combined (whether by way of stock combination, reverse stock split or otherwise) into a smaller number of shares, the Exercise Price in effect immediately prior to such combination shall be proportionately increased and the number of Warrant Shares shall be proportionately decreased. The Exercise Price and the Warrant Shares, as so adjusted, shall be readjusted in the same manner upon the happening of any successive event or events described in this Section 3(a)(i).

(ii) Dividends in Stock, Property, Reclassification. If at any time, or from time to time, all of the holders of Common Stock (or any shares of stock or other securities at the time receivable upon the exercise of this Warrant) shall have received or become entitled to receive, without payment therefore:

(A) any shares of stock or other securities that are at any time directly or indirectly convertible into or exchangeable for Common Stock, or any rights or options to subscribe for, purchase or otherwise acquire any of the foregoing by way of dividend or other distribution, or

(B) additional stock or other securities or property (including cash) by way of spin-off, split-up, reclassification, combination of shares or similar corporate rearrangement (other than shares of Common Stock issued as a stock split or adjustments in respect of which shall be covered by the terms of Section 3(a)(i) above),

then and in each such case, the Exercise Price and the number of Warrant Shares to be obtained upon exercise of this Warrant shall be adjusted proportionately, and the Holder hereof shall, upon the exercise of this Warrant, be entitled to receive, in addition to the number of shares of Common Stock receivable thereupon, and without payment of any additional consideration therefor, the amount of stock and other securities and property (including cash in the cases referred to above) that such Holder would hold on the date of such exercise had such Holder been the holder of record of such Common Stock as of the date on which holders of Common Stock received or became entitled to receive such shares or all other additional stock and other securities and property. The Exercise Price and the Warrant Shares, as so adjusted, shall be readjusted in the same manner upon the happening of any successive event or events described in this Section 3(a)(ii).

(iii) Reorganization, Reclassification, Consolidation, Merger or Sale. If any recapitalization, reclassification or reorganization of the capital stock of the Company, or any consolidation or merger of the Company with another corporation, or the sale of all or substantially all of its assets or other transaction shall be effected in such a way that holders of Common Stock shall be entitled to receive stock, securities, or other assets or property (an “**Organic Change**”), then, as a condition of such Organic Change, lawful and adequate provisions shall be made by the Company whereby the Holder hereof shall thereafter have the right to purchase and receive (in lieu of the shares of the Common Stock of the Company immediately theretofore purchasable and receivable upon the exercise of the rights represented by this Warrant) such shares of stock, securities or other assets or property as may be issued or payable with respect to or in exchange for a number of outstanding shares of such Common Stock equal to the number of shares of such stock immediately theretofore purchasable and receivable assuming the full exercise of the rights represented by this Warrant. In the event of any Organic Change, appropriate provision shall be made by the Company with respect to the rights and interests of the Holder of this Warrant to the end that the provisions hereof (including, without limitation, provisions for adjustments of the Exercise Price and of the number of shares purchasable and receivable upon the exercise of this Warrant) shall thereafter be applicable, in relation to any shares of stock, securities or assets thereafter deliverable upon the exercise hereof. The Company will not effect any such consolidation, merger or sale unless, prior to the consummation thereof, the successor corporation (if other than the Company) resulting from such consolidation or merger or the corporation purchasing such assets shall assume by written instrument reasonably satisfactory in form and substance to the Holder executed and mailed or delivered to the registered Holder hereof at the last address of such Holder appearing on the books of the Company, the obligation to deliver to such Holder such shares of stock, securities or assets as, in accordance with the foregoing provisions, such Holder may be entitled to purchase. If there is an Organic Change, then the Company shall cause to be mailed to the Holder at its last address as it shall appear on the books and records of the Company, at least 10 calendar days before the effective date of the Organic Change, a notice stating the date on which such Organic Change is expected to become effective or close, and the date as of which it is expected that holders of the Common Stock of record shall be entitled to exchange their shares for securities, cash, or other property delivered upon such Organic Change; provided, that the failure to mail such notice or any defect therein or in the mailing thereof shall not affect the validity of the corporate action required to be specified in such notice. The Holder is entitled to exercise this Warrant during the 10-day period commencing on the date of such notice to the effective date of the event triggering such notice. In any event, the successor corporation (if other than the Company) resulting from such consolidation or merger or the corporation purchasing such assets shall be deemed to assume such obligation to deliver to such Holder such shares of stock, securities or assets even in the absence of a written instrument assuming such obligation to the extent such assumption occurs by operation of law.

(b) Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment pursuant to this Section 3, the Company at its expense shall promptly compute such adjustment or readjustment in accordance with the terms hereof and furnish to each Holder of this Warrant a certificate setting forth such adjustment or readjustment and showing in detail the facts upon which such adjustment or readjustment is based. The Company shall promptly furnish or cause to be furnished to such Holder a like certificate setting forth: (i) such adjustments and readjustments; and (ii) the number of shares and the amount, if any, of other property which at the time would be received upon the exercise of the Warrant.

(c) Certain Events. If any event occurs as to which the other provisions of this Section 3 are not strictly applicable but the lack of any adjustment would not fairly protect the purchase rights of the Holder under this Warrant in accordance with the basic intent and principles of such provisions, or if strictly applicable would not fairly protect the purchase rights of the Holder under this Warrant in accordance with the basic intent and principles of such provisions, then the Company's Board of Directors will, in good faith, make an appropriate adjustment to protect the rights of the Holder; provided, that no such adjustment pursuant to this Section 3(c) will increase the Exercise Price or decrease the number of Warrant Shares as otherwise determined pursuant to this Section 3.

4. TRANSFERS AND EXCHANGES OF WARRANT AND WARRANT SHARES

(a) Registration of Transfers and Exchanges. Subject to Section 4(c), upon the Holder's surrender of this Warrant, with a duly executed copy of the Form of Assignment attached as **Exhibit B**, to the Secretary of the Company at its principal offices or at such other office or agency as the Company may specify in writing to the Holder, the Company shall register the transfer of all or any portion of this Warrant. Upon such registration of transfer, the Company shall issue a new Warrant, in substantially the form of this Warrant, evidencing the acquisition rights transferred to the transferee and a new Warrant, in similar form, evidencing the remaining acquisition rights not transferred, to the Holder requesting the transfer.

(b) Warrant Exchangeable for Different Denominations. The Holder may exchange this Warrant for a new Warrant or Warrants, in substantially the form of this Warrant, evidencing in the aggregate the right to purchase the number of Warrant Shares which may then be purchased hereunder, each of such new Warrants to be dated the date of such exchange and to represent the right to purchase such number of Warrant Shares as shall be designated by the Holder. The Holder shall surrender this Warrant with duly executed instructions regarding such re-certification of this Warrant to the Secretary of the Company at its principal offices or at such other office or agency as the Company may specify in writing to the Holder.

(c) Restrictions on Transfers. This Warrant may not be transferred at any time without (i) registration under the Securities Act or (ii) an exemption from such registration and a written opinion of legal counsel addressed to the Company that the proposed transfer of the Warrant may be effected without registration under the Securities Act, which opinion will be in form and from counsel reasonably satisfactory to the Company.

(d) Permitted Transfers and Assignments. Notwithstanding any provision to the contrary in this Section 4, the Holder may transfer, with or without consideration, this Warrant or any of the Warrant Shares (or a portion thereof) to the Holder's Affiliates (as such term is defined under Rule 144 of the Securities Act) without obtaining the opinion from counsel that may be required by Section 4(c)(ii), provided, that the Holder delivers to the Company and its counsel certification, documentation, and other assurances reasonably required by the Company's counsel to enable the Company's counsel to render an opinion to the Company's Transfer Agent that such transfer does not violate applicable securities laws.

(e) Permitted Designees. Notwithstanding anything contained herein, the Company shall, upon written instructions from the Holder to be delivered to the Company within ninety (90) calendar days following the date of the issuance of this Replacement Selling Agent Warrant, transfer all or a portion of this Warrant to officers, directors, employees and other associated persons of the Holder and other registered dealers, agents and finders (collectively, "Permitted Designees"). Such transfer shall be effective upon delivery of this Warrant and the form of assignment attached hereto as Exhibit B, accompanied by an (i) investment letter in form and substance satisfactory to the Company and (ii) such other assurances reasonably required by the Company to ensure that such transfer does not violate applicable securities laws.

5. MUTILATED OR MISSING WARRANT CERTIFICATE

If this Warrant is mutilated, lost, stolen or destroyed, upon request by the Holder, the Company will, at its expense, issue, in exchange for and upon cancellation of the mutilated Warrant, or in substitution for the lost, stolen or destroyed Warrant, a new Warrant, in substantially the form of this Warrant, representing the right to acquire the equivalent number of Warrant Shares; provided, that, as a prerequisite to the issuance of a substitute Warrant, the Company may require satisfactory evidence of loss, theft or destruction as well as an indemnity from the Holder of a lost, stolen or destroyed Warrant.

6. PAYMENT OF TAXES

The Company will pay all transfer and stock issuance taxes attributable to the preparation, issuance and delivery of this Warrant and the Warrant Shares (and Replacement Selling Agent Warrant) including, without limitation, all documentary and stamp taxes; provided, however, that the Company shall not be required to pay any tax in respect of the transfer of this Warrant, or the issuance or delivery of certificates for Warrant Shares or other securities in respect of the Warrant Shares to any person or entity other than to the Holder.

7. FRACTIONAL WARRANT SHARES

No fractional Warrant Shares shall be issued upon exercise of this Warrant. The Company, in lieu of issuing any fractional Warrant Share, shall round up the number of Warrant Shares issuable to nearest whole share.

8. NO STOCK RIGHTS AND LEGEND

No holder of this Warrant, as such, shall be entitled to vote or be deemed the holder of any other securities of the Company that may at any time be issuable on the exercise hereof, nor shall anything contained herein be construed to confer upon the holder of this Warrant, as such, the rights of a stockholder of the Company or the right to vote for the election of directors or upon any matter submitted to stockholders at any meeting thereof, or give or withhold consent to any corporate action or to receive notice of meetings or other actions affecting stockholders (except as provided herein), or to receive dividends or subscription rights or otherwise (except as provide herein).

Each certificate for Warrant Shares initially issued upon the exercise of this Warrant, and each certificate for Warrant Shares issued to any subsequent transferee of any such certificate, shall be stamped or otherwise imprinted with a legend in substantially the following form:

“THE SECURITIES REPRESENTED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE “ACT”), OR ANY STATE SECURITIES LAWS, AND NEITHER SUCH SECURITIES NOR ANY INTEREST THEREIN MAY BE OFFERED, SOLD, PLEDGED, ASSIGNED OR OTHERWISE TRANSFERRED UNLESS (1) A REGISTRATION STATEMENT WITH RESPECT THERETO IS EFFECTIVE UNDER THE ACT AND ANY APPLICABLE STATE SECURITIES LAWS, OR (2) AN EXEMPTION FROM SUCH REGISTRATION EXISTS AND THE COMPANY RECEIVES AN OPINION OF COUNSEL TO THE HOLDER OF SUCH SECURITIES, WHICH COUNSEL AND OPINION ARE REASONABLY SATISFACTORY TO THE COMPANY, THAT SUCH SECURITIES MAY BE OFFERED, SOLD, PLEDGED, ASSIGNED OR TRANSFERRED IN THE MANNER CONTEMPLATED WITHOUT AN EFFECTIVE REGISTRATION STATEMENT UNDER THE ACT OR APPLICABLE STATE SECURITIES LAWS.”

9. REGISTRATION UNDER THE SECURITIES ACT OF 1933

In connection with any Organic Change in which the Company is not the surviving corporation, the Company shall cause the surviving corporation to provide registration rights with respect to the resale of the Warrant Shares (or the warrant shares issuable upon the exercise of the warrant that is exchanged for this Warrant at the time of the closing of such Organic Change) under the Securities Act which are equal to any registration rights that are granted to any purchasers of securities that are sold at the time of the Organic Change.

10. NOTICES

All notices, consents, waivers, and other communications under this Warrant must be in writing and will be deemed given to a party when (a) delivered to the appropriate address by hand or by nationally recognized overnight courier service (costs prepaid); (b) sent by facsimile or e-mail with confirmation of transmission by the transmitting equipment; (c) received or rejected by the addressee, if sent by certified mail, return receipt requested, if to the registered Holder hereof; or (d) seven days after the placement of the notice into the mails (first class postage prepaid), to the Holder at the address, facsimile number, or e-mail address furnished by the registered Holder to the Company in accordance with the Subscription Agreement by and between the Company and the Holder, or if to the Company, to it at 1545 Route 206 South, Suite 302, Bedminster, NJ 07921, Attention: Roelof Rongen, Chief Executive Officer (or to such other address, facsimile number, or e-mail address as the Holder or the Company as a party may designate by notice the other party).

11. SEVERABILITY

If a court of competent jurisdiction holds any provision of this Warrant invalid or unenforceable, the other provisions of this Warrant will remain in full force and effect. Any provision of this Warrant held invalid or unenforceable only in part or degree will remain in full force and effect to the extent not held invalid or unenforceable.

12. BINDING EFFECT

This Warrant shall be binding upon and inure to the sole and exclusive benefit of the Company, its successors and assigns, the registered Holder or Holders from time to time of this Warrant and the Warrant Shares.

13. SURVIVAL OF RIGHTS AND DUTIES

This Warrant shall terminate and be of no further force and effect on the earlier of 5:00 P.M., Eastern Time, on the Expiration Date or the date on which this Warrant has been exercised in full.

14. GOVERNING LAW

This Warrant will be governed by and construed under the laws of the State of New York without regard to conflicts of laws principles that would require the application of any other law.

15. DISPUTE RESOLUTION

In the case of a dispute as to the determination of the Exercise Price or the arithmetic calculation of the Warrant Shares, the Company shall submit the disputed determinations or arithmetic calculations via facsimile within two Business Days of receipt of the Notice of Exercise giving rise to such dispute, as the case may be, to the Holder. If the Holder and the Company are unable to agree upon such determination or calculation of the Exercise Price or the Warrant Shares within three Business Days of such disputed determination or arithmetic calculation being submitted to the Holder, and provided that the Company is then subject to the reporting obligations of the Exchange Act, then the Company shall, within two Business Days, submit via facsimile (a) the disputed determination of the Exercise Price to an independent, reputable investment bank selected by the Company and approved by the Holder or (b) the disputed arithmetic calculation of the Warrant Shares to the Company's independent, outside accountant. The Company shall cause at its expense the investment bank or the accountant, as the case may be, to perform the determinations or calculations and notify the Company and the Holder of the results no later than ten (10) Business Days from the time it receives the disputed determinations or calculations. Such investment bank's or accountant's determination or calculation, as the case may be, shall be binding upon all parties absent demonstrable error.

16. NOTICES OF RECORD DATE

Upon (a) any establishment by the Company of a record date of the holders of any class of securities for the purpose of determining the holders thereof who are entitled to receive any dividend or other distribution, or right or option to acquire securities of the Company, or any other right, or (b) any capital reorganization, reclassification, recapitalization, merger or consolidation of the Company with or into any other corporation, any transfer of all or substantially all the assets of the Company, or any voluntary or involuntary dissolution, liquidation or winding up of the Company, or the sale, in a single transaction, of a majority of the Company's voting stock (whether newly issued, or from treasury, or previously issued and then outstanding, or any combination thereof), the Company shall mail to the Holder at least ten (10) Business Days, or such longer period as may be required by law, prior to the record date specified therein, a notice specifying (i) the date established as the record date for the purpose of such dividend, distribution, option or right and a description of such dividend, option or right, (ii) the date on which any such reorganization, reclassification, transfer, consolidation, merger, dissolution, liquidation or winding up, or sale is expected to become effective and (iii) the date, if any, fixed as to when the holders of record of Common Stock shall be entitled to exchange their shares of Common Stock for securities or other property deliverable upon such reorganization, reclassification, transfer, consolidation, merger, dissolution, liquidation or winding up.

17. RESERVATION OF SHARES

The Company shall reserve and keep available out of its authorized but unissued shares of Common Stock for issuance upon the exercise of this Warrant, free from pre-emptive rights, such number of shares of Common Stock for which this Warrant shall from time to time be exercisable. The Company will take all such reasonable action as may be necessary to assure that such Warrant Shares may be issued as provided herein without violation of any applicable law or regulation. Without limiting the generality of the foregoing, the Company covenants that it will use commercially reasonable efforts to take all such action as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable Warrant Shares upon the exercise of this Warrant and use commercially reasonable efforts to obtain all such authorizations, exemptions or consents, including but not limited to consents from the Company's stockholders or Board of Directors or any public regulatory body, as may be necessary to enable the Company to perform its obligations under this Warrant.

18. NO THIRD PARTY RIGHTS

This Warrant is not intended, and will not be construed, to create any rights in any parties other than the Company and the Holder, and no person or entity may assert any rights as third-party beneficiary hereunder.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the Company has caused this Warrant to be duly executed as of the date first set forth above.

MATINAS BIOPHARMA HOLDINGS, INC.

By: _____

Name: Roel Rongen

Title: Chief Executive Officer

EXHIBIT A

NOTICE OF EXERCISE

(To be executed by the Holder of Warrant if such Holder desires to exercise Warrant)

To Matinas BioPharma Holdings, Inc.:

The undersigned hereby irrevocably elects to exercise this Warrant and to purchase thereunder, _____ full shares of Matinas BioPharma Holdings, Inc. Common Stock issuable upon exercise of the Warrant and delivery of:

(1) \$_____ (in cash as provided for in the foregoing Warrant) and any applicable taxes payable by the undersigned pursuant to such Warrant; and

(2) a Warrant for _____ shares of Common Stock (pursuant to a Cashless Exercise in accordance with Section 1(b)(ii) of the Warrant) (check here if the undersigned desires to deliver a Warrant for an unspecified number of shares equal to the number sufficient to effect a Cashless Exercise [___]).

The undersigned requests that certificates for such shares be issued in the name of:

(Please print name, address and social security or federal employer

identification number (if applicable))

If the shares issuable upon this exercise of the Warrant are not all of the Warrant Shares which the Holder is entitled to acquire upon the exercise of the Warrant, the undersigned requests that a new Warrant evidencing the rights not so exercised be issued in the name of and delivered to:

(Please print name, address and social security or federal employer
identification number (if applicable))

Name of Holder (print): _____

(Signature): _____

(By:) _____

(Title): _____

Dated: _____

EXHIBIT B

FORM OF ASSIGNMENT

FOR VALUE RECEIVED, _____ hereby sells, assigns and transfers to each assignee set forth below all of the rights of the undersigned under the Warrant (as defined in and evidenced by the attached Warrant) to acquire the number of Warrant Shares set opposite the name of such assignee below and in and to the foregoing Warrant with respect to said acquisition rights and the shares issuable upon exercise of the Warrant:

Name of Assignee	Address	Number of Shares
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If the total of the Warrant Shares are not all of the Warrant Shares evidenced by the foregoing Warrant, the undersigned requests that a new Warrant evidencing the right to acquire the Warrant Shares not so assigned be issued in the name of and delivered to the undersigned.

