GENOCEA BIOSCIENCES, INC.
Form 424B5
January 16, 2018
Use these links to rapidly review the document

Filed Pursuant to Rule 424b(5)
Registration No. 333-203981

The information in this preliminary prospectus supplement and the accompanying prospectus is not complete and may be changed. A registration statement relating to the securities has become effective under the Securities Act of 1933, as amended. This preliminary prospectus supplement together with the accompanying prospectus is not an offer to sell the securities and it is not soliciting an offer to buy the securities in any jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED JANUARY 16, 2018

PRELIMINARY PROSPECTUS SUPPLEMENT

(To Prospectus dated May 14, 2015)

Shares of Common Stock

Class A Warrants to Purchase up to Shares of Common Stock

We are offering shares of our common stock and Class A warrants to purchase up to shares of our common stock. Each whole Class A warrant, or warrant, will entitle the holder thereof to purchase one share of our common stock at an exercise price of $ per share. Each warrant will be exercisable at any time on or after the date of issuance at the option of the holder and will expire five years from the date of issuance. Notwithstanding the foregoing, the holder will be prohibited from exercising each warrant into shares of our common stock if, as a result of such exercise, the holder, together with its affiliates, would own more than 9.99% of the total number of shares of our common stock then issued and outstanding, provided that this limitation on exercise shall not be applicable to any holder, together with its affiliates, who owns 10.0% or more of our common stock immediately prior to the exercise of each warrant (without giving effect to any shares of common stock underlying each warrant). The shares of common stock and warrants will be issued separately but can only be purchased together in this offering. We refer to the shares of common stock issued in this offering and the warrants to purchase common stock issued in this offering, collectively, as the securities. The shares of common stock issuable from time to time upon exercise of the warrants are also being offered pursuant to this prospectus supplement and the accompanying prospectus.

Our common stock is listed on The NASDAQ Global Market under the symbol “GNCA.” On January 12, 2018, the last reported sale price of our common stock on The NASDAQ Global Market was $1.13 per share. There is no established trading market for the warrants and we do not expect a market to develop. In addition, we do not intend to list the warrants on The NASDAQ Global Market, any other national securities exchange or any other nationally recognized trading system.

Concurrently with this offering of common stock and Class A warrants and pursuant to a separate prospectus supplement, we are offering shares of our Series A convertible preferred stock and Class A warrants to purchase up to shares of our common stock (and the common stock issuable from time to time upon exercise of each of the Class A warrants).

We are an “emerging growth company” as defined under the federal securities laws and, as such, we may elect to comply with certain reduced public company reporting requirements.

Investing in our securities involves a high degree of risk. Please read “Risk Factors” beginning on page S-8 of this prospectus supplement and in the documents incorporated by reference into this prospectus supplement.

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

	PER SHARE AND ACCOMPANYING WARRANT	TOTAL
Public offering price	$	$
Underwriting discounts and commissions[(1)]	$	$
Proceeds to us (before expenses)	$	$

(1) See "Underwriting" beginning on page S-20 for a description of the compensation payable to the underwriters. The above summary of offering proceeds to Genocea Biosciences, Inc. (before expenses) does not give effect to any exercise of the warrants being issued in this offering. We have also granted the underwriters an option for a period of 30 days to purchase up to additional shares of our common stock and/or warrants to purchase up to additional shares of common stock. If the underwriters exercise the option in full, the total underwriting discounts and commissions payable by us will be $, and the total proceeds to us, before expenses, will be $. The underwriter expects to deliver the shares of common stock and accompanying warrants against payment on or about January , 2018.

Sole Book-Running Manager
Cantor

The date of this prospectus supplement is January , 2018

Table of Contents

TABLE OF CONTENTS

Prospectus Supplement

Prospectus

Table of Contents

ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus relate to part of a registration statement that we filed with the Securities and Exchange Commission, or SEC, using a shelf registration process. Both this prospectus supplement and the accompanying prospectus include or incorporate by reference important information about us, our securities and other information you should know before investing. You should read this prospectus supplement, the accompanying prospectus, the additional information described under "Where You Can Find More Information" in the accompanying prospectus and any free writing prospectus that we have authorized for use in connection with this offering before making an investment decision.

We have not authorized any dealer, agent or other person to give any information or to make any representation other than those contained or incorporated by reference in this prospectus supplement, the accompanying prospectus and any free writing prospectus that we have authorized for use in connection with this offering. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus supplement or the accompanying prospectus or any free writing prospectus that we have authorized for use in connection with this offering. This prospectus supplement and the accompanying prospectus do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the registered securities to which they relate, nor do this prospectus supplement and the accompanying prospectus constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. You should not assume that the information contained in this prospectus supplement, the accompanying prospectus or any free writing prospectus that we have authorized for use in connection with this offering is accurate on any date subsequent to the date set forth on the front of the document or that any information we have incorporated by reference into this prospectus supplement or the accompanying prospectus is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus supplement and any accompanying prospectus is delivered or securities are sold on a later date.

This prospectus supplement may add to, update or change the information in the accompanying prospectus. If information in this prospectus supplement is inconsistent with information in the accompanying prospectus, this prospectus supplement will apply and will supersede that information in the accompanying prospectus.

Unless otherwise indicated or unless the context requires otherwise, all references in this prospectus supplement to "Genocea," "we," "us" and "our" refer to Genocea Biosciences, Inc. and, where applicable, its consolidated subsidiaries.

Table of Contents

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights selected information included or incorporated by reference in this prospectus supplement and the accompanying prospectus and does not contain all of the information that may be important to you. You should carefully review this entire prospectus supplement and the accompanying prospectus, including the risk factors and financial statements included and incorporated by reference in this prospectus supplement and the accompanying prospectus.

Overview

We are a biopharmaceutical company that discovers and develops novel cancer vaccines. We use our proprietary discovery platform, ATLAS, to recall a patient's pre-existing CD4+ and CD8+ T cell immune responses to their tumor to identify antigens for inclusion in vaccines that are designed to act through T cell (or cellular) immune responses. We believe that using ATLAS to identify antigens for inclusion in cancer vaccines could lead to more immunogenic and efficacious cancer vaccines.

In September 2017, we announced a strategic shift to immuno-oncology and a focus on the development of neoantigen cancer vaccines. Currently, all of our research programs and product candidates in active development are at the preclinical stage. Our most advanced program is our preclinical immuno-oncology program, GEN-009, a neoantigen cancer vaccine. The GEN-009 program uses ATLAS to identify patient neoantigens, or newly formed antigens unique to each patient, that are associated with that individual's tumor. We are also exploring partnering opportunities in the development of cancer vaccines targeting tumor-associated antigens and a vaccine targeting cancers caused by Epstein-Barr Virus ("EBV").

We have one Phase 3-ready product candidate, GEN-003, an investigational immunotherapy for the treatment of genital herpes. In September 2017, we announced that we are exploring strategic alternatives to maximize value for GEN-003 through sale, partnership or other means. Consequently, substantially all GEN-003 spending and activities were ceased and we reduced our workforce by approximately 40 percent. We continue to believe that GEN-003 could address unmet medical needs of genital herpes patients.

Our Immuno-Oncology Program

We are focused on combining our antigen selection and vaccine development expertise to create new immuno-oncology treatments. Our potential cancer vaccines will be designed to educate T cells to recognize and attack specific targets and thereby kill cancer cells. We are working to develop personalized cancer vaccines by applying ATLAS to identify patient neoantigens that are associated with that individual's pre-existing immune responses to a tumor.

Neoantigens are personalized tumor mutations that are seen as "foreign" by an individual's immune system. Data published in recent years have indicated that an individual's response to neoantigens drives checkpoint inhibitor efficacy and that it is possible to vaccinate an individual against their own neoantigens. If approved, neoantigen vaccines could be used in combination with existing treatment approaches for cancer, including immune checkpoint inhibitors, to potentially direct and enhance an individual's T cell response to the individual's cancer, thereby potentially affording better clinical outcomes.

Our lead immuno-oncology program, GEN-009, is an adjuvanted neoantigen peptide vaccine candidate designed to direct a patient's immune system to attack their tumor. GEN-009's neoantigens are identified by our proprietary ATLAS platform, which recalls a patient's pre-existing CD4+ and CD8+ cell immune responses to their tumor. Following ATLAS neoantigen identification, we will manufacture a personal vaccine for each patient.

We anticipate filing a personalized cancer vaccine investigational new drug ("IND") application with the FDA in early 2018 for GEN-009. We plan to initiate a Phase 1/2a clinical trial for GEN-009 in a range of tumor types in subjects with no evidence of disease but a high risk of relapse in the first half of 2018. We expect to report initial immunogenicity data from this trial in the first half of 2019.