Name of Holder (print): _____
(Signature): _____
(By): _____
(Title): _____
Dated: _____

REGISTRATION RIGHTS AGREEMENT

This Registration Rights Agreement (this “**Agreement**”) is made and entered into effective as of March 31, 2015 (the “**Effective Date**”) between Matinas BioPharma Holdings, Inc., a Delaware corporation (the “**Company**”), and the persons who have executed the signature page(s) hereto (each, a “**Purchaser**” and collectively, the “**Purchasers**”).

RECITALS:

WHEREAS, the Company has offered in compliance with Rule 506 of Regulation D of the Securities Act (as defined herein), to investors in a private placement transaction (the “**PPO**”), units (“**Units**”) of its securities, each Unit consisting of one share of Common Stock (the “**Investor Shares**”) and one warrant (the “**Investor Warrants**”) to purchase one share of Common Stock;

WHEREAS, the initial closing of the PPO has taken place on the Effective Date;

WHEREAS, in connection with the PPO, the Company agreed to provide certain registration rights related to the Investor Shares and the shares of Common Stock issuable upon exercise of the Investor Warrants, on the terms set forth herein.

NOW, THEREFORE, in consideration of the mutual promises, representations, warranties, covenants, and conditions set forth herein, the parties mutually agree as follows:

1. Certain Definitions. As used in this Agreement, the following terms shall have the following respective meanings:

“Approved Market” means the Over-the-Counter Bulletin Board, the OTC Markets, the Nasdaq Stock Market, the New York Stock Exchange or the American Stock Exchange.

“Blackout Period” means, with respect to a registration, a period, in each case commencing on the day immediately after the Company notifies the Purchasers that they are required, because of the occurrence of an event of the kind described in Section 4(f) hereof, to suspend offers and sales of Registrable Securities during which the Company, in the good faith judgment of its board of directors, determines (because of the existence of, or in anticipation of, any acquisition, financing activity, or other transaction involving the Company, or the unavailability for reasons beyond the Company’s control of any required financial statements, disclosure of information which is in its best interest not to publicly disclose, or any other event or condition of similar significance to the Company) that the registration and distribution of the Registrable Securities to be covered by such Registration Statement, if any, would be seriously detrimental to the Company and its stockholders and ending on the earlier of (1) the date upon which the material non-public information commencing the Blackout Period is disclosed to the public or ceases to be material and (2) such time as the Company notifies the selling Holders that the Company will no longer delay such filing of the Registration Statement, recommence taking steps to make such Registration Statement effective, or allow sales pursuant to such Registration Statement to resume.

“Business Day” means any day of the year, other than a Saturday, Sunday, or other day on which the Commission is required or authorized to close.

“Commission” means the U. S. Securities and Exchange Commission or any other federal agency at the time administering the Securities Act.

“Common Stock” means the common stock, par value \$0.0001 per share, of the Company and any and all shares of capital stock or other equity securities of: (i) the Company which are added to or exchanged or substituted for the Common Stock by reason of the declaration of any stock dividend or stock split, the issuance of any distribution or the reclassification, readjustment, recapitalization or other such modification of the capital structure of the Company; and (ii) any other corporation, now or hereafter organized under the laws of any state or other governmental authority, with which the Company is merged, which results from any consolidation or reorganization to which the Company is a party, or to which is sold all or substantially all of the shares or assets of the Company, if immediately after such merger, consolidation, reorganization or sale, the Company or the stockholders of the Company own equity securities having in the aggregate more than 50% of the total voting power of such other corporation.

“Effective Date” has the meaning given it in the preamble to this Agreement.

“Exchange Act” means the Securities Exchange Act of 1934, as amended, and the rules and regulations of the Commission promulgated thereunder.

“Family Member” means (a) with respect to any individual, such individual’s spouse, any descendants (whether natural or adopted), any trust all of the beneficial interests of which are owned by any of such individuals or by any of such individuals together with any organization described in Section 501(c)(3) of the Internal Revenue Code of 1986, as amended, the estate of any such individual, and any corporation, association, partnership or limited liability company all of the equity interests of which are owned by those above described individuals, trusts or organizations and (b) with respect to any trust, the owners of the beneficial interests of such trust.

“Holder” means each Purchaser or any of such Purchaser’s respective successors and Permitted Assignees who acquire rights in accordance with this Agreement with respect to any Registrable Securities directly or indirectly from a Purchaser or from any Permitted Assignee.

“Initial Registration Statement” means the initial Registration Statement filed pursuant to this Agreement.

“Investor Shares” has the meaning given it in the recitals of this Agreement.

“Investor Warrants” has the meaning given it in the recitals of this Agreement.

“Majority Holders” means at any time Holders representing a majority of the Registrable Securities.

“Permitted Assignee” means (a) with respect to a partnership, its partners or former partners in accordance with their partnership interests, (b) with respect to a corporation, its stockholders in accordance with their interest in the corporation, (c) with respect to a limited liability company, its members or former members in accordance with their interest in the limited liability company, (d) with respect to an individual party, any Family Member of such party, (e) an entity that is controlled by, controls, or is under common control with a transferor, or (f) a party to this Agreement.

“Piggyback Registration” means, in any registration of Common Stock as set forth in Section 3(b), the ability of holders of Registrable Securities to include Registrable Securities in such registration.

The terms “register,” “registered,” and “registration” refer to a registration effected by preparing and filing a registration statement in compliance with the Securities Act, and the declaration or ordering of the effectiveness of such registration statement.

“Registrable Securities” means the Investor Shares and the Registrable Warrant Shares but excluding, subject to Section 3(e), (i) any Registrable Securities that have been publicly sold or may be sold immediately without registration under the Securities Act either pursuant to Rule 144 of the Securities Act or otherwise; (ii) any Registrable Securities sold by a person in a transaction pursuant to a registration statement filed under the Securities Act, or (iii) any Registrable Securities that are at the time subject to an effective registration statement under the Securities Act.

“Registrable Warrant Shares” means the shares of Common Stock issued or issuable to each Holder upon exercise of the Investor Warrants.

“Registration Default Date” means the date that is 120 days after the date the Registration Statement is actually filed with the Commission.

“Registration Default Period” means the period following the Registration Default Date during which any Registration Event occurs and is continuing.

“Registration Event” means the occurrence of any of the following events:

- (a) the Company fails to file with the Commission the Registration Statement on or before the Registration Filing Date;
- (b) the Registration Statement is not declared effective by the Commission on or before the Registration Default Date;
- (c) after the SEC Effective Date, sales cannot be made pursuant to the Registration Statement for any reason (including without limitation by reason of a stop order, or the Company’s failure to update the Registration Statement) except as excused pursuant to Section 3(e); or
- (d) the Common Stock generally or the Registrable Securities specifically are not listed or included for quotation on an Approved Market, or trading of the Common Stock is suspended or halted on the Approved Market, which at the time constitutes the principal market for the Common Stock, for more than two full, consecutive Trading Days; provided, however, a Registration Event shall not be deemed to occur if all or substantially all trading in equity securities (including the Common Stock) is suspended or halted on the Approved Market for any length of time.

“Registration Filing Date” means the date that is 60 days after date of the final closing of the PPO.

“Registration Statement” means the registration statement that the Company is required to file pursuant to this Agreement to register the Registrable Securities.

“Rule 144” means Rule 144 promulgated by the Commission under the Securities Act.

“Rule 145” means Rule 145 promulgated by the Commission under the Securities Act.

“Rule 415” means Rule 415 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended from time to time, or any similar rule or regulation hereafter adopted by the SEC having substantially the same purpose and effect as such Rule.

“Securities Act” means the Securities Act of 1933, as amended, or any similar federal statute promulgated in replacement thereof, and the rules and regulations of the Commission thereunder, all as the same shall be in effect at the time.

“SEC Effective Date” means the date the Registration Statement is declared effective by the Commission.

“Trading Day” means (a) if the Common Stock is listed or quoted on an Approved Market, then any day during which securities are generally eligible for trading on the Approved Market, or (b) if the Common Stock is not then listed or quoted and traded on an Approved Market, then any business day.

2. Term. This Agreement shall continue in full force and effect for a period of one year from the SEC Effective Date, unless terminated sooner hereunder.

3. Registration.

(a) Registration on Form S-1. Not later than the Registration Filing Date, the Company shall file with the Commission a Registration Statement on Form S-1, or other applicable form, relating to the resale by the Holders of all of the Registrable Securities, and the Company shall use its commercially reasonable efforts to cause such Registration Statement to be declared effective prior to the Registration Default Date.

(b) Piggyback Registration. In addition to the Company agreement pursuant to Section 3(a) above, if the Company shall determine to register for sale for cash any of its Common Stock, for its own account or for the account of others (other than the Holders), other than (i) a registration relating solely to employee benefit plans or securities issued or issuable to employees, consultants (to the extent the securities owned or to be owned by such consultants could be registered on Form S-8) or any of their Family Members (including a registration on Form S-8), (ii) a registration of the outstanding shares of Common Stock underlying warrants currently registered on Form S-1 (file no. 333- 193455) or (iii) a registration relating solely to a Securities Act Rule 145 transaction or a registration on Form S-4 in connection with a merger, acquisition, divestiture, reorganization or similar event, the Company shall promptly give to the Holders written notice thereof (and in no event shall such notice be given less than 20 calendar days prior to the filing of such registration statement), and shall, subject to Section 3(c), include as a Piggyback Registration all of the Registrable Securities specified in a written request delivered by the Holder thereof within 10 calendar days after receipt of such written notice from the Company. However, the Company may, without the consent of the Holders, withdraw such registration statement prior to its becoming effective if the Company or such other stockholders have elected to abandon the proposal to register the securities proposed to be registered thereby.

(c) Underwriting. If a Piggyback Registration is for a registered public offering that is to be made by an underwriting, the Company shall so advise the Holders of the Registrable Securities eligible for inclusion in such Registration Statement pursuant to Sections 3(b). In that event, the right of any Holder to Piggyback Registration shall be conditioned upon such Holder's participation in such underwriting and the inclusion of such Holder's Registrable Securities in the underwriting to the extent provided herein. All Holders proposing to sell any of their Registrable Securities through such underwriting shall (together with the Company and any other stockholders of the Company selling their securities through such underwriting) enter into an underwriting agreement in customary form with the underwriter selected for such underwriting by the Company or the selling stockholders, as applicable. Notwithstanding any other provision of this Section, if the underwriter or the Company determines that marketing factors require a limitation on the number of shares of Common Stock or the amount of other securities to be underwritten, the underwriter may exclude some or all Registrable Securities from such registration and underwriting. The Company shall so advise all Holders (except those Holders who failed to timely elect to include their Registrable Securities through such underwriting or have indicated to the Company their decision not to do so), and indicate to each such Holder the number of shares of Registrable Securities that may be included in the registration and underwriting, if any. The number of shares of Registrable Securities to be included in such registration and underwriting shall be allocated among such Holders as follows:

(i) If the Piggyback Registration was initiated by the Company, the number of shares that may be included in the registration and underwriting shall be allocated first to the Company and then, subject to obligations and commitments existing as of the date hereof, to all selling stockholders, including the Holders, who have requested to sell in the registration on a pro rata basis according to the number of shares requested to be included therein; and

(ii) If the Piggyback Registration was initiated by the exercise of demand registration rights by a stockholder or stockholders of the Company (other than the Holders), then the number of shares that may be included in the registration and underwriting shall be allocated first to such selling stockholders who exercised such demand and then, subject to obligations and commitments existing as of the date hereof, to all other selling stockholders, including the Holders, who have requested to sell in the registration on a pro rata basis according to the number of shares requested to be included therein.

No Registrable Securities excluded from the underwriting by reason of the underwriter's marketing limitation shall be included in such registration and no liquidated damages as set forth in Section 3(d) shall accrue with respect to such excluded securities. If any Holder disapproves of the terms of any such underwriting, such Holder may elect to withdraw such Holder's Registrable Securities therefrom by delivering a written notice to the Company and the underwriter. The Registrable Securities so withdrawn from such underwriting shall also be withdrawn from such registration; provided, however, that, if by the withdrawal of such Registrable Securities, a greater number of Registrable Securities held by other Holders may be included in such registration (up to the maximum of any limitation imposed by the underwriters), then the Company shall offer to all Holders who have included Registrable Securities in the registration the right to include additional Registrable Securities pursuant to the terms and limitations set forth herein in the same proportion used above in determining the underwriter limitation.

(d) Occurrence of Registration Event. If a Registration Event occurs, then the Company will make payments to each Holder of Registrable Securities (a “**Qualified Purchaser**”), as liquidated damages for the amount of damages to the Qualified Purchaser by reason thereof, at a rate equal to 0.50% of the purchase price per Unit paid by such Holder in the PPO for the Registrable Securities then held by each Qualified Purchaser for each full period of 30 days of the Registration Default Period (which shall be pro-rated for any period less than 30 days); provided, however, if a Registration Event occurs (or is continuing), liquidated damages shall be paid only with respect to that portion of the Qualified Purchaser’s Registrable Securities that cannot then be immediately resold in reliance on Rule 144. Notwithstanding the foregoing, the maximum amount of liquidated damages that may be paid to any Qualified Purchaser pursuant to this Section 3(d) shall be an amount equal to 6% of the purchase price per Unit paid by such Holder in the PPO for the Registrable Securities held by such Qualified Purchaser at the time of the first occurrence of a Registration Event. Each such payment shall be due and payable within five days after the end of each full 30-day period of the Registration Default Period until the termination of the Registration Default Period and within five days after such termination. Such payments shall constitute the Qualified Purchaser’s exclusive remedy for such events. If the Company fails to pay any partial liquidated damages or refund pursuant to this Section in full within seven days after the date payable, the Company will pay interest thereon at a rate of 2% per annum (or such lesser maximum amount that is permitted to be paid by applicable law) to the Holder, accruing daily from the date such partial liquidated damages are due until such amounts, plus all such interest thereon, are paid in full. The Registration Default Period shall terminate upon (i) the filing of the Registration Statement in the case of clause (a) of the definition of Registration Event, (ii) the SEC Effective Date in the case of clause (b) of the definition of Registration Event, (iii) the ability of the Qualified Purchaser to effect sales pursuant to the Registration Statement in the case of clause (c) of the definition of Registration Event, and (iv) the listing or inclusion and/or trading of the Common Stock on an Approved Market, as the case may be, in the case of clause (d) of the definition of Registration Event. The amounts payable as liquidated damages pursuant to this Section 3(d) shall be payable in lawful money of the United States.

(e) Notwithstanding the provisions of Section 3(d) above:

(1)(a) if the Commission does not declare the Registration Statement effective on or before the Registration Default Date, or (b) if the Commission allows the Registration Statement to be declared effective at any time before or after the Registration Default Date, subject to the withdrawal of certain Registrable Securities from the Registration Statement, and the reason for (a) or (b) is the Commission’s determination that (x) the offering of any of the Registrable Securities constitutes a primary offering of securities by the Company, (y) Rule 415 may not be relied upon for the registration of the resale of any or all of the Registrable Securities, and/or (z) a Holder of any Registrable Securities must be named as an underwriter, the Holders understand and agree that in the case of (b) the Company may reduce, on a *pro rata* basis, the total number of Registrable Securities to be registered on behalf of each such Holder, and, in the case of (a) or (b), that a Holder shall not be entitled to any liquidated damages with respect to the Registrable Securities not registered for the reason set forth in (a), or so reduced on a *pro rata* basis as set forth in (b). In any such *pro rata* reduction, the number of Registrable Securities to be registered on such Registration Statement will first be reduced by (i) first, the Registrable Securities represented by the Registrable Warrant Shares (applied, in the case that some Registrable Warrant Shares may be registered, to the Holders on a *pro rata* basis based on the total number of unregistered Registrable Warrant Shares held by such Holders on a fully diluted basis), and (ii) second, Registrable Securities represented by Investor Shares (applied, in the case that some Investor Shares may be registered, to the Holders on a *pro rata* basis based on the total number of unregistered Investor Shares held by such Holders). In addition, any such affected Holder shall be entitled to Piggyback Registration rights after the Registration Statement is declared effective by the Commission until such time as: (AA) all Registrable Securities have been registered pursuant to an effective Registration Statement, (BB) the Registrable Securities may be resold without restriction pursuant to Rule 144 of the Securities Act, or (CC) the Holder agrees to be named as an underwriter in any such registration statement. The Holders acknowledge and agree the provisions of this paragraph may apply to more than one Registration Statement; and

(2) For not more than thirty (30) consecutive days or for a total of not more than sixty (60) days in any twelve (12) month period, the Company may suspend the use of any prospectus included in any Registration Statement contemplated by this Section in the event that the Company determines in good faith that such suspension is necessary to (A) delay the disclosure of material non-public information concerning the Company, the disclosure of which at the time is not, in the good faith opinion of the Company, in the best interests of the Company or (B) amend or supplement the affected Registration Statement or the related prospectus so that such Registration Statement or prospectus shall not include an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in the case of the prospectus in light of the circumstances under which they were made, not misleading, including in connection with the filing of a post-effective amendment to such Registration Statement in connection with the Company's filing of an Annual Report on Form 10-K for any fiscal year (an "Allowed Delay"); provided, that the Company shall promptly (a) notify each Holder in writing of the commencement of an Allowed Delay, but shall not (without the prior written consent of an Holder) disclose to such Holder any material non-public information giving rise to an Allowed Delay, (b) advise the Holders in writing to cease all sales under the Registration Statement until the end of the Allowed Delay and (c) use commercially reasonable efforts to terminate an Allowed Delay as promptly as practicable.

In the event of an Allowed Delay, the liquidated damages set forth in Section 3(d) shall not accrue during such Allowed Delay.

4 . Registration Procedures for Registrable Securities. The Company will keep each Holder reasonably advised as to the filing and effectiveness of the Registration Statement. At its expense with respect to the Registration Statement, the Company will:

(a) prepare and file with the Commission with respect to the Registrable Securities, a Registration Statement on Form S-1, or any other form for which the Company then qualifies or which counsel for the Company shall deem appropriate and which form shall be available for the sale of the Registrable Securities in accordance with the intended methods of distribution thereof, and use its commercially reasonable efforts to cause such Registration Statement to become effective and shall remain effective for a period of one year or for such shorter period ending on the earlier to occur of (i) the date as of which all of the Holders as selling stockholders thereunder may sell all of the Registrable Securities registered for resale thereon without restriction pursuant to Rule 144 (or any successor rule thereto) promulgated under the Securities Act or (ii) the date when all of the Registrable Securities registered thereunder shall have been sold (the "**Effectiveness Period**"). Thereafter, the Company shall be entitled to withdraw such Registration Statement and the Purchasers shall have no further right to offer or sell any of the Registrable Securities registered for resale thereon pursuant to the respective Registration Statement (or any prospectus relating thereto);

(b) if the Registration Statement is subject to review by the Commission, respond in a commercially reasonable manner to all comments and diligently pursue resolution of any comments to the satisfaction of the Commission;

(c) prepare and file with the Commission such amendments and supplements to such Registration Statement as may be necessary to keep such Registration Statement effective during the Effectiveness Period;

(d) furnish, without charge, to each Holder of Registrable Securities covered by such Registration Statement (i) a reasonable number of copies of such Registration Statement (including any exhibits thereto other than exhibits incorporated by reference), each amendment and supplement thereto as such Holder may reasonably request, (ii) such number of copies of the prospectus included in such Registration Statement (including each preliminary prospectus and any other prospectus filed under Rule 424 of the Securities Act) as such Holders may reasonably request, in conformity with the requirements of the Securities Act, and (iii) such other documents as such Holder may require to consummate the disposition of the Registrable Securities owned by such Holder, but only during the Effectiveness Period;

(e) use its commercially reasonable efforts to register or qualify such registration under such other applicable securities laws of such jurisdictions as any Holder of Registrable Securities covered by such Registration Statement reasonably requests and as may be necessary for the marketability of the Registrable Securities (such request to be made by the time the applicable Registration Statement is deemed effective by the Commission) and do any and all other acts and things necessary to enable such Holder to consummate the disposition in such jurisdictions of the Registrable Securities owned by such Holder; provided, that the Company shall not be required to (i) qualify generally to do business in any jurisdiction where it would not otherwise be required to qualify but for this paragraph, (ii) subject itself to taxation in any such jurisdiction, or (iii) consent to general service of process in any such jurisdiction.

(f) notify each Holder of Registrable Securities, the disposition of which requires delivery of a prospectus relating thereto under the Securities Act, of the happening of any event (as promptly as practicable after becoming aware of such event), which comes to the Company's attention, that will after the occurrence of such event cause the prospectus included in such Registration Statement, if not amended or supplemented, to contain an untrue statement of a material fact or an omission to state a material fact required to be stated therein or necessary to make the statements therein not misleading and the Company shall promptly thereafter prepare and furnish to such Holder a supplement or amendment to such prospectus (or prepare and file appropriate reports under the Exchange Act) so that, as thereafter delivered to the purchasers of such Registrable Securities, such prospectus shall not contain an untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein not misleading, unless suspension of the use of such prospectus otherwise is authorized herein or in the event of a Blackout Period, in which case no supplement or amendment need be furnished (or Exchange Act filing made) until the termination of such suspension or Blackout Period;

(g) comply, and continue to comply during the Effectiveness Period, in all material respects with the Securities Act and the Exchange Act and with all applicable rules and regulations of the Commission with respect to the disposition of all securities covered by such Registration Statement;

(h) as promptly as practicable after becoming aware of such event, notify each Holder of Registrable Securities being offered or sold pursuant to the Registration Statement of the issuance by the Commission of any stop order or other suspension of effectiveness of the Registration Statement;

(i) use its commercially reasonable efforts to cause all the Registrable Securities covered by the Registration Statement to be quoted on the OTC Bulletin Board or such other Approved Market on which securities of the same class or series issued by the Company are then listed or traded;

(j) provide a transfer agent and registrar, which may be a single entity, for the shares of Common Stock at all times;

(k) if requested by the Holders, cooperate with the Holders to facilitate the timely preparation and delivery of certificates representing Registrable Securities to be delivered to a transferee pursuant to the Registration Statement, which certificates shall be free, to the extent permitted by applicable law, of all restrictive legends, and to enable such Registrable Securities to be in such denominations and registered in such names as any such Holders may request;

(l) during the Effectiveness Period, refrain from bidding for or purchasing any Common Stock or any right to purchase Common Stock or attempting to induce any person to purchase any such security or right if such bid, purchase or attempt would in any way limit the right of the Holders to sell Registrable Securities by reason of the limitations set forth in Regulation M of the Exchange Act; and

(m) take all other reasonable actions necessary to expedite and facilitate the disposition by the Holders of the Registrable Securities pursuant to the Registration Statement.

5. Suspension of Offers and Sales. Each Holder agrees that, upon receipt of any notice from the Company of the happening of any event of the kind described in Section 4(f) hereof or of the commencement of a Blackout Period, such Holder shall discontinue the disposition of Registrable Securities included in the Registration Statement until such Holder's receipt of the copies of the supplemented or amended prospectus contemplated by Section 4(f) hereof or notice of the end of the Blackout Period, and, if so directed by the Company, such Holder shall deliver to the Company (at the Company's expense) all copies (including, without limitation, any and all drafts), other than permanent file copies, then in such Holder's possession, of the prospectus covering such Registrable Securities current at the time of receipt of such notice.

6 . Registration Expenses. The Company shall pay all expenses in connection with any registration obligation provided herein, including, without limitation, all registration, filing, stock exchange fees, printing expenses, all fees and expenses of complying with applicable securities laws, and the fees and disbursements of counsel for the Company and of its independent accountants; provided, that, in any registration, each party shall pay for its own underwriting discounts and commissions and transfer taxes. Except as provided in this Section and Section 9, the Company shall not be responsible for the expenses of any attorney or other advisor employed by a Holder.

7 . Assignment of Rights. No Holder may assign its rights under this Agreement to any party without the prior written consent of the Company; provided, however, that any Holder may assign its rights under this Agreement without such consent to a Permitted Assignee as long as (a) such transfer or assignment is effected in accordance with applicable securities laws; (b) such transferee or assignee agrees in writing to become subject to the terms of this Agreement; and (c) such Holder notifies the Company in writing of such transfer or assignment, stating the name and address of the transferee or assignee and identifying the Registrable Securities with respect to which such rights are being transferred or assigned.

8 . Information by Holder. A Holder with Registrable Securities included in any registration shall furnish to the Company such information regarding itself, the Registrable Securities held by it, and the intended method of disposition of such securities as shall be required in order to comply with any applicable law or regulation in connection with the registration of such Holder's Registrable Securities or any qualification or compliance with respect to such Holder's Registrable Securities and referred to in this Agreement. A form of Selling Stockholder Questionnaire is attached as Exhibit A hereto for such purposes.

9. Indemnification.

(a) In the event of the offer and sale of Registrable Securities under the Securities Act, the Company shall, and hereby does, indemnify and hold harmless, to the fullest extent permitted by law, each Holder, its directors, officers, partners, each other person who participates as an underwriter in the offering or sale of such securities, and each other person, if any, who controls or is under common control with such Holder or any such underwriter within the meaning of Section 15 of the Securities Act, against any losses, claims, damages or liabilities, joint or several, and expenses to which the Holder or any such director, officer, partner or underwriter or controlling person may become subject under the Securities Act, the Exchange Act, or any other federal or state law, insofar as such losses, claims, damages, liabilities or expenses (or actions or proceedings, whether commenced or threatened, in respect thereof) arise out of or are based upon any untrue statement of any material fact contained in any registration statement prepared and filed by the Company under which Registrable Securities were registered under the Securities Act, any preliminary prospectus, final prospectus or summary prospectus contained therein, or any amendment or supplement thereto, or any omission to state therein a material fact required to be stated or necessary to make the statements therein in light of the circumstances in which they were made not misleading, or any violation or alleged violation of the Securities Act, the Exchange Act, any state securities law or any rule or regulation promulgated under the Securities Act, the Exchange Act or any state securities law in connection with this Agreement; and the Company shall reimburse the Holder, and each such director, officer, partner, underwriter and controlling person for any legal or any other expenses reasonably incurred by them in connection with investigating, defending or settling any such loss, claim, damage, liability, action or proceeding; provided, that such indemnity agreement found in this Section 9(a) shall in no event exceed the net proceeds from the PPO received by the Company; and provided further, that the Company shall not be liable in any such case (i) to the extent that any such loss, claim, damage, liability (or action or proceeding in respect thereof) or expense arises out of or is based upon an untrue statement in or omission from such registration statement, any such preliminary prospectus, final prospectus, summary prospectus, amendment or supplement in reliance upon and in conformity with written information furnished to the Company by the Holder specifically for use in the preparation thereof or (ii) if the person asserting any such loss, claim, damage, liability (or action or proceeding in respect thereof) who purchased the Registrable Securities that are the subject thereof did not receive a copy of an amended preliminary prospectus or the final prospectus (or the final prospectus as amended or supplemented) at or prior to the written confirmation of the sale of such Registrable Securities to such person because of the failure of such Holder or underwriter to so provide such amended preliminary or final prospectus and the untrue statement or omission of a material fact made in such preliminary prospectus was corrected in the amended preliminary or final prospectus (or the final prospectus as amended or supplemented). Such indemnity shall remain in full force and effect regardless of any investigation made by or on behalf of the Holders, or any such director, officer, partner, underwriter or controlling person and shall survive the transfer of such shares by the Holder.

(b) As a condition to including Registrable Securities in any registration statement filed pursuant to this Agreement, each Holder agrees to be bound by the terms of this Section 9 and to indemnify and hold harmless, to the fullest extent permitted by law, the Company, its directors and officers, and each other person, if any, who controls the Company within the meaning of Section 15 of the Securities Act, against any losses, claims, damages or liabilities, joint or several, to which the Company or any such director or officer or controlling person may become subject under the Securities Act, the Exchange Act, or any other federal or state law, to the extent arising out of or based solely upon: (x) such Holder's failure to comply with the prospectus delivery requirements of the Securities Act or (y) any untrue or alleged untrue statement of a material fact contained in any registration statement, any prospectus, or any form of prospectus, or in any amendment or supplement thereto or in any preliminary prospectus, or arising out of or relating to any omission or alleged omission of a material fact required to be stated therein or necessary to make the statements therein not misleading (i) to the extent, but only to the extent, that such untrue statement or omission is contained in any information so furnished in writing by such Holder to the Company specifically for inclusion in the registration statement or such prospectus or (ii) to the extent that (1) such untrue statements or omissions are based solely upon information regarding such Holder furnished in writing to the Company by such Holder expressly for use therein, or to the extent that such information relates to such Holder or such Holder's proposed method of distribution of Registrable Securities and was reviewed and expressly approved in writing by such Holder expressly for use in the Registration Statement, such prospectus or such form of prospectus or in any amendment or supplement thereto or (2) in the case of an occurrence of an event of the type specified in Section 4(f) hereof, the use by such Holder of an outdated or defective prospectus after the Company has notified such Holder in writing that the prospectus is outdated or defective and prior to the receipt by such Holder of the advice contemplated in Section 4(f). In no event shall the liability of any selling Holder hereunder be greater in amount than the dollar amount of the net proceeds received by such Holder upon the sale of the Registrable Securities giving rise to such indemnification obligation.

(c) Promptly after receipt by an indemnified party of notice of the commencement of any action or proceeding involving a claim referred to in this Section (including any governmental action), such indemnified party shall, if a claim in respect thereof is to be made against an indemnifying party, give written notice to the indemnifying party of the commencement of such action; provided, that the failure of any indemnified party to give notice as provided herein shall not relieve the indemnifying party of its obligations under this Section, except to the extent that the indemnifying party is actually prejudiced by such failure to give notice. In case any such action is brought against an indemnified party, unless in the reasonable judgment of counsel to such indemnified party a conflict of interest between such indemnified and indemnifying parties may exist or the indemnified party may have defenses not available to the indemnifying party in respect of such claim, the indemnifying party shall be entitled to participate in and to assume the defense thereof, with counsel reasonably satisfactory to such indemnified party and, after notice from the indemnifying party to such indemnified party of its election so to assume the defense thereof, the indemnifying party shall not be liable to such indemnified party for any legal or other expenses subsequently incurred by the latter in connection with the defense thereof, unless in such indemnified party's reasonable judgment a conflict of interest between such indemnified and indemnifying parties arises in respect of such claim after the assumption of the defenses thereof or the indemnifying party fails to defend such claim in a diligent manner, other than reasonable costs of investigation. Neither an indemnified nor an indemnifying party shall be liable for any settlement of any action or proceeding effected without its consent. No indemnifying party shall, without the consent of the indemnified party, consent to entry of any judgment or enter into any settlement, which does not include as an unconditional term thereof the giving by the claimant or plaintiff to such indemnified party of a release from all liability in respect of such claim or litigation. Notwithstanding anything to the contrary set forth herein, and without limiting any of the rights set forth above, in any event any party shall have the right to retain, at its own expense, counsel with respect to the defense of a claim.

(d) If an indemnifying party does or is not permitted to assume the defense of an action pursuant to Sections 9(c) or in the case of the expense reimbursement obligation set forth in Sections 9(a) and (b), the indemnification required by Sections 9(a) and 9(b) shall be made by periodic payments of the amount thereof during the course of the investigation or defense, as and when bills received or expenses, losses, damages, or liabilities are incurred.

(e) If the indemnification provided for in Section 9(a) or 9(b) is held by a court of competent jurisdiction to be unavailable to an indemnified party with respect to any loss, liability, claim, damage or expense referred to herein, the indemnifying party, in lieu of indemnifying such indemnified party hereunder, shall (i) contribute to the amount paid or payable by such indemnified party as a result of such loss, liability, claim, damage or expense as is appropriate to reflect the proportionate relative fault of the indemnifying party on the one hand and the indemnified party on the other (determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or omission relates to information supplied by the indemnifying party or the indemnified party and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such untrue statement or omission), or (ii) if the allocation provided by clause (i) above is not permitted by applicable law or provides a lesser sum to the indemnified party than the amount hereinafter calculated, not only the proportionate relative fault of the indemnifying party and the indemnified party, but also the relative benefits received by the indemnifying party on the one hand and the indemnified party on the other, as well as any other relevant equitable considerations. No indemnified party guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any indemnifying party who was not guilty of such fraudulent misrepresentation.

(f) Other Indemnification. Indemnification similar to that specified in this Section (with appropriate modifications) shall be given by the Company and each Holder of Registrable Securities with respect to any required registration or other qualification of securities under any federal or state law or regulation or governmental authority other than the Securities Act.

10. Rule 144. With a view to making available to the Holders the benefits of Rule 144 and any other rule or regulation of the Commission that may at any time permit the Holders to sell the Registrable Securities to the public without registration, the Company agrees: (i) to make and keep public information available as those terms are understood in Rule 144, (ii) to file with the Commission in a timely manner all reports and other documents required to be filed by an issuer of securities registered under the Securities Act or the Exchange Act pursuant to Rule 144, (iii) as long as any Holder owns any Registrable Securities, to furnish in writing upon such Holder's request a written statement by the Company that it has complied with the reporting requirements of Rule 144 and of the Securities Act and the Exchange Act, and to furnish to such Holder a copy of the most recent annual or quarterly report of the Company, and such other reports and documents so filed by the Company as may be reasonably requested in availing such Holder of any rule or regulation of the Commission permitting the selling of any such Registrable Securities without registration and (iv) undertake any additional actions commercially reasonably necessary to maintain the availability of the use of Rule 144.

11. Independent Nature of Each Purchaser's Obligations and Rights. The obligations of each Purchaser under this Agreement are several and not joint with the obligations of any other Purchaser, and each Purchaser shall not be responsible in any way for the performance of the obligations of any other Purchaser under this Agreement. Nothing contained herein and no action taken by any Purchaser pursuant hereto, shall be deemed to constitute such Purchasers as a partnership, an association, a joint venture, or any other kind of entity, or create a presumption that the Purchasers are in any way acting in concert or as a group with respect to such obligations or the transactions contemplated by this Agreement. Each Purchaser shall be entitled to independently protect and enforce its rights, including without limitation the rights arising out of this Agreement, and it shall not be necessary for any other Purchaser to be joined as an additional party in any proceeding for such purpose.

12. Other Registration Rights. The Company shall not grant any additional registration rights other than those contemplated herein without the consent of the Majority Holders prior to the effectiveness of the Registration Statement other than, in the case of the Company (i) a registration relating solely to employee benefit plans or securities issued or issuable to employees, consultants (to the extent the securities owned or to be owned by such consultants could be registered on Form S-8) or any of their Family Members (including a registration on Form S-8) or (ii) a registration on Form S-4 in connection with a merger, acquisition, divestiture, reorganization or similar event

13. Miscellaneous.

(a) Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the United States of America and the State of New York, both substantive and remedial, without regard to New York conflicts of law principles. Any judicial proceeding brought against either of the parties to this Agreement or any dispute arising out of this Agreement or any matter related hereto shall be brought in the courts of the State of New York, New York County, or in the United States District Court for the Southern District of New York and, by its execution and delivery of this Agreement, each party to this Agreement accepts the jurisdiction of such courts. The foregoing consent to jurisdiction shall not be deemed to confer rights on any person other than the parties to this Agreement.

(b) Remedies. In the event of a breach by the Company or by a Holder of any of their respective obligations under this Agreement, each Holder or the Company, as the case may be, in addition to being entitled to exercise all rights granted by law and under this Agreement, including recovery of damages, shall be entitled to specific performance of its rights under this Agreement. The Company and each Holder agree that monetary damages would not provide adequate compensation for any losses incurred by reason of a breach by it of any of the provisions of this Agreement and hereby further agrees that, in the event of any action for specific performance in respect of such breach, it shall not assert or shall waive the defense that a remedy at law would be adequate.

(c) Successors and Assigns. Except as otherwise provided herein, the provisions hereof shall inure to the benefit of, and be binding upon, the successors, Permitted Assignees, executors and administrators of the parties hereto.

(d) No Inconsistent Agreements. The Company has not entered, as of the date hereof, and shall not enter, on or after the date of this Agreement, into any agreement with respect to its securities that would have the effect of impairing the rights granted to the Holders in this Agreement or otherwise conflicts with the provisions hereof.

(e) Entire Agreement. This Agreement constitutes the full and entire understanding and agreement between the parties with regard to the subjects hereof.

(f) Notices, etc. All notices or other communications which are required or permitted under this Agreement shall be in writing and sufficient if delivered by hand, by facsimile transmission, by registered or certified mail, postage pre-paid, by electronic mail, or by courier or overnight carrier, to the persons at the addresses set forth below (or at such other address as may be provided hereunder), and shall be deemed to have been delivered as of the date so delivered:

If to the Company to:

Matinas BioPharma Holdings, Inc.
1545 Route 206 South, Suite 302
Bedminster, New Jersey 07921
Attention: Roelof Rongen, President & CEO
E-mail: rrongen@matinasbiopharma.com

with copy to:

Lowenstein Sandler LLP
1251 Avenue of the Americas
New York, NY 10020
Attn: Steven M. Skolnick, Esq.
Facsimile: (973) 597 2477

If to the Purchasers:

To each Purchaser at the address set forth on the signature page hereto or at such other address as any party shall have furnished to the other parties in writing.

(g) Delays or Omissions. No delay or omission to exercise any right, power or remedy accruing to any Holder, upon any breach or default of the Company under this Agreement, shall impair any such right, power or remedy of such Holder nor shall it be construed to be a waiver of any such breach or default, or an acquiescence therein, or of any similar breach or default thereunder occurring; nor shall any waiver of any single breach or default be deemed a waiver of any other breach or default theretofore or thereafter occurring. Any waiver, permit, consent or approval of any kind or character on the part of any Holder of any breach or default under this Agreement, or any waiver on the part of any Holder of any provisions or conditions of this Agreement, must be in writing and shall be effective only to the extent specifically set forth in such writing. All remedies, either under this Agreement, or by law or otherwise afforded to any holder, shall be cumulative and not alternative.

(h) Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be enforceable against the parties actually executing such counterparts, and all of which together shall constitute one instrument. In the event that any signature is delivered by facsimile transmission or electronic transmission via .PDF file, such signature shall create a valid and binding obligation of the party executing (or on whose behalf such signature is executed) with the same force and effect as if such facsimile or electronic signature page were an original thereof.