We are also using ATLAS to develop cancer vaccines targeting tumor-associated, or shared, antigens and vaccines against cancers of viral origin. Our strategy in immuno-oncology combines our own internal neoantigen vaccine development programs with a focus on partnering ATLAS for these other immuno-oncology applications.

Table of Contents

In November 2015, we commenced a program focused on EBV. EBV infection has been linked to cancers with high unmet needs such as non-Hodgkin's lymphoma, nasopharyngeal carcinoma and gastric carcinoma. We believe that ATLAS is highly suited to the creation of a new immunotherapy for EBV, given that T cell responses are understood to be crucial for protection against EBV. Furthermore, EBV is part of the herpes virus family, in which we have deep experience through our development of GEN-003. We are currently seeking a partner to advance the development of this vaccine.

ATLAS Platform

The importance of the T cell arm of the immune system is increasingly understood to be critical in the treatment of certain cancers. However, the discovery of effective T cell targets has been particularly challenging for two reasons. First, the diversity of human T cell responses means that an effective T cell target for one person may be different from an effective T cell target for another person. Second, the number of candidate targets for T cell responses can be very large with up to thousands of candidate antigens per patient in some cancers. These complexities represent fundamental barriers that traditional cancer vaccine target discovery tools, which rely largely on computer modeling - so-called predictive algorithms - have, as yet, only poorly addressed.

We have designed the ATLAS platform to overcome these T cell target discovery challenges by identifying true neoantigens in an individual rather than using traditional predictive methods. We believe ATLAS represents the most comprehensive and accurate high throughput system for T cell vaccine and immunotherapy discovery in the biopharmaceutical industry. ATLAS is designed to mimic the T cell arm of the human immune system in a laboratory setting. Using ATLAS, we are able to measure T cell responses to the entire set of potential T cell targets for an individual's cancer, allowing us to identify vaccine and immunotherapy targets associated with T cell responses which may kill an individual's cancer.

We believe we are a leader in the field of T cell vaccine and immunotherapy discovery and development. Our management and scientific teams possess considerable experience in vaccine, immunotherapy and anti-infective research, manufacturing, clinical development and regulatory matters.

Our Product Candidate Pipeline

The following table describes our current development programs:

Vaccine Candidate	Program	Stage of Development	Next Milestone	Anticipated Timeline
GEN-009	Neoantigen cancer vaccine	Pre-clinical	File IND; commence Phase 1/2a clinical proof of concept trial	Early 2018; first half 2018
GEN-010	Second generation neoantigen cancer vaccine	Pre-clinical	Select delivery technology platform	Ongoing
GEN-007	Epstein-Barr Virus	Research	Select antigen candidates	Ongoing, exploring partnering opportunities
GEN-006	Immuno-oncology -Tumor associated antigen vaccine	Research	Select antigen candidates	Ongoing, exploring partnering opportunities

Our Team

Our management and scientific teams possess considerable experience in vaccine and anti-infective research, manufacturing, clinical development and regulatory matters. We have also assembled a team of leading advisors, led by George Siber, M.D., to guide the further development of our programs. Previously, Dr. Siber was the Chief Scientific Officer of Wyeth Vaccines, where he led the development of several first-in-class vaccines including Prevnar. He is also an inventor of Respigam and Cytogam, antibodies to treat and protect against respiratory syncytial virus and cytomegalovirus, respectively. Dr. Siber is one of our directors and chairs our Scientific Advisory Board.

Table of Contents

Our Strategy

Our objective is to be the leading T cell vaccine and immunotherapy company. Key components of our strategy are:

- Continue to advance our lead immuno-oncology program, GEN-009. GEN-009 is a neoantigen cancer vaccine that leverages our ATLAS platform to identify patient neoantigens that are associated with that individual's tumor and direct a patient's immune system to attack their tumor. We anticipate filing an IND application with the FDA in early 2018 for GEN-009. We plan to initiate a Phase 1/2a clinical proof of concept trial for GEN-009 in a range of tumor types in the first half of 2018 and expect to report initial immunogenicity data in the first half of 2019.
- Utilize ATLAS to develop cancer vaccines. Guided by our initial research on GEN-009, our clinical results on GEN-003 and our belief in the ATLAS platform, we are focused on combining our antigen selection and vaccine development expertise with that of leading cancer innovators to unlock new targets in immuno-oncology. In addition to GEN-009, our other potential cancer vaccines will be designed to educate T cells to recognize and attack specific targets and thereby kill cancers. We are pursuing business development partnerships in support of this aspect of our strategy.