(i) Severability. In the case any provision of this Agreement shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

(j) Amendments. The provisions of this Agreement may be amended at any time and from time to time, and particular provisions of this Agreement may be waived, with and only with an agreement or consent in writing signed by the Company and the Majority Holders. The Purchasers acknowledge that by the operation of this Section, the Majority Holders may have the right and power to diminish or eliminate all rights of the Purchasers under this Agreement.

(k) Limitation on Subsequent Registration Rights. After the date of this Agreement and prior to the SEC Effective Date, the Company shall not, without the prior written consent of the Majority Holders, enter into any agreement with any holder or prospective holder of any securities of the Company that would grant such holder registration rights senior or equal to those granted to the Holders hereunder.

[SIGNATURE PAGES FOLLOW]

This Registration Rights Agreement is hereby executed as of the date first above written.

COMPANY:

MATINAS BIOPHARMA HOLDINGS, INC.

By: /s/ Roelof Rongen

Name: Roelof Rongen

Title: President & Chief Executive Officer

**EACH PURCHASER'S SIGNATURE TO THE SUBSCRIPTION AGREEMENT DATED OF EVEN DATE HERewith SHALL
CONSTITUTE THE PURCHASER'S SIGNATURE TO THIS REGISTRATION RIGHTS AGREEMENT.**

PLACEMENT AGENCY AGREEMENT

March 19, 2015

Aegis Capital Corp.
810 Seventh Ave, 11th Floor
New York, NY 10019

Re: Matinas BioPharma Holdings, Inc.

Ladies and Gentlemen:

This Placement Agency Agreement ("**Agreement**") sets forth the terms upon which Aegis Capital Corp., a New York corporation, and a registered broker-dealer and member of the Financial Industry Regulatory Authority ("**FINRA**") (the "**Placement Agent**"), shall be engaged by Matinas BioPharma Holdings, Inc., a Delaware corporation (the "**Company**"), to act as exclusive Placement Agent in connection with the private placement (the "**Offering**") of units ("**Units**") of securities of the Company, each Unit consisting of (i) 1 share of common stock, par value \$0.0001 per share (the "**Common Stock**"), of the Company (the "**Shares**") and (ii) 1 warrant (the "**Warrants**"), with each Warrant entitling the holder to purchase one share of Common Stock for a five-year period at an exercise price of \$0.75 per share. The Offering will consist of a minimum of 7,000,000 Units (\$3,500,000) (the "**Minimum Amount**") and a maximum of 14,000,000 Units (\$7,000,000) (the "**Maximum Amount**"). In the event the Offering is oversubscribed, the Company and the Placement Agent may, in their mutual discretion, sell up to 6,000,000 additional Units for an additional aggregate purchase price of \$3,000,000 (the "**Over-allotment**").

The purchase price for the Units will be \$0.50 per Unit (the "**Offering Price**"), with a minimum investment of \$250,000; *provided, however*, that subscriptions for lesser amounts may be accepted in the Company's and Placement Agent's joint discretion. The Placement Agent shall accept subscriptions only from persons or entities who qualify as "accredited investors," as such term is defined in Rule 501 of Regulation D ("**Regulation D**") as promulgated by the United States Securities and Exchange Commission (the "**Commission**") under Section 4(a)(2) of the Securities Act of 1933, as amended (the "**Act**"). The Units will be offered until the earlier of (i) the termination of the Offering as provided herein, (ii) the time that all Units offered in the Offering are sold or (iii) May 18, 2015 ("**Initial Offering Period**"), which date may be extended by the Placement Agent and the Company in their joint discretion until June 17, 2015 (this additional period and the Initial Offering Period shall be referred to as the "**Offering Period**"). The date on which the Offering expires or is terminated shall be referred to as the "**Termination Date.**"

With respect to the Offering, the Company shall provide the Placement Agent, on terms set forth herein, the right to offer and sell all of the Units being offered. Purchases of Units may be made by the Placement Agent and its officers, directors, employees and affiliates. All such purchases, together with purchases by officers, directors, employees and affiliates of the Company, may be used to satisfy the Minimum Amount if the Minimum Amount has not been subscribed for on or before the end of the Offering Period. It is understood that no sale shall be regarded as effective unless and until accepted by the Company. The Company may, in its sole discretion, accept or reject, in whole or in part, any prospective investment in the Units or allot to any prospective subscriber less than the number of Units that such subscriber desires to purchase.

The Offering will be made by the Company solely pursuant to the Memorandum (as defined below), which at all times will be in form and substance reasonably acceptable to the Company, the Placement Agent and their respective counsel and contain such legends and other information as the Company, the Placement Agent and their respective counsel, may, from time to time, deem necessary and desirable to be set forth therein. “**Memorandum**” as used in this Agreement means the Company’s Confidential Private Placement Memorandum dated on or about March ___, 2015, inclusive of all annexes, and all amendments, supplements and appendices thereto.

1 . Appointment of Placement Agent. On the basis of the representations and warranties provided herein, and subject to the terms and conditions set forth herein, the Placement Agent is appointed as exclusive Placement Agent for the Company during the Offering Period to assist the Company in finding qualified subscribers for the Offering. Subject to the consent of Company, which will not be unreasonably withheld, delayed or conditioned, the Placement Agent may sell Units through other broker-dealers who are FINRA members and may reallow all or a portion of the Agent Compensation (as defined in Section 3(b) below) it receives to such other broker-dealers. On the basis of such representations and warranties and subject to such terms and conditions, the Placement Agent hereby accepts such appointment and agrees to perform its services hereunder diligently and in good faith and in a professional and businesslike manner and to use its reasonable efforts to assist the Company in (A) finding subscribers of Units who qualify as “accredited investors,” as such term is defined in Rule 501 of Regulation D, and (B) completing the Offering. The Placement Agent has no obligation to purchase any of the Units. Unless sooner terminated in accordance with this Agreement, the engagement of the Placement Agent hereunder shall continue until the later of the Termination Date or the Final Closing (as defined below).

2 . Representations, Warranties and Covenants of the Company. The representations and warranties of the Company (as used in this Agreement, the “Company” refers to Matinas BioPharma Holdings, Inc. and its subsidiaries) to the Placement Agent contained in this Section 2 are true and correct as of the date of this Agreement.

(a) The Memorandum has been prepared by the Company, in conformity with all applicable laws, and is in compliance in all material respects with Regulation D and Section 4(a)(2) of the Act and the requirements of all other rules and regulations (the “**Regulations**”) of the Commission relating to offerings of the type contemplated by the Offering, and the applicable securities laws and the rules and regulations of those jurisdictions wherein the Placement Agent notifies the Company that the Units are to be offered and sold excluding any foreign jurisdictions. The Units will be offered and sold pursuant to the registration exemption provided by Regulation D and Section 4(a)(2) of the Act as a transaction not involving a public offering and the requirements of any other applicable state securities laws and the respective rules and regulations thereunder in those United States jurisdictions in which the Placement Agent notifies the Company that the Units are being offered for sale. None of the Company, its affiliates, or any person acting on its or their behalf (other than the Placement Agent, its affiliates or any person acting on its behalf, in respect of which no representation is made) has taken nor will it take any action that conflicts with the conditions and requirements of, or that would make unavailable with respect to the Offering, the exemption(s) from registration available pursuant to Rule 506 of Regulation D or Section 4(a)(2) of the Act, or knows of any reason why any such exemption would be otherwise unavailable to it. None of the Company, its predecessors or affiliates has been subject to any order, judgment or decree of any court of competent jurisdiction temporarily, preliminarily or permanently enjoining such person for failing to comply with Rule 503 of Regulation D. The Company has not, for a period of six months prior to the commencement of the offering of Units, sold, offered for sale or solicited any offer to buy any of its securities in a manner that would be integrated with the offer and sale of the Units pursuant to this Agreement and would cause the exemption from registration set forth in Rule 506 of Regulation D to become unavailable with respect to the offer and sale of the Units pursuant to this Agreement in the United States.

(b) The Memorandum does not include any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading: provided, however, the foregoing does not apply to any statements or omissions made solely in reliance on and in conformity with written information furnished to the Company by the Company or the Placement Agent specifically for use in the preparation thereof. To the knowledge of the Company, none of the statements, documents, certificates or other items made, prepared or supplied by the Company with respect to the transactions contemplated hereby contains an untrue statement of a material fact or omits to state a material fact necessary to make the statements contained therein not misleading in light of the circumstances in which they were made. There is no fact which the Company has not disclosed in the Memorandum and of which the Company is aware that materially adversely affects or that could reasonably be expected to have a material adverse effect on the (i) assets, liabilities, results of operations, condition (financial or otherwise), business or business prospects of the Company or (ii) ability of the Company to perform its obligations under this Agreement. Notwithstanding anything to the contrary herein, the Company makes no representation or warranty with respect to any estimates, projections and other forecasts and plans (including the reasonableness of the assumptions underlying such estimates, projections and other forecasts and plans) that may have been delivered to the Placement Agent or its representatives or that are contained in the Memorandum, except that such estimates, projections and other forecasts and plans have been prepared in good faith on the basis of assumptions stated therein, which assumptions were believed to be reasonable at the time of such preparation.

(c) The Company and its “**Subsidiaries**” (which for purposes of this Agreement means Matinas BioPharma Inc. and Aquarius Biotechnologies, Inc.), are entities duly organized and validly existing in good standing under the laws of the jurisdiction in which they are formed, and have the requisite power and authority to own their properties and to carry on their business as now being conducted. Other than the Subsidiaries, the Company is not a party to any joint venture and does not directly or indirectly own or hold capital stock or an equity or similar interest in any entity. Each of the Company and its Subsidiaries is duly qualified as a foreign entity to do business and is in good standing in every jurisdiction in which its ownership of property or the nature of the business conducted by it makes such qualification necessary, except to the extent that the failure to be so qualified or be in good standing would not have a Material Adverse Effect. As used in this Agreement, “**Material Adverse Effect**” means any material adverse effect on the business, properties, assets, operations, results of operations, condition (financial or otherwise) or prospects of the Company and its Subsidiaries, taken as a whole, or on the transactions contemplated hereby and the other Transaction Documents (as defined below) or by the agreements and instruments to be entered into in connection herewith or therewith, or on the authority or ability of the Company to perform its obligations under the Transaction Documents (as defined below). Except as set forth in the Memorandum or the Company Reports, the Company owns, directly or indirectly, all of the capital stock or other equity interests of each Subsidiary free and clear of any liens (other than Permitted Encumbrances), and all the issued and outstanding shares of capital stock of each Subsidiary are validly issued and are fully paid, non-assessable and free of preemptive and similar rights to subscribe for or purchase securities. “**Permitted Encumbrances**” shall mean (a) mechanic’s, materialmen’s, and similar liens, securing payment of sums not yet due and payable and for which an appropriate reserve has been established, (b) liens for taxes not yet delinquent or for taxes that the taxpayer is contesting in good faith through appropriate proceedings and for which an appropriate reserve has been established in the financial statements of such taxpayer, (c) purchase money liens and liens securing rental payments under capital lease arrangements, and (d) other liens arising in the ordinary course of business and not incurred in connection with the borrowing of money.

(d) The Company has all requisite corporate power and authority to conduct its business as presently conducted and as proposed to be conducted (as described in the Memorandum or the Company Reports), to enter into and perform its obligations under this Agreement, the Subscription Agreement substantially in the form of Annex A to the Memorandum (the “**Subscription Agreement**”, the Registration Rights Agreement substantially in the form of Annex B to the Memorandum (the “**Registration Rights Agreement**”), and the other agreements contemplated hereby (this Agreement, the Subscription Agreement, the Registration Rights Agreement and the other agreements contemplated hereby that the Company is executing and delivering hereunder are collectively referred to herein as the “**Transaction Documents**”) and subject to necessary Board approvals, to issue, sell and deliver the Units, the shares of Common Stock underlying the Units, and the shares of Common Stock issuable upon exercise of the Warrants (the “**Warrant Shares**”), the Agent Warrants (as defined in Section 3(b)) and the Agent Warrant Shares (as defined in Section 3(b)). Prior to the First Closing (as defined below in Section 4(e)), each of the Transaction Documents will have been duly authorized. This Agreement has been duly authorized, executed and delivered and constitutes, and each of the other Transaction Documents, upon due execution and delivery, will constitute, valid and binding obligations of the Company, enforceable against the Company in accordance with their respective terms (i) except as enforceability may be limited by applicable bankruptcy, insolvency, reorganization, moratorium or other similar laws now or hereafter in effect related to laws affecting creditors’ rights generally, including the effect of statutory and other laws regarding fraudulent conveyances and preferential transfers, and except that no representation is made herein regarding the enforceability of the Company’s obligations to provide indemnification and contribution remedies under the securities laws and (ii) subject to the limitations imposed by general equitable principles (regardless of whether such enforceability is considered in a proceeding at law or in equity).

(e) As of the date of the First Closing, Matinas BioPharma Holdings, Inc. will have the authorized and outstanding capital stock as set forth under the heading “Capitalization” in the Memorandum. All outstanding shares of capital stock of Matinas BioPharma Holdings, Inc. are duly authorized, validly issued and outstanding, fully paid and nonassessable. Except as described in the Memorandum or the Company Reports, as of the date of the First Closing: (i) there will be no outstanding options, stock subscription agreements, warrants or other rights permitting or requiring Matinas BioPharma Holdings, Inc. or others to purchase or acquire any shares of capital stock or other equity securities of Matinas BioPharma Holdings, Inc. or to pay any dividend or make any other distribution in respect thereof; (ii) there will be no securities issued or outstanding which are convertible into or exchangeable for any of the foregoing and there are no contracts, commitments or understandings, whether or not in writing, to issue or grant any such option, warrant, right or convertible or exchangeable security; (iii) no shares of stock or other securities of Matinas BioPharma Holdings, Inc. are reserved for issuance for any purpose; (iv) there will be no voting trusts or other contracts, commitments, understandings, arrangements or restrictions of any kind with respect to the ownership, voting or transfer of shares of stock or other securities of Matinas BioPharma Holdings, Inc., including, without limitation, any preemptive rights, rights of first refusal, proxies or similar rights, and (v) no person holds a right to require Matinas BioPharma Holdings, Inc. to register any of its securities under the Act or to participate in any such registration. As of the date of the First Closing, the issued and outstanding shares of capital stock of Matinas BioPharma Holdings, Inc. will conform in all material respects to all statements in relation thereto contained in the Memorandum and the Memorandum describes all material terms and conditions thereof. All issuances by Matinas BioPharma Holdings, Inc. of its securities have been, at the times of their issuance, either subject to an effective registration statement under the Act or exempt from registration under the Act and any applicable state securities laws.

(f) Immediately prior to the First Closing, the shares of Common Stock underlying the Units, the Warrants, the Warrant Shares, the Agent Warrants and the Agent Warrant Shares will have been duly authorized and, when issued and delivered against payment therefor as provided in the Transaction Documents, will be validly issued, fully paid and nonassessable. No holder of any of the shares of Common Stock underlying the Units, the Warrants, the Warrant Shares, the Agent Warrants or the Agent Warrant Shares will be subject to personal liability solely by reason of being such a holder, and except as described in the Memorandum, none of the shares of Common Stock underlying the Units, the Warrants, the Warrant Shares, the Agent Warrants or the Agent Warrant Shares are subject to preemptive or similar rights of any stockholder or security holder of the Company or an adjustment under the antidilution or exercise rights of any holders of any outstanding shares of capital stock, options, warrants or other rights to acquire any securities of the Company. Immediately prior to the First Closing, a sufficient number of authorized but unissued shares of Common Stock will have been reserved for issuance upon the exercise of the Warrants and the Agent Warrants.

(g) None of the execution and delivery of or performance by the Company under this Agreement or any of the other Transaction Documents or the consummation of the transactions herein or therein contemplated conflicts with or violates, or will result in the creation or imposition of, any lien, charge or other encumbrance upon any of the assets of the Company under any agreement or other instrument to which the Company is a party or by which the Company or its assets may be bound, or any term of the certificate of incorporation or by-laws of the Company, or any license, permit, judgment, decree, order, statute, rule or regulation applicable to the Company or any of its assets, except in the case of a conflict, violation, lien, charge or other encumbrance (except with respect to the Company's Certificate of Incorporation or By-laws) which would not reasonably be expected to have a Material Adverse Effect.

(h) No consent, authorization or filing of or with any court or governmental authority is required in connection with the issuance or the consummation of the transactions contemplated herein or in the other Transaction Documents, except for required filings with the Commission and the applicable state securities commissions relating specifically to the Offering (all of which filings will be duly made by, or on behalf of, the Company), other than those which are required to be made after the First Closing (all of which will be duly made on a timely basis).

(i) The Company Reports (as defined below) constitute all of the documents required to be filed by the Company with the Commission, including under Section 13 or subsections (a) or (c) of Section 14 of the Securities Exchange Act of 1934 (the "**Exchange Act**"), through the date of this Agreement. The Company Reports complied in all material respects with the requirements of the Exchange Act and the rules and regulations thereunder as of their respective filing dates. As of the date hereof, there are no outstanding or unresolved comments in comment letters received from the staff of the Commission with respect to any of the Company Reports. As of their respective dates, the Company Reports did not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading. The "Company Reports" shall mean (a) the Company's Special Financial Report on Form 10-K pursuant to Rule 15d-2 under the Exchange Act containing Financial Statements for the year ended December 31, 2013 and (b) all other reports filed by the Company under Section 13 or subsections (a) or (c) of Section 14 of the Exchange Act with the Commission since April 11, 2014 (such reports are collectively referred to herein as the "**Company Reports**").

(j) The audited financial statements and unaudited interim financial statements of the Company included in the Company Reports and/or the Memorandum (collectively, the "**Company Financial Statements**"), present fairly, in all material respects, the financial position of the Company as of the dates specified and the results of operations for the periods covered thereby. Such Financial Statements were prepared in accordance with United States generally accepted accounting principles applied on a consistent basis throughout the periods indicated, except that the unaudited financial statements omit full notes, and except for normal year end adjustments. Except as set forth in such Financial Statements or otherwise disclosed in the Memorandum or the Company Reports, the Company has no known material liabilities of any kind, whether accrued, absolute or contingent, or otherwise, and subsequent to the date of the Memorandum and prior to the date of the First Closing it shall not enter into any material transactions or commitments without promptly thereafter notifying the Placement Agent in writing of any such material transaction or commitment. The other financial and statistical information with respect to the Company and any pro forma information and related notes included in the Memorandum present fairly in all material respects the information shown therein on a basis consistent with the Financial Statements of the Company included in the Company Reports and/or the Memorandum. The Company does not know of any facts, circumstances or conditions which could materially adversely affect its operations, earnings or prospects that have not been fully disclosed in the Company Reports or the Memorandum.

(k) Except as disclosed in the Memorandum, since the date of the Company's most recent financial statements contained in the Memorandum, there has been no Material Adverse Effect. Except as disclosed in the Memorandum, since the date of the Company's most recent financial statements contained in the Memorandum, the Company has not (i) declared or paid any dividends, (ii) sold any assets, individually or in the aggregate, in excess of \$75,000 outside of the ordinary course of business or (iii) had capital expenditures, individually or in the aggregate, in excess of \$75,000. The Company has not taken any steps to seek protection pursuant to any bankruptcy law nor does the Company have any knowledge or reason to believe that its creditors intend to initiate involuntary bankruptcy proceedings or any actual knowledge of any fact which would reasonably lead a creditor to do so.

(l) Except as disclosed in the Memorandum or the Company Reports, the Company (i) has no outstanding Indebtedness (as defined below) in excess of \$75,000, (ii) is not a party to any contract, agreement or instrument, the violation of which, or default under which, by the other party(ies) to such contract, agreement or instrument would result in a Material Adverse Effect, or (iii) is not in violation of any term of or in default under any contract, agreement or instrument relating to any Indebtedness, except where such violations and defaults would not result, individually or in the aggregate, in a Material Adverse Effect. For purposes of this Agreement: (x) "**Indebtedness**" of any Person means without duplication, (A) all indebtedness for borrowed money, (B) all obligations issued, undertaken or assumed as the deferred purchase price of property or services including (without limitation) "Capital Leases" (as defined under GAAP) (other than trade payables entered into in the ordinary course of business), (C) all reimbursement or payment obligations with respect to letters of credit, surety bonds and other similar instruments, (D) all obligations evidenced by notes, bonds, debentures or similar instruments, including obligations so evidenced incurred in connection with the acquisition of property, assets or businesses, (E) all indebtedness created or arising under any conditional sale or other title retention agreement, or incurred as financing, in either case with respect to any property or assets acquired with the proceeds of such indebtedness (even though the rights and remedies of the seller or bank under such agreement in the event of default are limited to repossession or sale of such property), (F) all monetary obligations under any leasing or similar arrangement which, in connection with GAAP, consistently applied for the periods covered thereby, is classified as a capital lease, (G) all indebtedness referred to in clauses (A) through (F) above secured by (or for which the holder of such Indebtedness has an existing right, contingent or otherwise, to be secured by) any mortgage, lien, pledge, charge, security interest or other encumbrance upon or in any property or assets (including accounts and contract rights) owned by any Person, even though the Person which owns such assets or property has not assumed or become liable for the payment of such indebtedness, and (H) except for obligations owed to service providers of the Company in connection with this Offering, all Contingent Obligations (as defined below) in respect of indebtedness or obligations of others of the kinds referred to in clauses (A) through (G) above of at least \$75,000; (y) "**Contingent Obligation**" means, as to any Person, any direct or indirect liability, contingent or otherwise, of that Person with respect to any indebtedness, lease, dividend or other obligation of another Person if the primary purpose or intent of the Person incurring such liability, or the primary effect thereof, is to provide assurance to the obligee of such liability that such liability will be paid or discharged, or that any agreements relating thereto will be complied with, or that the holders of such liability will be protected (in whole or in part) against loss with respect thereto; and (z) "**Person**" means an individual, a limited liability company, a partnership, a joint venture, a corporation, a trust, an unincorporated organization and a government or any department or agency thereof.

(m) The conduct of business by the Company as presently and proposed to be conducted is not subject to continuing oversight, supervision, regulation or examination by any governmental official or body of the United States, or any other jurisdiction wherein the Company conducts or proposes to conduct such business, except as described in the Memorandum or the Company Reports. The Company has obtained all material licenses, permits and other governmental authorizations necessary to conduct its business as presently conducted. The Company has not received any notice of any violation of, or noncompliance with, any federal, state, local or foreign laws, ordinances, regulations and orders (including, without limitation, those relating to environmental protection, occupational safety and health, securities laws, equal employment opportunity, consumer protection, credit reporting, "truth-in-lending", and warranties and trade practices) applicable to its business, the violation of, or noncompliance with, would have a Material Adverse Effect, and the Company knows of no facts or set of circumstances which could give rise to such a notice.

(n) No default by the Company or, to the knowledge of the Company, any other party, exists in the due performance under any material agreement to which the Company is a party or to which any of its assets is subject (collectively, the "**Company Agreements**"). The Company Agreements disclosed in the Memorandum or the Company Reports are the only material agreements to which the Company is bound or by which its assets are subject, are accurately described in the Memorandum or the Company Reports and are in full force and effect in accordance with their respective terms, subject to any applicable bankruptcy, insolvency or other laws affecting the rights of creditors generally and to general equitable principles and the availability of specific performance.

(o) The Company owns all right, title and interest in, or possesses adequate and enforceable rights to use, all patents, patent applications, trademarks, service marks, copyrights, rights, licenses, franchises, trade secrets, confidential information, processes and formulations necessary for the conduct of its business as now conducted (collectively, the "**Intangibles**"). To the knowledge of the Company, the Company has not infringed upon the rights of others with respect to the Intangibles and, except as disclosed in the Memorandum or the Company Reports, the Company has not received notice that it has or may have infringed or is infringing upon the rights of others with respect to the Intangibles, or any written notice of conflict with the asserted rights of others with respect to the Intangibles. To the knowledge of the Company, no others have infringed upon the rights of the Company with respect to the Intangibles. Except as set forth in the Memorandum or the Company Reports, none of the Company's Intangibles have expired or terminated, or are expected to expire or terminate, within three years from the date of this Agreement.

(p) The Company is not a party to any collective bargaining agreement nor does it employ any member of a union. No executive officer of the Company (as defined in Rule 501(f) of the Act) has notified the Company that such officer intends to leave the Company or otherwise terminate such officer's employment with the Company. No executive officer of the Company, to the knowledge of the Company, is in violation of any material term of any employment contract, confidentiality, disclosure or proprietary information agreement, non-competition agreement, or any other contract or agreement or any restrictive covenant, and the continued employment of each such executive officer does not subject the Company to any liability with respect to any of the foregoing matters. The Company is in compliance with all federal, state, local and foreign laws and regulations respecting labor, employment and employment practices and benefits, terms and conditions of employment and wages and hours, except where failure to be in compliance would not, either individually or in the aggregate, reasonably be expected to result in a Material Adverse Effect.

(q) Subsequent to the respective dates as of which information is given in the Memorandum, the Company has operated its business in the ordinary course and, except as may otherwise be set forth in the Memorandum or the Company Reports, there has been no: (i) Material Adverse Effect; (ii) transaction otherwise than in the ordinary course of business consistent with past practice; (iii) issuance of any securities (debt or equity) or any rights to acquire any such securities other than pursuant to equity incentive plans approved by its Board of Directors; (iv) damage, loss or destruction, whether or not covered by insurance, with respect to any asset or property of the Company; or (v) agreement to permit any of the foregoing.

(r) Except as set forth in the Memorandum or the Company Reports, there are no actions, suits, claims, hearings or proceedings pending before any court or governmental authority or, to the knowledge of the Company, threatened, against the Company, or involving its assets or any of its officers or directors (in their capacity as such) which, if determined adversely to the Company or such officer or director, could reasonably be expected to have a Material Adverse Effect or adversely affect the transactions contemplated by this Agreement or the Merger Agreement (as hereinafter defined) or the enforceability thereof.

(s) The Company is not: (i) in violation of its Certificate of Incorporation or By-laws; (ii) in default of any indenture, mortgage, deed of trust, note or other agreement or instrument to which the Company is a party or by which it is or may be bound or to which any of its assets may be subject, the default of which could reasonably be expected to have a Material Adverse Effect; (iii) in violation of any statute, rule or regulation applicable to the Company, the violation of which would have a Material Adverse Effect; or (iv) in violation of any judgment, decree or order of any court or governmental body having jurisdiction over the Company and specifically naming the Company, which violation or violations individually, or in the aggregate, could reasonably be expected to have a Material Adverse Effect.

(t) Except as disclosed in the Memorandum or the Company Reports, as of the date of this Agreement, no current or former stockholder, director, officer or employee of the Company, nor, to the knowledge of the Company, any affiliate of any such person is presently, directly or indirectly through his affiliation with any other person or entity, a party to any loan from the Company or any other transaction (other than as an employee) with the Company providing for the furnishing of services by, or rental of any personal property from, or otherwise requiring cash payments to any such person.

(u) Except as disclosed in the Memorandum or the Company Reports, the Company has filed, on a timely basis, each federal, state, local and foreign tax return, report and declarations that were required to be filed, or has requested an extension therefor and has paid all taxes and all related assessments, charges, penalties and interest to the extent that the same have become due. There are no unpaid taxes in any material amount claimed to be due by the taxing authority of any jurisdiction, and the officers of the Company know of no basis for any such claim. The Company has not executed a waiver with respect to the statute of limitations relating to the assessment or collection of any foreign, federal, state or local tax. To the Company's knowledge, none of the Company's tax returns is presently being audited by any taxing authority. No liens have been filed and no claims are being asserted by or against the Company with respect to any taxes (other than liens for taxes not yet due and payable). The Company has not received notice of assessment or proposed assessment of any taxes claimed to be owed by it or any other Person on its behalf. The Company is not a party to any tax sharing or tax indemnity agreement or any other agreement of a similar nature that remains in effect. The Company has complied in all material respects with all applicable legal requirements relating to the payment and withholding of taxes and, within the time and in the manner prescribed by law, has withheld from wages, fees and other payments and paid over to the proper governmental or regulatory authorities all amounts required.

(v) Neither the Company, nor any director, officer, agent, employee or other Person acting on behalf of the Company has, in the course of its actions for, or on behalf of, the Company (i) used any corporate funds for any unlawful contribution, gift, entertainment or other unlawful expenses relating to political activity; (ii) made any direct or indirect unlawful payment to any foreign or domestic government official or employee from corporate funds; (iii) violated or is in violation of any provision of the U.S. Foreign Corrupt Practices Act of 1977, as amended; or (iv) made any unlawful bribe, rebate, payoff, influence payment, kickback or other unlawful payment to any foreign or domestic government official or employee.

(w) The Company is not obligated to pay, and has not obligated the Placement Agent to pay, a finder's or origination fee in connection with the Offering (other than to the Placement Agent), and hereby agrees to indemnify the Placement Agent from any such claim made by any other person as more fully set forth in Section 8 hereof. The Company has not offered for sale or solicited offers to purchase the Units except for negotiations with the Placement Agent.

(x) Until the earlier of (i) the Termination Date and (ii) the Final Closing (as hereinafter defined), the Company will not issue any press release, grant any interview, or otherwise communicate with the media in any manner whatsoever with respect to the Offering without the Placement Agent's prior consent, which consent will not unreasonably be withheld, delayed or conditioned.

(y) Neither the sale of the Units by the Company nor its use of the proceeds thereof will violate the Trading with the Enemy Act, as amended, or any of the foreign assets control regulations of the United States Treasury Department (31 CFR, Subtitle B, Chapter V, as amended) or any enabling legislation or executive order relating thereto. Without limiting the foregoing, the Company is not (a) a person whose property or interests in property are blocked pursuant to Section 1 of Executive Order 13224 of September 23, 2001 Blocking Property and Prohibiting Transactions with Persons Who Commit, Threaten to Commit, or Support Terrorism (66 Fed. Reg. 49079 (2001)) or (b) a person who engages in any dealings or transactions, or be otherwise associated, with any such person. The Company and its Subsidiaries are in compliance, in all material respects, with the USA Patriot Act of 2001 (signed into law October 26, 2001).

(z) The Company maintains a system of internal accounting controls sufficient to provide reasonable assurances that (i) transactions are executed in accordance with management's general or specific authorization; (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted accounting principles and to maintain accountability for assets; (iii) access to assets is permitted only in accordance with management's general or specific authorization; and (iv) the recorded accountability for assets is compared with existing assets at reasonable intervals and appropriate action is taken with respect to any differences.

(aa) None of the Company, any of its predecessors, any affiliated issuer, any director, executive officer, other officer of the Company participating in the Offering, any beneficial owner of 20% or more of the Company's outstanding voting equity securities, calculated on the basis of voting power, nor any promoter (as that term is defined in Rule 405 under the Securities Act) connected with the Company in any capacity at the time of sale of the securities in the Offering (each, a "**Company Covered Person**" and, together, "**Company Covered Persons**") is subject to any of the "Bad Actor" disqualifications described in Rule 506(d)(1)(i) to (viii) under the Securities Act (a "**Disqualification Event**"). The Company has exercised reasonable care to determine whether any Company Covered Person is subject to a Disqualification Event. The Company has complied, to the extent applicable, with its disclosure obligations under Rule 506(e), and has furnished to the Placement Agent a copy of any disclosures provided thereunder.

(bb) The Company is not aware of any person (other than a Placement Agent Covered Person (as defined below)) that has been or will be paid (directly or indirectly) remuneration for solicitation of purchasers in connection with the sale of any the Units.

(cc) The Company will promptly notify the Placement Agent in writing of (i) any Disqualification Event relating to any Company Covered Person and (ii) any event that would, with the passage of time, become a Disqualification Event relating to any Company Covered Person.

(dd) The Company has established, maintains and evaluates “disclosure controls and procedures” (as such term is defined in Rule 13a-15(e) and 15d-15(e) under the Exchange Act), which (i) are designed to ensure that information required to be disclosed in the reports that the Company files or submits under the Exchange Act is recorded, processed, summarized and reported within time periods specified by the Commission’s rules and forms, and that such information is accumulated and communicated to the Company’s management, including its principal executive officer and its principal financial officer, as appropriate to allow timely decisions regarding required disclosure, (ii) have been evaluated for effectiveness as of the end of the last fiscal period covered by the Company Reports; and (iii) as of the end of the last fiscal period covered by the Company Reports, such disclosure controls and procedures are effective at the reasonable assurance level to perform the functions for which they were established. There are no significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which could adversely affect the Company’s ability to record, process, summarize, and report financial data to management and the Board of Directors of the Company. The Company is not aware of any fraud, whether or not material, that involves management or other employees who have a role in the Company’s internal control over financial reporting; and since the date of the most recent evaluation of such disclosure controls and procedures, there have been no significant changes in internal control over financial reporting or in other factors that have materially affected, or are reasonably likely to materially affect, the Company’s internal control over financial reporting, including any corrective actions with regard to significant deficiencies and material weaknesses.

(ee) Subject to the exemptions available to the Company as an “emerging growth company,” as defined in the Jumpstart Our Business Startups Act of 2012, the Company, and to its knowledge, all of the Company’s directors or officers, in their capacities as such, is in compliance in all material respects with all applicable effective provisions of the Sarbanes-Oxley Act and any related rules and regulations promulgated by the Commission. Subject to the phase-in rules available to the Company as a newly public company, each of the principal executive officer and the principal financial officer of the Company (or each former principal executive officer of the Company and each former principal financial officer of the Company as applicable) has made all certifications required by Sections 302 and 906 of the Sarbanes-Oxley Act with respect to all reports, schedules, forms, statements and other documents required to be filed by it with the Commission. For purposes of the preceding sentence, “principal executive officer” and “principal financial officer” shall have the meanings given to such terms in the Sarbanes-Oxley Act.

(ff) No representation or warranty contained in Section 2 of this Agreement contains any untrue statement of a material fact or omits to state a material fact necessary to make the statements herein not misleading in the context of such representations and warranties.

2A. Representations, Warranties and Covenants of Placement Agent. The Placement Agent hereby represents and warrants to the Company that the following representations and warranties are true and correct as of the date of this Agreement:

(a) The Placement Agent is a corporation duly organized, validly existing and in good standing under the laws of the State of New York and has all requisite corporate power and authority to enter into this Agreement and to carry out and perform its obligations under the terms of this Agreement.

(b) This Agreement has been duly authorized, executed and delivered by the Placement Agent, and upon due execution and delivery by the Company, this Agreement will be a valid and binding agreement of the Placement Agent enforceable against it in accordance with its terms, except as may be limited by principles of public policy and, as to enforceability, subject to applicable bankruptcy, insolvency, reorganization, moratorium and similar laws relating to or affecting creditor's rights from time to time in effect and subject to general equity principles.

(c) The Placement Agent is a member of FINRA and is registered as a broker-dealer under the Exchange Act, and under the securities acts of each state into which it is making offers or sales of the Units. None of the Placement Agent or its affiliates, or any person acting on behalf of the foregoing (other than the Company, its affiliates or any person acting on its behalf, in respect of which no representation is made) has taken nor will it take any action that conflicts with the conditions and requirements of, or that would make unavailable with respect to the Offering, the exemption(s) from registration available pursuant to Rule 506 of Regulation D or Section 4(a)(2) of the Act, or knows of any reason why any such exemption would be otherwise unavailable to it.

(d) The Placement Agent represents that neither it, nor to its knowledge any of its directors, executive officers, general partners, managing members or other officers participating in the Offering (each, a "**Placement Agent Covered Person**" and, together, "**Placement Agent Covered Persons**"), is subject to any Disqualification Event, except for a Disqualification Event (i) contemplated by Rule 506(d)(2) of the Securities Act and (ii) a description of which has been furnished in writing to the Company prior to the date hereof.

(e) The Placement Agent represents that it is not aware of any person (other than any Placement Agent Covered Person) that has been or will be paid (directly or indirectly) remuneration for solicitation of purchasers in connection with the sale of any Units. Placement Agent will promptly notify the Company of any agreement entered into between such Placement Agent and such person in connection with such sale.

(f) The Placement Agent will notify the Company promptly in writing of (i) any Disqualification Event relating to any Placement Agent Covered Person not previously disclosed to the Company in accordance with Section 2A(d) of this Agreement and (ii) any event that would, with the passage of time, become a Disqualification Event relating to any Placement Agent Covered Person.

(g) As to Placement Agent only, the Memorandum does not include any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading; provided, however, the foregoing does not apply to any statements or omissions made solely in reliance on and in conformity with written information furnished to Placement Agent by the Company specifically for use in the preparation thereof.

(h) There are no actions, suits, claims, hearings or proceedings pending before any court or governmental authority or, to the knowledge of Placement Agent, threatened, against Placement Agent or involving its assets or to the knowledge of Placement Agent, any of its officers or directors (in their capacity as such) which, if determined adversely to Placement Agent or such officer or director, could reasonably be expected to adversely affect Placement Agent's ability to perform its obligations hereunder.

3. Placement Agent Compensation.

(a) In connection with the Offering, the Company will pay at each Closing a cash fee (the “**Agent Cash Fee**”) to the Placement Agent equal to 10% of the gross proceeds from the sale of the Units consummated at such Closing.

(b) As additional compensation at the Final Closing the Company will issue to the Placement Agent (or its designee(s)) for nominal consideration, warrants (the “**Agent Warrants**;

 the Agent Cash Fee and Agent Warrants are sometimes referred to herein collectively as “**Agent Compensation**”) to purchase shares of Common Stock (the shares of Common Stock issuable upon exercise of the Agent Warrants are hereinafter referred to as the “**Agent Warrant Shares**”). The Agent Warrants shall be exercisable for that number of shares of Common Stock equaling 10% of the number of shares of Common Stock (i) included in the aggregate number of Units sold at all of the Closings, at an exercise price of \$0.50 per share and (ii) issuable upon exercise of the Warrants included in all of such Units, at an exercise price of \$0.75 per share (the “Agent Warrants”). The Agent’s Warrants shall be exercisable until the date that is five (5) years after the Final Closing, shall contain immediate cashless exercise provisions and shall not be callable by the Company.

(c) At each Closing, the Company will pay the Placement Agent a non-accountable expense allowance equal to 3% of the gross proceeds from the sale of the Units consummated at such Closing (the “**Agent Expense Allowance**”). The Placement Agent will not bear any of the Company’s legal, accounting, printing or other expenses in connection with any transaction contemplated hereby. Notwithstanding the foregoing, the Agent Expense Allowance otherwise payable to the Placement Agent at the First Closing shall be offset by the \$15,000 the Company previously advanced to legal counsel for the Placement Agent.