Recent Developments

We are currently finalizing our financial results for the fiscal year ended December 31, 2017. While complete financial information and operating data are not available, based on information currently available, we estimate that as of December 31, 2017, we had approximately $12.3 million of cash and cash equivalents. These preliminary estimates have been prepared by, and are the responsibility of, our management. Our independent registered public accounting firm, Ernst & Young LLP, has not audited or reviewed, and does not express an opinion with respect to these estimates. Our actual cash and cash equivalents as of December 31, 2017 may differ from these estimates due to the completion of our closing procedures with respect to the fiscal year ended December 31, 2017, final adjustments and other developments that may arise between now and the time the financial results for the fiscal year are finalized. We expect to complete our closing procedures with respect to the fiscal year ended December 31, 2017 after this offering is consummated. Accordingly, our financial statements as of and for the fiscal year ended December 31, 2017 will not be available until after this offering is completed.

Corporate Information

We were incorporated in the state of Delaware in August 2006 as Genocea, Inc., and we subsequently changed our name to Genocea Biosciences, Inc. Our principal executive offices are located at Cambridge Discovery Park, 100 Acorn Park Drive, 5th Floor, Cambridge, Massachusetts 02140, and our telephone number is (617) 876-8191. Our Internet website is www.genocea.com. We make available free of charge through our website our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. We have included our website address in this prospectus supplement solely as an inactive textual reference. The information on, or that can be accessed through, our website is not part of this prospectus supplement, and you should not rely on any such information in making the decision whether to purchase our securities.

Genocea® and the Genocea logo are our registered trademarks. The other trademarks, trade names and service marks appearing in this prospectus are the property of their respective owners. We do not intend our use or display of other companies' trade names, trademarks, or service marks to imply a relationship with, or endorsement or sponsorship of us by, these other companies.

Concurrent Offering of Series A Convertible Preferred Stock and Class A Warrants to Purchase Common Stock

Concurrently with this offering of common stock and Class A warrants, we are offering shares of our Series A convertible preferred stock and Class A warrants to purchase up to shares of our common stock (and the common stock issuable from time to time upon exercise of the warrants), which we refer to as the Concurrent Offering. The Class A warrants sold in the Concurrent Offering will have the same terms as the Class A warrants sold in this offering. The

Table of Contents

Concurrent Offering is being conducted as a separate public offering by means of a separate prospectus supplement. This offering is not contingent upon the completion of the Concurrent Offering and the Concurrent Offering is not contingent upon the completion of this offering. We cannot assure you that either or both of the offerings will be completed.

Table of Contents

THE OFFERING

Common stock offered by us	shares
Warrants offered by us	We are offering warrants to purchase shares of our common stock. Each whole warrant will entitle the holder thereof to purchase one share of our common stock at an exercise price of $ per share. Each warrant will be exercisable at any time on or after the date of issuance at the option of the holder and will expire five years from the date of issuance. Notwithstanding the foregoing, the holder will be prohibited from exercising each warrant into shares of our common stock if, as a result of such exercise, the holder, together with its affiliates, would own more than 9.99% of the total number of shares of our common stock then issued and outstanding, provided that this limitation on exercise shall not be applicable to any holder, together with its affiliates, who owns 10.0% or more of our common stock immediately prior to the exercise of each warrant (without giving effect to any shares of common stock underlying each warrant). This prospectus supplement also relates to the offering of the shares of common stock issuable upon exercise of the warrants. There is currently no market for the warrants and none is expected to develop after this offering. We do not intend to list the warrants on any national securities exchange or other trading market. See "Description of Securities" for additional information.
Underwriters' option	The underwriters have an option for a period of 30 days to purchase additional shares of our common stock and/or warrants to purchase additional shares of our common stock.
Common stock to be outstanding after this offering	shares (assuming none of the warrants issued in this offering are exercised and shares if the warrants are exercised in full). If the underwriters' option to purchase additional shares and warrants is exercised in full, the total number of shares of common stock outstanding immediately after this offering would be shares (assuming none of the warrants are exercised and shares if the warrants are exercised in full).
Use of Proceeds	We intend to use the net proceeds from this offering and the Concurrent Offering primarily to: (1) support the ongoing development of our GEN-009 program, including filing an IND with the FDA and commencing a Phase 1/2a clinical proof of concept trial and (2) the balance for working capital and other general corporate purposes.
Risk Factors	See "Risk Factors" beginning on page S-8 and other information included or incorporated by reference in this prospectus supplement and the accompanying prospectus for a discussion of factors you should carefully consider before deciding to invest in our securities.
NASDAQ Global Market symbol	GNCA
Board Representation	In connection with the offering, we intend to elect one representative from an investor, New Enterprise Associates ("NEA"), to serve as a member of our board of

directors. We will not be undertaking any ongoing obligation to continue to nominate NEA's representative on our board of directors.