(d) In the event the Company elects to redeem the Warrants pursuant to the provisions thereto, the Placement Agent will be engaged as exclusive warrant solicitation agent a reasonable period of time prior to the time notice of redemption is delivered to holders of Warrants. The engagement letter will provide for the payment to the Placement Agent of, inter alia, a cash fee of 5% of the exercise price for each Warrant exercised by a Warrant holder that has been solicited by the Placement Agent following a redemption notice.

4. Subscription and Closing Procedures.

(a) The Company shall cause to be delivered to the Placement Agent copies of the Memorandum and has consented, and hereby consents, to the use of such copies for the purposes permitted by the Act and applicable securities laws and in accordance with the terms and conditions of this Agreement, and hereby authorizes the Placement Agent and its agents and employees to use the Memorandum in connection with the sale of the Units until the earlier of (i) the Termination Date or (ii) the Final Closing, and no person or entity is or will be authorized to give any information or make any representations other than those contained in the Memorandum or to use any offering materials other than those contained in the Memorandum in connection with the sale of the Units.

(b) The Company shall make available to the Placement Agent and its representatives such information as may be reasonably requested in making a reasonable investigation of the Company and their respective affairs and shall provide access to such employees during normal business hours as shall be reasonably requested by the Placement Agent.

(c) Each prospective purchaser will be required to complete and execute an original signature page for the Subscription Agreement (the “**Subscription Documents**”), which will be forwarded or delivered to the Placement Agent at the Placement Agent’s offices at the address set forth in Section 12 hereof, together with the subscriber’s wire transfer to the Escrow Agent (as defined below) of the full amount of the purchase price for the number of Units desired to be purchased, subject to the Placement Agent’s right to approve acceptance of a check by the Escrow Agent in lieu of a wire transfer.

(d) All funds for subscriptions received from the Offering by the Placement Agent, if any, will be promptly forwarded to the Escrow Agent for deposit into a non-interest bearing escrow account (the “**Escrow Account**”) established for such purpose with Signature Bank (the “**Escrow Agent**”). All such funds for subscriptions will be held in the Escrow Account pursuant to the terms of an escrow agreement among the Company, the Placement Agent and the Escrow Agent. The Company will pay all reasonable fees related to the establishment and maintenance of the Escrow Account. The Company will either accept or reject, for any or no reason, the Subscription Documents in a timely fashion and at each Closing the Company will countersign the Subscription Documents and provide duplicate copies of such documents to the Placement Agent for distribution to the subscribers. The Company, or the Placement Agent on the Company’s behalf, will promptly return to subscribers incomplete, improperly completed, improperly executed and rejected subscriptions and give written notice thereof to the Placement Agent upon such return.

(e) If subscriptions for at least the Minimum Amount have been accepted prior to the Termination Date, as to which the funds therefor have been collected by the Escrow Agent and all of the conditions set forth elsewhere in this Agreement are fulfilled, a closing shall be held promptly with respect to Units sold (the “**First Closing**”). Thereafter remaining Units will continue to be offered and sold until the Termination Date and additional closings (each a “**Closing**”) (the date on which a Closing occurs is sometimes referred to as a “**Closing Date**”) may from time to time be conducted at times mutually agreed to between the Placement Agent and the Company with respect to additional Units sold, with the final closing (“**Final Closing**”) to occur within 10 days after the earlier of the Termination Date and the date on which the all Units has been fully subscribed for. Delivery of payment for the accepted subscriptions for Units from funds held in the Escrow Account will be made at each Closing against delivery of the Shares and Warrants by the Company. Executed certificates for the Common Stock and Warrants will be in such authorized denominations and, with respect to investors located by the Placement Agent, will be registered in such names as the Placement Agent may request and will be made available to the Placement Agent for checking and packaging at the Placement Agent’s office at each Closing or within ten (10) business days following a Closing. At the final Closing or within ten (10) business days thereafter, the Agent Warrants will be issued in such quantities and names as the Placement Agent may request.

(f) If Subscription Documents for the Minimum Amount have not been received and accepted by the Company on or before the Termination Date for any reason, the Offering will be terminated, no Units will be sold, and the Escrow Agent will, at the request of the Placement Agent, cause all monies received from subscribers for the Units to be promptly returned to such subscribers without interest, penalty, expense or deduction.

5. Further Covenants. The Company hereby covenants and agrees that:

(a) Except upon prior written notice to the Placement Agent, the Company shall not, at any time prior to the Final Closing, knowingly take any action which would cause any of the representations and warranties made by it in this Agreement not to be complete and correct in all material respects on and as of each Closing Date with the same force and effect as if such representations and warranties had been made on and as of each such date (except to the extent any representation or warranty relates to an earlier date).

(b) If, at any time prior to the Final Closing, any event shall occur that causes a Material Adverse Effect, as a result of which it becomes necessary to amend or supplement the Memorandum so that the representations and warranties herein remain true and correct in all material respects, or in case it shall be necessary to amend or supplement the Memorandum to comply with Regulation D or any other applicable securities laws or regulations, the Company will promptly notify the Placement Agent and shall, at its sole cost, prepare and furnish to the Placement Agent copies of appropriate amendments and/or supplements in such quantities as the Placement Agent may reasonably request. The Company will not at any time before the Final Closing prepare or use any amendment or supplement to the Memorandum of which the Placement Agent will not previously have been advised and furnished with a copy, or which is not in compliance in all material respects with the Act and other applicable securities laws. As soon as the Company is advised thereof, the Company will advise the Placement Agent and its counsel, and confirm the advice in writing, of any order preventing or suspending the use of the Memorandum, or the suspension of any exemption for such qualification or registration thereof for offering in any jurisdiction, or of the institution or threatened institution of any proceedings for any of such purposes, and the Company will use their reasonable best efforts to prevent the issuance of any such order and, if issued, to obtain as soon as reasonably possible the lifting thereof.

(c) The Company shall comply with the Act, the Exchange Act and the rules and regulations thereunder, all applicable state securities laws and the rules and regulations thereunder in the states in which the Company's counsel has advised the Placement Agent and the Company that the Units are qualified or registered for sale or exempt from such qualification or registration, so as to permit the continuance of the sales of the Units, and will file or cause to be filed with the Commission, and shall promptly thereafter forward or cause to be forwarded to the Placement Agent, any and all reports on Form D as are required.

(d) The Company shall use best efforts to qualify the Units for sale under the securities laws of such jurisdictions in the United States as may be mutually agreed to by the Company and the Placement Agent, and the Company will make or cause to be made such applications and furnish information as may be required for such purposes, provided that the Company will not be required to qualify as a foreign corporation in any jurisdiction or execute a general consent to service of process. The Company will, from time to time, prepare and file such statements and reports as are or may be required to continue such qualifications in effect for so long a period as the Placement Agent may reasonably request with respect to the Offering.

(e) The Company shall place a legend on the certificates representing the Shares, Warrants and the Agent Warrants that the securities evidenced thereby have not been registered under the Act or applicable state securities laws, setting forth or referring to the applicable restrictions on transferability and sale of such securities under the Act and applicable state laws.

(f) The Company shall apply the net proceeds from the sale of the Units for the purposes substantially as described under the "Use of Proceeds" section of the Memorandum. Except as set forth in the Memorandum, the Company shall not use any of the net proceeds of the Offering to repay indebtedness to officers (other than accrued salaries incurred in the ordinary course of business), directors or stockholders of the Company without the prior written consent of the Placement Agent.

(g) During the Offering Period, the Company shall afford each prospective purchaser of Units the opportunity to ask questions of and receive answers from an officer of the Company concerning the terms and conditions of the Offering and the opportunity to obtain such other additional information necessary to verify the accuracy of the Memorandum to the extent the Company possesses such information or can acquire it without unreasonable expense.

(h) Except with the prior written consent of the Placement Agent, the Company shall not, at any time prior to the earlier of the Final Closing or the Termination Date, except as contemplated by the Memorandum (i) engage in or commit to engage in any transaction outside the ordinary course of business as described in the Memorandum, (ii) issue, agree to issue or set aside for issuance any securities (debt or equity) or any rights to acquire any such securities, (iii) incur, outside the ordinary course of business, any material indebtedness, (iv) dispose of any material assets, (v) make any material acquisition or (vi) change its business or operations.

(i) The Company shall pay all reasonable expenses incurred in connection with the preparation and printing of all necessary offering documents and instruments related to the Offering and the issuance of the Shares, the Warrants and the Agent Warrants and will also pay the Company's own expenses for accounting fees, legal fees and other costs involved with the Offering. The Company will provide at its own expense such quantities of the Memorandum and other documents and instruments relating to the Offering as the Placement Agent may reasonably request. All Blue Sky filings shall be prepared by the Company's counsel at the Company's expense. Further, as promptly as practicable after the Final Closing, the Company shall prepare, at its own expense, velobound "closing binders" relating to the Offering and will distribute one such binder to each of the Placement Agent and its counsel.

(j) Until the earlier of the Termination Date or the Final Closing, neither the Company nor any person or entity acting on such persons' behalf will negotiate with any other placement agent or underwriter with respect to a private or public offering of such entity's debt or equity securities. Neither the Company nor any person or entity acting on such persons' behalf will, until the earlier of the Termination Date or the Final Closing, without the prior written consent of the Placement Agent, offer for sale to, or solicit offers to subscribe for Units from, or otherwise approach or negotiate in respect thereof with, any other person.

6 . Conditions of Placement Agent's Obligations. The obligations of the Placement Agent hereunder to effect a Closing are subject to the fulfillment, at or before each Closing, of the following additional conditions:

(a) Each of the representations and warranties made by the Company qualified as to materiality shall be true and correct at all times prior to and on each Closing Date, except to the extent any such representation or warranty expressly speaks as of an earlier date, in which case such representation or warranty shall be true and correct as of such earlier date, and the representations and warranties made by the Company not qualified as to materiality shall be true and correct in all material respects at all times prior to and on each Closing Date, except to the extent any such representation or warranty expressly speaks as of an earlier date, in which case such representation or warranty shall be true and correct in all material respects as of such earlier date.

(b) The Company shall have performed and complied in all material respects with all agreements, covenants and conditions required to be performed and complied with by it at or before the Closing.

(c) The Memorandum did not, and as of the date of any amendment or supplement thereto will not, include any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading.

(d) No order suspending the use of the Memorandum or enjoining the Offering or sale of the Units shall have been issued, and no proceedings for that purpose or a similar purpose shall have been initiated or pending, or, to the best of the Company's knowledge, be contemplated or threatened.

(e) The Placement Agent shall have received a certificate of the Chief Executive Officer of the Company, dated as of the Closing Date, certifying as to the fulfillment of the conditions set forth in subparagraphs (a), (b), (c) and (d) above.

(f) The Company shall have delivered to the Placement Agent: (i) a certified charter document and good standing certificate of each of the Company and each of its Subsidiaries, each dated as of a date within 10 days prior to the Closing Date from the secretary of state of its jurisdiction of incorporation; and (ii) resolutions of the Company's Board of Directors approving this Agreement and the transactions and agreements contemplated by this Agreement and the Memorandum, certified by the Chief Executive Officer of the Company.

(g) At each Closing, the Company shall pay and/or issue to the Placement Agent the Agent Compensation and Agent Expense Allowance earned in such Closing.

(h) The Company shall deliver to the Placement Agent a signed opinion of Lowenstein Sandler LLP, counsel to the Company, as of each Closing Date, in form and substance reasonably satisfactory to the Placement Agent.

(i) All proceedings taken at or prior to the Closing in connection with the authorization, issuance and sale of the Shares, the Warrants and the Agent Warrants will be reasonably satisfactory in form and substance to the Placement Agent and its counsel, and such counsel shall have been furnished with all such documents, certificates and opinions as it may reasonably request upon reasonable prior notice in connection with the transactions contemplated hereby.

7 . Conditions of the Company's Obligations. The obligations of the Company to effect a Closing are subject to the fulfillment, at or before each Closing, of the condition that each of the representations and warranties made by Placement Agent herein are true and correct as of each Closing Date.

8. Indemnification.

(a) The Company will: (i) indemnify and hold harmless the Placement Agent, its agents and their respective officers, directors, employees, selected dealers and each person, if any, who controls the Placement Agent within the meaning of the Section 15 of the Act or Section 20(a) of the Exchange Act and such selected dealers (each an "Indemnitee" or a "Placement Agent Party") against, and pay or reimburse each Indemnitee for, any and all losses, claims, damages, liabilities or expenses whatsoever (or actions or proceedings or investigations in respect thereof), joint or several (which will, for all purposes of this Agreement, include, but not be limited to, all reasonable costs of defense and investigation and all reasonable attorneys' fees, including appeals), to which any Indemnitee may become subject (x) under the Act or otherwise, in connection with the offer and sale of the Units and (y) as a result of the breach of any representation, warranty or covenant made by the Company herein, regardless of whether such losses, claims, damages, liabilities or expenses shall result from any claim by any Indemnitee or by any third party; and (ii) reimburse each Indemnitee for any legal or other expenses reasonably incurred in connection with investigating or defending against any such loss, claim, action, proceeding or investigation; *provided, however*, that the Company will not be liable in any such case to the extent that any such claim, damage or liability is finally judicially determined to have resulted exclusively from (A) an untrue statement or alleged untrue statement of a material fact made in the Memorandum, or an omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, made solely in reliance upon and in conformity with written information furnished to the Company by the Placement Agent specifically for use in the Memorandum or (B) any violations by the Placement Agent of the Act or state securities laws which does not result from a violation thereof by the Company, or any of its affiliates. In addition to the foregoing agreement to indemnify and reimburse, the Company will indemnify and hold harmless each Indemnitee against any and all losses, claims, damages, liabilities or expenses whatsoever (or actions or proceedings or investigations in respect thereof), joint or several (which shall, for all purposes of this Agreement, include, but not be limited to, all reasonable costs of defense and investigation and all reasonable attorneys' fees, including appeals) to which any Indemnitee may become subject insofar as such costs, expenses, losses, claims, damages or liabilities arise out of or are based upon the claim of any person or entity that he or it is entitled to broker's or finder's fees from any Indemnitee in connection with the Offering, other than fees due to the Placement Agent. The foregoing indemnity agreements will be in addition to any liability the Company may otherwise have.

(b) The Placement Agent will indemnify and hold harmless the Company, its officers, directors, and each person, if any, who controls such entity Section 15 of the Act or Section 20(a) of the Exchange Act against, and pay or reimburse any such person for, any and all losses, claims, damages, liabilities or expenses whatsoever (or actions, proceedings or investigations in respect thereof) to which the Company or any such person may become subject under the Act or otherwise, whether such losses, claims, damages, liabilities or expenses shall result from any claim of the Company or any such person who controls the Company within the meaning of the Act or by any third party, but only to the extent that such losses, claims, damages or liabilities are based upon (i) any untrue statement or alleged untrue statement of any material fact contained in the Memorandum made in reliance upon and in conformity with information contained in the Memorandum relating to the Placement Agent, or an omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, in either case, if made or omitted in reliance upon and in conformity with written information furnished to the Company by the Placement Agent, specifically for use in the preparation thereof or (ii) any violations by the Placement Agent of the Act or state securities laws which does not result from a violation thereof by the Company, or any of its affiliates. The Placement Agent will reimburse the Company or any such person for any legal or other expenses reasonably incurred in connection with investigating or defending against any such loss, claim, damage, liability or action, proceeding or investigation to which such indemnity obligation applies. The foregoing indemnity agreements are in addition to any liability which the Placement Agent may otherwise have. Notwithstanding the foregoing, in no event (except in the event of gross negligence or willful misconduct by the Placement Agent and only to the extent found in a final judgment by a court of competent jurisdiction) shall the Placement Agent's indemnification obligation hereunder exceed the amount of the Agent's Cash Fee actually received by it.

(c) Promptly after receipt by an indemnified party under this Section 8 of notice of the commencement of any action, claim, proceeding or investigation (the “**Action**”), such indemnified party, if a claim in respect thereof is to be made against the indemnifying party under this Section 8, will notify the indemnifying party of the commencement thereof, but the omission to so notify the indemnifying party will not relieve it from any liability that it may have to any indemnified party under this Section 8 unless the indemnifying party has been substantially prejudiced by such omission. The indemnifying party will be entitled to participate in and, to the extent that it may wish, jointly with any other indemnifying party, to assume the defense thereof subject to the provisions herein stated, with counsel reasonably satisfactory to such indemnified party. The indemnified party will have the right to employ separate counsel in any such Action and to participate in the defense thereof, but the fees and expenses of such counsel will not be at the expense of the indemnifying party if the indemnifying party has assumed the defense of the Action with counsel reasonably satisfactory to the indemnified party, provided, however, that if the indemnified party shall be requested by the indemnifying party to participate in the defense thereof or shall have concluded in good faith and specifically notified the indemnifying party either that there may be specific defenses available to it that are different from or additional to those available to the indemnifying party or that such Action involves or could have a material adverse effect upon it with respect to matters beyond the scope of the indemnity agreements contained in this Agreement, then the counsel representing it, to the extent made necessary by such defenses, shall have the right to direct such defenses of such Action on its behalf and in such case the reasonable fees and expenses of such counsel in connection with any such participation or defenses shall be paid by the indemnifying party. No settlement of any Action against an indemnified party will be made without the consent of the indemnifying party and the indemnified party, which consent shall not be unreasonably withheld, delayed or conditioned in light of all factors of importance to such party, and no indemnifying party shall be liable to indemnify any person for any settlement of any such claim effected without such indemnifying party’s consent.

9 . Contribution. To provide for just and equitable contribution, if: (i) an indemnified party makes a claim for indemnification pursuant to Section 8 hereof and it is finally determined, by a judgment, order or decree not subject to further appeal that such claims for indemnification may not be enforced, even though this Agreement expressly provides for indemnification in such case; or (ii) any indemnified or indemnifying party seeks contribution under the Act, the Exchange Act, or otherwise, then each indemnifying party shall contribute to such amount paid or payable by such indemnified party in such proportion as is appropriate to reflect not only such relative benefits but also the relative fault of the Company on the one hand and the Placement Agent on the other in connection with the statements or omissions which resulted in such losses, claims, damages, liabilities or expenses (or actions in respect thereof), as well as any other relevant equitable considerations. The relative benefits received by the Company on the one hand and the Placement Agent on the other shall be deemed to be in the same proportion as the total net proceeds from the Offering (before deducting expenses) received by the Company bear to the total Agent Cash Fees received by the Placement Agent. The relative fault, in the case of an untrue statement, alleged untrue statement, omission or alleged omission will be determined by, among other things, whether such statement, alleged statement, omission or alleged omission relates to information supplied by the Company or by the Placement Agent, and the parties’ relative intent, knowledge, access to information and opportunity to correct or prevent such statement, alleged statement, omission or alleged omission. The Company and the Placement Agent agree that it would be unjust and inequitable if the respective obligations of the Company and the Placement Agent for contribution were determined by *pro rata* allocation of the aggregate losses, liabilities, claims, damages and expenses or by any other method or allocation that does not reflect the equitable considerations referred to in this Section 9. No person guilty of a fraudulent misrepresentation (within the meaning of Section 10(f) of the Act) will be entitled to contribution from any person who is not guilty of such fraudulent misrepresentation. For purposes of this Section 9, each person, if any, who controls the Placement Agent within the meaning of the Act will have the same rights to contribution as the Placement Agent, and each person, if any, who controls the Company within the meaning of the Act will have the same rights to contribution as the Company, subject in each case to the provisions of this Section 9. Anything in this Section 9 to the contrary notwithstanding, no party will be liable for contribution with respect to the settlement of any claim or action effected without its written consent. This Section 9 is intended to supersede, to the extent permitted by law, any right to contribution under the Act, the Exchange Act or otherwise available.