Table of Contents

Concurrent Offering	Concurrently with this offering, we are offering shares of our Series A convertible preferred stock and Class A warrants to purchase up to shares of our common stock (and the common stock issuable from time to time upon exercise of the warrants). The Class A warrants sold in the Concurrent Offering will have the same terms as the Class A warrants sold in this offering. The Concurrent Offering is being conducted as a separate public offering by means of a separate prospectus supplement. This offering is not contingent upon the completion of the Concurrent Offering and the Concurrent Offering is not contingent upon the completion of this offering.

The number of shares of our common stock to be outstanding after this offering as reflected above is based on 28,704,164 actual shares of our common stock outstanding as of September 30, 2017.

The number of shares of our common stock to be outstanding after this offering as reflected above excludes:

- shares of common stock issuable upon the exercise of the warrants offered hereby;
- 4,399,940 shares of common stock issuable upon exercise of stock options outstanding at September 30, 2017 at a weighted-average exercise price of $5.68 per share;
- 77,603 shares of common stock issuable upon the exercise of warrants outstanding at September 30, 2017 at a weighted-average exercise price of $8.21 per share;
- 843,305 shares of common stock reserved for future issuance under our 2014 Equity Incentive Plan;
- 30,741 shares of common stock reserved for future issuance under our 2014 Employee Stock Purchase Plan;
- shares of our Series A convertible preferred stock being offering by us in connection with the Concurrent Offering; and
- shares of our common stock reserved for issuance upon exercise of the Class A warrants being offering by us in connection with the Concurrent Offering.

Except as otherwise indicated herein, all information in this prospectus supplement, including the number of shares of common stock that will be outstanding after this offering, does not assume or give effect to the exercise of options or warrants outstanding as of September 30, 2017, does not include 30,734 shares issued since September 30, 2017, and does not assume or give effect to the exercise of the underwriters' option to purchase additional shares of common stock and warrants in this offering.

Table of Contents

RISK FACTORS

An investment in our securities involves significant risks. For a discussion of the factors that you should carefully consider before deciding to purchase any of our securities, please review the risk factors below and those included in the documents incorporated by reference in this prospectus supplement, including Item 1A. Risk Factors included in our Quarterly Report on Form 10-Q for the quarter ended September 30, 2017. In addition, please read "Forward-Looking Statements" in this prospectus supplement, where we describe additional uncertainties associated with our business and the forward-looking statements included or incorporated by reference in this prospectus supplement and the accompanying prospectus. Please note that additional risks not currently known to us or that we currently deem immaterial may also impair our business and operations.

Additional Risks Related to This Offering

We may allocate the net proceeds from this offering and the Concurrent Offering in ways that you and other stockholders may not approve.

We currently intend to use the net proceeds of this offering and the Concurrent Offering to support the ongoing development of our GEN-009 program, including filing an IND with the FDA and commencing a Phase 1/2a clinical proof of concept trial, advance business development partnering opportunities to develop cancer vaccines, and the balance for working capital and other general corporate purposes. This expected use of the net proceeds from this offering and the Concurrent Offering represents our intentions based upon our current plans and business conditions. The amounts and timing of our actual expenditures may vary significantly depending on numerous factors, including the progress of our development efforts, the status of and results from clinical trials, as well as any collaborations that we may enter into with third parties for our product candidates, and any unforeseen cash needs. Because of the number and variability of factors that will determine our use of the proceeds from this offering, their ultimate use may vary substantially from their currently intended use. As a result, our management will retain broad discretion over the allocation of the net proceeds from this offering and the Concurrent Offering and could spend the proceeds in ways that do not necessarily improve our operating results or enhance the value of our common stock. See "Use of Proceeds."

If you purchase securities in this offering, you will incur immediate and substantial dilution in your investment.