10. Termination.

(a) The Offering may be terminated by the Placement Agent at any time prior to the expiration of the Offering Period in the event that: (i) any of the representations, warranties or covenants of the Company contained herein or in the Memorandum shall prove to have been false or misleading in any material respect when actually made; (ii) the Company shall have failed to perform any of its material obligations hereunder or under any other Transaction Document or any other transaction document; (iii) there shall occur any event, within the control of the Company that could materially adversely affect the transactions contemplated hereunder or the ability of the Company to perform hereunder; or (iv) the Placement Agent determines that it is reasonably likely that any of the conditions to Closing set forth herein will not, or cannot, be satisfied. In the event of a termination by the Placement Agent under Section 10(a)(iv), the Placement Agent shall not be entitled to any further compensation pursuant to these termination provisions.

(b) This Offering may be terminated by the Company at any time prior to the expiration of the Offering Period (i) in the event that the Placement Agent shall have failed to perform any of its material obligations hereunder or (ii) on account of the Placement Agent's fraud, illegal or willful misconduct or gross negligence. In the event of any such termination pursuant to this Section 10(b), the Placement Agent shall not be entitled to any further compensation pursuant to these termination provisions.

(c) [Intentionally omitted]

(d) This Offering may be terminated upon mutual agreement of the Company and the Placement Agent at any time prior to the expiration of the Offering Period. In addition, upon the expiration of the Offering Period, the Offering shall terminate without any further action of the parties hereto. If the Offering is terminated pursuant to this Section 10(d), then in cases in which no Closing had been theretofore consummated, each party shall pay its own respective expenses.

(e) Before any termination by the Placement Agent under Section 10(a) or by the Company under Section 10(b) shall become effective, the terminating party shall give written notice to the other party of its intention to terminate the Offering (the "**Termination Notice**"). The Termination Notice shall specify the grounds for the proposed termination. If the specified grounds for termination, or their resulting adverse effect on the transactions contemplated hereby, are curable, then the other party shall have ten (10) days from the Termination Notice within which to remove such grounds or to eliminate all of their material adverse effects on the transactions contemplated hereby; otherwise, the Offering shall terminate.

(f) Upon any termination pursuant to this Section 10, the Placement Agent and the Company will instruct Escrow Agent to cause all monies received with respect to the subscriptions for Units not accepted by the Company to be promptly returned to such subscribers without interest, penalty or deduction.

11. Survival.

(a) The obligations of the parties to pay any costs and expenses hereunder and to provide indemnification and contribution as provided herein shall survive any termination hereunder. In addition, the provisions of Sections 8 through 16 shall survive the sale of the Units or any termination of the Offering hereunder.

(b) The respective indemnities, covenants, representations, warranties and other statements of the Company and the Placement Agent set forth in or made pursuant to this Agreement will remain in full force and effect, regardless of any investigation made by or on behalf of, and regardless of any access to information by, the Company or the Placement Agent, or any of their officers or directors or any controlling person thereof, and will survive the sale of the Units or any termination of the Offering hereunder for a period of four years from the earlier to occur of the Final Closing or the termination of the Offering.

12. Notices. All notices and other communications given or made pursuant hereto shall be in writing and shall be deemed to have been duly given or made as of the date delivered personally, or the date mailed if mailed by registered or certified mail (postage prepaid, return receipt requested) to the parties at the following addresses (or at such other address for a party as shall be specified by like changes of address which shall be effective upon receipt) or sent by facsimile transmission, with confirmation received, if sent to the Placement Agent, will be mailed, delivered or telefaxed and confirmed to Aegis Capital Corp., 810 Seventh Ave, 11th Floor, New York, New York 10019, Attention: Adam K. Stern, telefax number (646) 390-9122, with a copy (which shall not constitute notice) to: Meister Seelig & Fein LLP, 125 Park Avenue, 7th Floor, New York, NY 10017, Attn: Kenneth S. Goodwin, Esq., telefax number (646) 539-3663, if sent to the Company, will be mailed, delivered or telefaxed and confirmed to Matinas BioPharma Holdings, Inc., 1545 Route 206 South, Suite 302, Bedminster, NJ 07921, Attn: Roelof Rongen, President & CEO, with a copy (which shall not constitute notice) to: Lowenstein Sandler LLP, 1251 Avenue of the Americas, New York, NY 10020, Attn: Steven M. Skolnick, Esq., telefax number (973) 597 2477.

13. Governing Law, Jurisdiction. This Agreement shall be deemed to have been made and delivered in New York City and shall be governed as to validity, interpretation, construction, affect and in all other respects by the internal laws of the State of New York. **THE PARTIES AGREE THAT ANY DISPUTE, CLAIM OR CONTROVERSY DIRECTLY OR INDIRECTLY RELATING TO OR ARISING OUT OF THIS AGREEMENT, THE TERMINATION OR VALIDITY HEREOF, ANY ALLEGED BREACH OF THIS AGREEMENT OR THE ENGAGEMENT CONTEMPLATED HEREBY (ANY OF THE FOREGOING, A "CLAIM") SHALL BE SUBMITTED TO THE JUDICIAL ARBITRATION AND MEDIATION SERVICES, INC ("JAMS"), OR ITS SUCCESSOR, IN NEW YORK, FOR FINAL AND BINDING ARBITRATION IN FRONT OF A PANEL OF THREE ARBITRATORS WITH JAMS IN NEW YORK, NEW YORK UNDER THE JAMS COMPREHENSIVE ARBITRATION RULES AND PROCEDURES (WITH EACH OF THE SELLING AGENT AND THE COMPANY CHOOSING ONE ARBITRATOR, AND THE CHOSEN ARBITRATORS CHOOSING THE THIRD ARBITRATOR). THE ARBITRATORS SHALL, IN THEIR AWARD, ALLOCATE ALL OF THE COSTS OF THE ARBITRATION, INCLUDING THE FEES OF THE ARBITRATORS AND THE REASONABLE ATTORNEYS' FEES OF THE PREVAILING PARTY, AGAINST THE PARTY WHO DID NOT PREVAIL. THE AWARD IN THE ARBITRATION SHALL BE FINAL AND BINDING. THE ARBITRATION SHALL BE GOVERNED BY THE FEDERAL ARBITRATION ACT, 9 U.S.C. SEC. 1-16, AND THE JUDGMENT UPON THE AWARD RENDERED BY THE ARBITRATORS MAY BE ENTERED BY ANY COURT HAVING JURISDICTION THEREOF. THE COMPANY AND THE PLACEMENT AGENT AGREE AND CONSENT TO PERSONAL JURISDICTION, SERVICE OF PROCESS AND VENUE IN ANY FEDERAL OR STATE COURT WITHIN THE STATE AND COUNTY OF NEW YORK IN CONNECTION WITH ANY ACTION BROUGHT TO ENFORCE AN AWARD IN ARBITRATION.**

14. Miscellaneous. No provision of this Agreement may be changed or terminated except by a writing signed by the party or parties to be charged therewith. Unless expressly so provided, no party to this Agreement will be liable for the performance of any other party's obligations hereunder. Either party hereto may waive compliance by the other with any of the terms, provisions and conditions set forth herein; provided, however, that any such waiver shall be in writing specifically setting forth those provisions waived thereby. No such waiver shall be deemed to constitute or imply waiver of any other term, provision or condition of this Agreement. Neither party may assign its rights or obligations under this Agreement to any other person or entity without the prior written consent of the other party.

15. Entire Agreement; Severability. This Agreement together with any other agreement referred to herein supersedes all prior understandings and written or oral agreements between the parties with respect to the Offering and the subject matter hereof. If any portion of this Agreement shall be held invalid or unenforceable, then so far as is reasonable and possible (i) the remainder of this Agreement shall be considered valid and enforceable and (ii) effect shall be given to the intent manifested by the portion held invalid or unenforceable.

16. Counterparts. This Agreement may be executed in multiple counterparts, each of which may be executed by less than all of the parties and shall be deemed to be an original instrument which shall be enforceable against the parties actually executing such counterparts and all of which together shall constitute one and the same instrument. The exchange of copies of this Agreement and of signature pages by facsimile transmission shall constitute effective execution and delivery of this Agreement as to the parties and may be used in lieu of the original Agreement for all purposes. Signatures of the parties transmitted by facsimile shall be deemed to be their original signatures for all purposes.

[Signatures on following page.]

SUBSCRIPTION AGREEMENT

Matinas BioPharma Holdings, Inc.
1545 Route 206 South, Suite 302
Bedminster, New Jersey
Ladies and Gentlemen:

1 . **Subscription.** The undersigned (the “Purchaser”), intending to be legally bound, hereby irrevocably agrees to purchase from Matinas BioPharma Holdings, Inc., a Delaware corporation (the “Company”), the number of units (the “Units”) set forth on the signature page hereof at a purchase price of \$0.50 per Unit, with a minimum investment of \$250,000 (500,000 Units) (“Minimum Investment Amount”), or such lesser amount agreed to by the Company and the Placement Agent (as defined below). Each Unit consists of (i) one share of common stock, par value \$0.0001 per share (the “Common Stock”), of the Company and (ii) one warrant (the “Warrants”), with each Warrant entitling the holder to purchase one share of Common Stock for a five-year period commencing at the First Closing (as defined below) at an exercise price of \$0.75 per share. The Units are being sold in the Offering (as defined below), the initial closing of which may be scheduled at any time after subscriptions have been received and accepted for at least the Minimum Offering Amount (as defined below) and other conditions to closing have been satisfied. Thereafter, remaining Units will continue to be offered and sold until the date on which the Offering (as defined below) expires, and additional closings (each a “Closing”) may from time to time be conducted at times mutually agreed to between the Placement Agent (as defined below) and the Company with respect to those additional units sold.

2 . **The Offering.** This subscription is submitted to you in accordance with and subject to the terms and conditions described in this Subscription Agreement and the Confidential Private Placement Memorandum of the Company dated March 19, 2015, as amended or supplemented from time to time, including all attachments, schedules and exhibits thereto (the “Memorandum”), relating to the offering (the “Offering”) by the Company of a minimum of 7,000,000 Units (\$3,500,000) (“Minimum Offering Amount”), and up to a maximum of 14,000,000 Units (\$7,000,000) (“Maximum Offering Amount”). In the event the Maximum Offering Amount is sold, the Placement Agent (as defined below) and the Company shall have the right to place an additional 6,000,000 Units (\$3,000,000) to cover over-allotments. Aegis Capital Corp. has been engaged as placement agent in connection with the Offering (the “Placement Agent”). The terms of the Offering are more completely described in the Memorandum and such terms are incorporated herein in their entirety.

3. **Payment.** The Purchaser will immediately make a wire transfer payment to, “Signature Bank, 261 Madison Ave., New York, NY 10016, ABA No. 026013576 for credit to Matinas BioPharma Holdings, Inc., Signature Bank, as Escrow Agent, Account No. 1502471380” in the full amount of the purchase price of the Units being subscribed for in the Offering. Wire transfer instructions are set forth on page 12 hereof under the heading “To subscribe for Units in the private offering of Matinas BioPharma Holdings, Inc.” Notwithstanding the foregoing, Placement Agent may approve acceptance of a check by the Escrow Agent in lieu of a wire transfer. Upon approval of Placement Agent, Purchaser will immediately send a check payable to the order of “Matinas BioPharma Holdings, Inc., Signature Bank, as Escrow Agent,” with the name and address of the Purchaser. Such funds will be held for the Purchaser's benefit, and will be returned promptly, without interest or offset if this Subscription Agreement is not accepted by the Company, the Offering is terminated pursuant to its terms by the Company prior to the First Closing (as hereinafter defined), or the Minimum Offering Amount is not sold. Together with a wire transfer (or, pursuant to the Placement Agent's approval of acceptance of a check by the Escrow Agent in lieu of a wire transfer, a check) for the full purchase price, the Purchaser is delivering a completed and executed Omnibus Signature Page to this Subscription Agreement and the Registration Rights Agreement, in the form of [Exhibit B] to the Memorandum (the “Registration Rights Agreement”).

4. **Deposit of Funds.** All payments made as provided in Section 3 hereof shall be promptly forwarded by the Company or the Placement Agent, as soon as practicable after receipt thereof, to Signature Bank (the “Escrow Agent”) for deposit into a non-interest-bearing escrow account (the “Escrow Account”) until the earliest to occur of (a) the closing of the sale of the Minimum Offering Amount (the “First Closing”) or the additional Closings that may be conducted from time to time, as applicable, (b) the rejection of such subscription, and (c) the termination of the Offering by the Company or the Placement Agent. The Company and the Placement Agent may continue to offer and sell the Units and conduct additional closings for the sale of additional Units after the First Closing and until the termination of the Offering.

5. **Acceptance of Subscription.** The Purchaser understands and agrees that the Company, in their sole discretion, reserve the right to accept or reject this or any other subscription for Units, in whole or in part, notwithstanding prior receipt by the Purchaser of notice of acceptance of this subscription. The Company shall have no obligation hereunder until the Company shall execute and deliver to the Purchaser an executed copy of this Subscription Agreement. If this subscription is rejected in whole, the Offering of Units is terminated or the Minimum Offering Amount is not raised, all funds received from the Purchaser will be returned without interest or offset, and this Subscription Agreement shall thereafter be of no further force or effect. If this subscription is rejected in part, the funds for the rejected portion of this subscription will be returned without interest or offset, and this Subscription Agreement will continue in full force and effect to the extent this subscription was accepted.

6. **Representations and Warranties.**

The Purchaser hereby acknowledges, represents, warrants, and agrees as follows:

(a) None of the shares of Common Stock or the shares of Common Stock issuable upon exercise of the Warrants (the “Warrant Shares”) offered pursuant to the Memorandum are registered under the Securities Act of 1933, as amended (the “Securities Act”), or any state securities laws. The Purchaser understands that the offering and sale of the Units is intended to be exempt from registration under the Securities Act, by virtue of Section 4(a)(2) thereof and the provisions of Regulation D (“Regulation D”) as promulgated by the United States Securities and Exchange Commission (the “SEC”) thereunder, based, in part, upon the representations, warranties and agreements of the Purchaser contained in this Subscription Agreement;

(b) Prior to the execution of this Subscription Agreement, the Purchaser and the Purchaser's attorney, accountant, purchaser representative and/or tax adviser, if any (collectively, the "Advisers"), have received the Memorandum and all other documents requested by the Purchaser, have carefully reviewed them and understand the information contained therein;

(c) Neither the SEC nor any state securities commission or other regulatory authority has approved the Units, the Common Stock, the Warrants or the Warrant Shares, or passed upon or endorsed the merits of the offering of Units or confirmed the accuracy or determined the adequacy of the Memorandum. The Memorandum has not been reviewed by any federal, state or other regulatory authority;

(d) All documents, records, and books pertaining to the investment in the Units (including, without limitation, the Memorandum) have been made available for inspection by such Purchaser and its Advisers, if any;

(e) The Purchaser and its Advisers, if any, have had a reasonable opportunity to ask questions of and receive answers from a person or persons acting on behalf of the Company concerning the offering of the Units and the business, financial condition and results of operations of the Company, and all such questions have been answered to the full satisfaction of the Purchaser and its Advisers, if any;

(f) In evaluating the suitability of an investment in the Company, the Purchaser has not relied upon any representation or information (oral or written) other than as stated in the Memorandum.

(g) The Purchaser is unaware of, is in no way relying on, and did not become aware of the Offering of the Units through or as a result of, any form of general solicitation or general advertising including, without limitation, any article, notice, advertisement or other communication published in any newspaper, magazine or similar media or broadcast over television, radio or the Internet (including, without limitation, internet "blogs," bulletin boards, discussion groups and social networking sites) in connection with the Offering and sale of the Units and is not subscribing for the Units and did not become aware of the Offering of the Units through or as a result of any seminar or meeting to which the Purchaser was invited by, or any solicitation of a subscription by, a person not previously known to the Purchaser in connection with investments in securities generally;

(h) The Purchaser has taken no action that would give rise to any claim by any person for brokerage commissions, finders' fees or the like relating to this Subscription Agreement or the transactions contemplated hereby (other than commissions to be paid by the Company to the Placement Agent or as otherwise described in the Memorandum);

(i) The Purchaser, together with its Advisers, if any, has such knowledge and experience in financial, tax, and business matters, and, in particular, investments in securities, so as to enable it to utilize the information made available to it in connection with the Offering to evaluate the merits and risks of an investment in the Units and the Company and to make an informed investment decision with respect thereto;

(j) The Purchaser is not relying on the Company, the Placement Agent or any of their respective employees or agents with respect to the legal, tax, economic and related considerations of an investment in the Units, and the Purchaser has relied on the advice of, or has consulted with, only its own Advisers;

(k) The Purchaser is acquiring the Units solely for such Purchaser's own account for investment purposes only and not with a view to or intent of resale or distribution thereof, in whole or in part. The Purchaser has no agreement or arrangement, formal or informal, with any person to sell or transfer all or any part of the Units, the shares of Common Stock, the Warrants or the Warrant Shares, and the Purchaser has no plans to enter into any such agreement or arrangement.

(l) The Purchaser must bear the substantial economic risks of the investment in the Units indefinitely because none of the securities included in the Units may be sold, hypothecated or otherwise disposed of unless subsequently registered under the Securities Act and applicable state securities laws or an exemption from such registration is available. Legends shall be placed on the securities included in the Units to the effect that they have not been registered under the Securities Act or applicable state securities laws and appropriate notations thereof will be made in the Company's stock books. Stop transfer instructions will be placed with the transfer agent of the Units. The Company has agreed that purchasers of the Units will have, with respect to the shares of Common Stock and the Warrant Shares, the registration rights described in the Registration Rights Agreement. Notwithstanding such registration rights, there can be no assurance that an effective registration statement will be available, or that there will be a market, for resale of the Units, the Common Stock, the Warrants or the Warrant Shares, nor can there be any assurance that such securities will be freely transferable at any time in the foreseeable future.

(m) The Purchaser has adequate means of providing for such Purchaser's current financial needs and foreseeable contingencies and has no need for liquidity from its investment in the Units for an indefinite period of time;

(n) The Purchaser is aware that an investment in the Units is high risk, involving a number of very significant risks and has carefully read and considered the matters set forth under the caption "Risk Factors" in the Memorandum (including the documents incorporated by reference therein), and, in particular, acknowledges that the Company has a limited operating history, significant operating losses since inception, limited revenues to date, limited assets and is engaged in a highly competitive business;

(o) The Purchaser meets the requirements of at least one of the suitability standards for an "accredited investor" as that term is defined in Regulation D and as set forth on the Accredited Investor Certification contained herein;

(p) The Purchaser (i) if a natural person, represents that the Purchaser has reached the age of 21 and has full power and authority to execute and deliver this Subscription Agreement and all other related agreements or certificates and to carry out the provisions hereof and thereof; (ii) if a corporation, partnership, or limited liability company or partnership, or association, joint stock company, trust, unincorporated organization or other entity, represents that such entity was not formed for the specific purpose of acquiring the Units, such entity is duly organized, validly existing and in good standing under the laws of the state of its organization, the consummation of the transactions contemplated hereby is authorized by, and will not result in a violation of state law or its charter or other organizational documents, such entity has full power and authority to execute and deliver this Subscription Agreement and all other related agreements or certificates and to carry out the provisions hereof and thereof and to purchase and hold the securities constituting the Units, the execution and delivery of this Subscription Agreement has been duly authorized by all necessary action, this Subscription Agreement has been duly executed and delivered on behalf of such entity and is a legal, valid and binding obligation of such entity; or (iii) if executing this Subscription Agreement in a representative or fiduciary capacity, represents that it has full power and authority to execute and deliver this Subscription Agreement in such capacity and on behalf of the subscribing individual, ward, partnership, trust, estate, corporation, or limited liability company or partnership, or other entity for whom the Purchaser is executing this Subscription Agreement, and such individual, partnership, ward, trust, estate, corporation, or limited liability company or partnership, or other entity has full right and power to perform pursuant to this Subscription Agreement and make an investment in the Company, and represents that this Subscription Agreement constitutes a legal, valid and binding obligation of such entity. The execution and delivery of this Subscription Agreement will not violate or be in conflict with any order, judgment, injunction, agreement or controlling document to which the Purchaser is a party or by which it is bound;

(q) The Purchaser and the Advisers, if any, have had the opportunity to obtain any additional information, to the extent the Company has such information in its possession or could acquire it without unreasonable effort or expense, necessary to verify the accuracy of the information contained in the Memorandum and all documents received or reviewed in connection with the purchase of the Units and have had the opportunity to have representatives of the Company provide them with such additional information regarding the terms and conditions of this particular investment and the financial condition, results of operations, business of the Company deemed relevant by the Purchaser or the Advisers, if any, and all such requested information, to the extent the Company had such information in its possession or could acquire it without unreasonable effort or expense, has been provided to the full satisfaction of the Purchaser and the Advisers, if any;

(r) Any information which the Purchaser has heretofore furnished or is furnishing herewith to the Company or the Placement Agent is complete and accurate and may be relied upon by the Company and the Placement Agent in determining the availability of an exemption from registration under federal and state securities laws in connection with the offering of securities as described in the Memorandum. The Purchaser further represents and warrants that it will notify and supply corrective information to the Company and the Placement Agent immediately upon the occurrence of any change therein occurring prior to the Company's issuance of the securities contained in the Units;

(s) The Purchaser has significant prior investment experience, including investment in non-listed and non-registered securities. The Purchaser is knowledgeable about investment considerations in development-stage companies with limited operating histories. The Purchaser has a sufficient net worth to sustain a loss of its entire investment in the Company in the event such a loss should occur. The Purchaser's overall commitment to investments which are not readily marketable is not excessive in view of the Purchaser's net worth and financial circumstances and the purchase of the Units will not cause such commitment to become excessive. The investment is a suitable one for the Purchaser;

(t) The Purchaser is satisfied that the Purchaser has received adequate information with respect to all matters which it or the Advisers, if any, consider material to its decision to make this investment;

(u) The Purchaser acknowledges that any estimates or forward-looking statements or projections included in the Memorandum (including the documents incorporated by reference therein) were prepared by the Company in good faith but that the attainment of any such projections, estimates or forward-looking statements cannot be guaranteed by the Company and should not be relied upon;

(v) No oral or written representations have been made, or oral or written information furnished, to the Purchaser or the Advisers, if any, in connection with the Offering which are in any way inconsistent with the information contained in the Memorandum;

(w) Within five (5) days after receipt of a request from the Company or the Placement Agent, the Purchaser will provide such information and deliver such documents as may reasonably be necessary to comply with any and all laws and ordinances to which the Company or the Placement Agent is subject;

(x) The Purchaser's substantive relationship with the Placement Agent or subagent through which the Purchaser is subscribing for Units predates the Placement Agent's or such subagent's contact with the Purchaser regarding an investment in the Units;

(y) THE SECURITIES OFFERED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR ANY STATE SECURITIES LAWS AND ARE BEING OFFERED AND SOLD IN RELIANCE ON EXEMPTIONS FROM THE REGISTRATION REQUIREMENTS OF SAID ACT AND SUCH LAWS. THE SECURITIES ARE SUBJECT TO RESTRICTIONS ON TRANSFERABILITY AND RESALE AND MAY NOT BE TRANSFERRED OR RESOLD EXCEPT AS PERMITTED UNDER SAID ACT AND SUCH LAWS PURSUANT TO REGISTRATION OR EXEMPTION THEREFROM. THE SECURITIES HAVE NOT BEEN RECOMMENDED, APPROVED OR DISAPPROVED BY THE SECURITIES AND EXCHANGE COMMISSION, ANY STATE SECURITIES COMMISSION OR ANY OTHER REGULATORY AUTHORITY, NOR HAVE ANY OF THE FOREGOING AUTHORITIES PASSED UPON OR ENDORSED THE MERITS OF THIS OFFERING OR THE ACCURACY OR ADEQUACY OF THE MEMORANDUM OR THIS SUBSCRIPTION AGREEMENT. ANY REPRESENTATION TO THE CONTRARY IS UNLAWFUL;

(z) In making an investment decision investors must rely on their own examination of the Company and the terms of the Offering, including the merits and risks involved. The Purchaser should be aware that it will be required to bear the financial risks of this investment for an indefinite period of time;

(aa) **(For ERISA plans only)** The fiduciary of the ERISA plan (the “Plan”) represents that such fiduciary has been informed of and understands the Company’s investment objectives, policies and strategies, and that the decision to invest “plan assets” (as such term is defined in ERISA) in the Company is consistent with the provisions of ERISA that require diversification of plan assets and impose other fiduciary responsibilities. The Purchaser fiduciary or Plan (a) is responsible for the decision to invest in the Company; (b) is independent of the Company or any of its affiliates; (c) is qualified to make such investment decision; and (d) in making such decision, the Purchaser fiduciary or Plan has not relied primarily on any advice or recommendation of the Company or any of its affiliates;

(b b) **The Purchaser should check the Office of Foreign Assets Control (“OFAC”) website at <<http://www.treas.gov/ofac>> before making the following representations.** The Purchaser represents that the amounts invested by it in the Company in the Offering were not and are not directly or indirectly derived from activities that contravene federal, state or international laws and regulations, including anti-money laundering laws and regulations. Federal regulations and Executive Orders administered by OFAC prohibit, among other things, the engagement in transactions with, and the provision of services to, certain foreign countries, territories, entities and individuals. The lists of OFAC prohibited countries, territories, persons and entities can be found on the OFAC website at <<http://www.treas.gov/ofac>>. In addition, the programs administered by OFAC (the “OFAC Programs”) prohibit dealing with individuals¹ or entities in certain countries regardless of whether such individuals or entities appear on the OFAC lists;

(cc) To the best of the Purchaser’s knowledge, none of: (1) the Purchaser; (2) any person controlling or controlled by the Purchaser; (3) if the Purchaser is a privately-held entity, any person having a beneficial interest in the Purchaser; or (4) any person for whom the Purchaser is acting as agent or nominee in connection with this investment is a country, territory, individual or entity named on an OFAC list, or a person or entity prohibited under the OFAC Programs. Please be advised that the Company may not accept any amounts from a prospective investor if such prospective investor cannot make the representation set forth in the preceding paragraph. The Purchaser agrees to promptly notify the Company and the Placement Agent should the Purchaser become aware of any change in the information set forth in these representations. The Purchaser understands and acknowledges that, by law, the Company may be obligated to “freeze the account” of the Purchaser, either by prohibiting additional subscriptions from the Purchaser, declining any redemption requests and/or segregating the assets in the account in compliance with governmental regulations, and the Placement Agent may also be required to report such action and to disclose the Purchaser’s identity to OFAC. The Purchaser further acknowledges that the Company may, by written notice to the Purchaser, suspend the redemption rights, if any, of the Purchaser if the Company reasonably deems it necessary to do so to comply with anti-money laundering regulations applicable to the Company and the Placement Agent or any of the Company’s other service providers. These individuals include specially designated nationals, specially designated narcotics traffickers and other parties subject to OFAC sanctions and embargo programs;

¹ These individuals include specially designated nationals, specially designated narcotics traffickers and other parties subject to OFAC sanctions and embargo programs.

(dd) To the best of the Purchaser's knowledge, none of: (1) the Purchaser; (2) any person controlling or controlled by the Purchaser; (3) if the Purchaser is a privately-held entity, any person having a beneficial interest in the Purchaser; or (4) any person for whom the Purchaser is acting as agent or nominee in connection with this investment is a senior foreign political figure,² or any immediate family³ member or close associate⁴ of a senior foreign political figure, as such terms are defined in the footnotes below; and

(ee) If the Purchaser is affiliated with a non-U.S. banking institution (a "Foreign Bank"), or if the Purchaser receives deposits from, makes payments on behalf of, or handles other financial transactions related to a Foreign Bank, the Purchaser represents and warrants to the Company that: (1) the Foreign Bank has a fixed address, other than solely an electronic address, in a country in which the Foreign Bank is authorized to conduct banking activities; (2) the Foreign Bank maintains operating records related to its banking activities; (3) the Foreign Bank is subject to inspection by the banking authority that licensed the Foreign Bank to conduct banking activities; and (4) the Foreign Bank does not provide banking services to any other Foreign Bank that does not have a physical presence in any country and that is not a regulated affiliate.

7. **Indemnification.** The Purchaser agrees to indemnify and hold harmless the Company the Placement Agent (including its selected dealers, if any), and their respective officers, directors, employees, agents, control persons and affiliates from and against all losses, liabilities, claims, damages, costs, fees and expenses whatsoever (including, but not limited to, any and all expenses incurred in investigating, preparing or defending against any litigation commenced or threatened) based upon or arising out of any actual or alleged false acknowledgment, representation or warranty, or misrepresentation or omission to state a material fact, or breach by the Purchaser of any covenant or agreement made by the Purchaser herein or in any other document delivered in connection with this Subscription Agreement.

8. **Irrevocability; Binding Effect.** The Purchaser hereby acknowledges and agrees that the subscription hereunder is irrevocable by the Purchaser, except as required by applicable law, and that this Subscription Agreement shall survive the death or disability of the Purchaser and shall be binding upon and inure to the benefit of the parties and their heirs, executors, administrators, successors, legal representatives, and permitted assigns. If the Purchaser is more than one person, the obligations of the Purchaser hereunder shall be joint and several and the agreements, representations, warranties, and acknowledgments herein shall be deemed to be made by and be binding upon each such person and such person's heirs, executors, administrators, successors, legal representatives, and permitted assigns.

² A "senior foreign political figure" is defined as a current or former senior official in the executive, legislative, administrative, military or judicial branches of a foreign government (whether elected or not), a senior official of a major foreign political party, or a senior executive of a foreign government-owned corporation. In addition, a "senior foreign political figure" includes any corporation, business or other entity that has been formed by, or for the benefit of, a senior foreign political figure.

³ "Immediate family" of a senior foreign political figure typically includes the figure's parents, siblings, spouse, children and in-laws.

⁴ A "close associate" of a senior foreign political figure is a person who is widely and publicly known to maintain an unusually close relationship with the senior foreign political figure, and includes a person who is in a position to conduct substantial domestic and international financial transactions on behalf of the senior foreign political figure.

9. **Modification.** This Subscription Agreement shall not be modified or waived except by an instrument in writing signed by the party against whom any such modification or waiver is sought.

10. **Immaterial Modifications to the Registration Rights Agreement.** The Company may, at any time prior to the First Closing, modify the Registration Rights Agreement if necessary to clarify any provision therein, without first providing notice or obtaining prior consent of the Subscriber, if, and only if, such modification is not material in any respect.

11. **Notices.** Any notice or other communication required or permitted to be given hereunder shall be in writing and shall be mailed by certified mail, return receipt requested, or delivered against receipt to the party to whom it is to be given (a) if to the Company, at the address set forth above, or (b) if to the Purchaser, at the address set forth on the signature page hereof (or, in either case, to such other address as the party shall have furnished in writing in accordance with the provisions of this Section 11). Any notice or other communication given by certified mail shall be deemed given at the time of certification thereof, except for a notice changing a party's address which shall be deemed given at the time of receipt thereof.

12. **Assignability.** This Subscription Agreement and the rights, interests and obligations hereunder are not transferable or assignable by the Purchaser and the transfer or assignment of the shares of Common Stock or the Warrants shall be made only in accordance with all applicable laws.

13. **Applicable Law.** This Subscription Agreement shall be governed by and construed in accordance with the laws of the State of New York applicable to contracts to be wholly-performed within said State.

14. **Arbitration.** The parties agree to submit all controversies to arbitration in accordance with the provisions set forth below and understand that:

- (a) Arbitration is final and binding on the parties.
- (b) The parties are waiving their right to seek remedies in court, including the right to a jury trial.
- (c) Pre-arbitration discovery is generally more limited and different from court proceedings.
- (d) The arbitrator's award is not required to include factual findings or legal reasoning and any party's right to appeal or to seek modification of rulings by arbitrators is strictly limited.
- (e) The panel of arbitrators will typically include a minority of arbitrators who were or are affiliated with the securities industry.

(f) All controversies which may arise between the parties concerning this Subscription Agreement shall be determined by arbitration pursuant to the rules then pertaining to the Financial Industry Regulatory Authority, Inc. ("FINRA") in New York City, New York. Judgment on any award of any such arbitration may be entered in the Supreme Court of the State of New York or in any other court having jurisdiction of the person or persons against whom such award is rendered. Any notice of such arbitration or for the confirmation of any award in any arbitration shall be sufficient if given in accordance with the provisions of this Agreement. The parties agree that the determination of the arbitrators shall be binding and conclusive upon them.

15. **Blue Sky Qualification.** The purchase of Units under this Subscription Agreement is expressly conditioned upon the exemption from qualification of the offer and sale of the Units from applicable federal and state securities laws. The Company shall not be required to qualify this transaction under the securities laws of any jurisdiction and, should qualification be necessary, the Company shall be released from any and all obligations to maintain its offer, and may rescind any sale contracted, in the jurisdiction.

16. **Use of Pronouns.** All pronouns and any variations thereof used herein shall be deemed to refer to the masculine, feminine, neuter, singular or plural as the identity of the person or persons referred to may require.

17. **Confidentiality.** The Purchaser acknowledges and agrees that any information or data the Purchaser has acquired from or about the Company, not otherwise properly in the public domain, was received in confidence. The Purchaser agrees not to divulge, communicate or disclose, except as may be required by law or for the performance of this Agreement, or use to the detriment of the Company or for the benefit of any other person or persons, or misuse in any way, any confidential information of the Company, including any scientific, technical, trade or business secrets of the Company and any scientific, technical, trade or business materials that are treated by the Company as confidential or proprietary, including, but not limited to, ideas, discoveries, inventions, developments and improvements belonging to the Company and confidential information obtained by or given to the Company about or belonging to third parties.

18. **Miscellaneous.**

(a) This Subscription Agreement, together with the Registration Rights Agreement, constitute the entire agreement between the Purchaser and the Company with respect to the subject matter hereof and supersede all prior oral or written agreements and understandings, if any, relating to the subject matter hereof. The terms and provisions of this Subscription Agreement may be waived, or consent for the departure therefrom granted, only by a written document executed by the party entitled to the benefits of such terms or provisions.

(b) The representations and warranties of the Company and the Purchaser made in this Subscription Agreement shall survive the execution and delivery hereof and delivery of the shares of Common Stock and Warrants contained in the Units.

(c) Each of the parties hereto shall pay its own fees and expenses (including the fees of any attorneys, accountants, appraisers or others engaged by such party) in connection with this Subscription Agreement and the transactions contemplated hereby whether or not the transactions contemplated hereby are consummated.

(d) This Subscription Agreement may be executed in one or more counterparts each of which shall be deemed an original, but all of which shall together constitute one and the same instrument.

(e) Each provision of this Subscription Agreement shall be considered separable and, if for any reason any provision or provisions hereof are determined to be invalid or contrary to applicable law, such invalidity or illegality shall not impair the operation of or affect the remaining portions of this Subscription Agreement.

(f) Paragraph titles are for descriptive purposes only and shall not control or alter the meaning of this Subscription Agreement as set forth in the text.

(g) The Purchaser understands and acknowledges that there may be multiple closings for this Offering.

19. **Omnibus Signature Page.** This Subscription Agreement is intended to be read and construed in conjunction with the Registration Rights Agreement pertaining to the issuance by the Company of the shares of Common Stock and Warrants to subscribers pursuant to the Memorandum. Accordingly, pursuant to the terms and conditions of this Subscription Agreement and such related agreements it is hereby agreed that the execution by the Purchaser of this Subscription Agreement, in the place set forth herein, shall constitute agreement to be bound by the terms and conditions hereof and the terms and conditions of the Registration Rights Agreement, with the same effect as if each of such separate but related agreement were separately signed.

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MATINAS BIOPHARMA HOLDINGS, INC.
OMNIBUS SIGNATURE PAGE TO THE
SUBSCRIPTION AGREEMENT
AND REGISTRATION RIGHTS AGREEMENT

Subscriber hereby elects to subscribe under the Subscription Agreement for a total of _____ Units at a price of \$0.50 per Unit (NOTE: to be completed by subscriber) and executes the Subscription Agreement and the Registration Rights Agreement.

Date (NOTE: To be completed by subscriber): _____

If the Purchaser is an INDIVIDUAL, and if purchased as JOINT TENANTS, as TENANTS IN COMMON, or as COMMUNITY PROPERTY:

Print Name(s)

Social Security Number(s)

Signature(s) of Subscriber(s)

Signature

Date

Address

If the Purchaser is a PARTNERSHIP, CORPORATION, LIMITED LIABILITY COMPANY or TRUST:

**Name of Partnership,
Corporation, Limited
Liability Company or Trust**

**Federal Taxpayer
Identification Number**

By: _____
Name:
Title:

State of Organization

Date

Address

**MATINAS BIOPHARMA HOLDINGS,
INC.**

AEGIS CAPITAL CORP..

By: _____
Authorized Officer

By: _____
Authorized Officer

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in this Registration Statement on Form S-1 of Matinas BioPharma Holdings, Inc. and subsidiary to be filed on or about April 16, 2015 of our report dated March 30, 2015, on our audits of the consolidated financial statements as of December 31, 2014 and 2013 and for each of the years in the two-year period ended December 31, 2014, which report was included in the Annual Report on Form 10-K filed on March 31, 2015. Our report includes an explanatory paragraph about the existence of substantial doubt concerning the Company's ability to continue as a going concern. We also consent to the reference to our firm under the caption "Experts" in the Registration Statement on Form S-1.

/s/ EISNERAMPER LLP
Iselin, New Jersey
April 16, 2015