Since the price per share of our common stock being offered in this offering may be higher than the net tangible book value per share of our common stock, you will experience dilution to the extent of the difference between the offering price per share of common stock you purchase in this offering and the net tangible book value per share of our common stock after this offering. After giving effect to the sale of shares of common stock in this offering at a public offering price of $ per share and attributing no value to the accompanying warrants, less the estimated underwriting discounts and commissions and estimated offering expenses payable by us, and based on a net tangible book value per share of our common stock of $0.12 as of September 30, 2017, if you purchase securities in this offering, you will suffer immediate and substantial dilution of $ per share of common stock in the net tangible book value of common stock purchased. In the event warrants are exercised by holders, you will experience additional dilution to the extent that the exercise price of those warrants is higher than the book value per share of our common stock. To the extent that the underwriters exercise their option to purchase additional shares of common stock and warrants in this offering, shares of our common stock are issued upon the conversion of Series A convertible preferred stock or upon the exercise of Class A warrants to purchase common stock to be sold pursuant to the Concurrent Offering, shares of our common stock are issued under outstanding options, restricted stock units or the warrants issued to Hercules Technology Growth Capital, Inc., or future sales are made pursuant to our equity sales agreement with Cowen and Company, LLC, you will incur further dilution. See "Dilution" for a more detailed description of the dilution to new investors in the offering.

Investors in this offering may experience future dilution.

In order to raise additional capital, we may in the future offer additional shares of our common stock or other securities convertible into, or exchangeable for, our common stock at prices that may not be the same as the price per share of common stock in this offering, including pursuant to the Concurrent Offering. If the price per share at which we sell additional shares of our common stock or related securities in future transactions, including the Concurrent Offering, is less than the price per

Table of Contents

share of common stock in this offering, investors who purchase our common stock in this offering will suffer a dilution in their investment.

The warrants contain provisions that may lead to adjustments of the exercise price with respect to future issuances by the Company of securities, including its common stock or convertible securities. Any adjustments could further impact the dilution from future offerings of securities.

The warrants may never have any value.

The warrants in this offering have an exercise price of $ per share of common stock and will expire five years from the date of issuance. In the event our price per share of common stock in this offering does not exceed the per share exercise price of the warrants during the period when the warrants are exercisable, the warrants will not have any value. Additionally, a holder of warrants will be prohibited from exercising warrants into shares of our common stock if, as a result of such exercise, the holder, together with its affiliates, would own more than 9.9% of the total number of shares of our common stock then issued and outstanding, provided that this limitation on exercise shall not be applicable to any holder, together with its affiliates, who owns 10.0% or more of our common stock immediately following the issuance of each warrant (without giving effect to any shares of common stock underlying each warrant).

There is no public market for the warrants being offered in this offering.

There is no established public trading market for the warrants being offered in this offering, and we do not expect a market to develop. In addition, we do not intend to apply for listing of the warrants on any national securities exchange or other trading market. Without an active market, the liquidity of the warrants will be limited.

Holders of our warrants will have no rights as a common stockholder until such holders exercise their warrants and acquire our common stock.

Until you acquire shares of our common stock upon exercise of your warrants, you will have no rights with respect to the shares of our common stock underlying such warrants. Upon exercise of your warrants, you will be entitled to exercise the rights of a common stockholder only as to matters for which the record date occurs after the exercise date.

A significant portion of our total outstanding shares of common stock may be sold into the market at any time, which could cause the market price of our common stock to drop significantly, even if our business is doing well.

Sales of a substantial number of shares of our common stock in the public market could occur at any time. These sales, or the perception in the market that the holders of a large number of shares of common stock intend to sell shares of common stock, could reduce the market price of our common stock.

Upon the completion of this offering, approximately 2,168,900 shares of our common stock beneficially owned by our officers and directors will be subject to lock-up agreements with the underwriters that prohibit, subject to certain exceptions, the disposal or pledge of, or the hedging against, any of their common stock or securities convertible into or exchangeable for shares of common stock for a period of 90 days after the date of this prospectus supplement. However, all of the shares sold in this offering and the remaining shares of our common stock outstanding prior to this offering will not be subject to lock-up agreements with the underwriters and, except to the extent such shares of common stock are held by our affiliates, will be freely tradable. The market price of our common stock could decline as a result of sales by our stockholders in the market following completion of this offering or the perception that these sales could occur. These factors could also make it difficult for us to raise additional capital by selling stock.

We do not expect to pay any cash dividends in the foreseeable future.

We do not anticipate declaring or paying in the foreseeable future any dividends on our common stock. We intend to retain all available funds and any future earnings to support our operations and to finance the growth and development of our business, including through our clinical development programs. As a result, capital appreciation, if any, of our common stock will be stockholders' sole source of gain, if any, for the foreseeable future.

Table of Contents

The recently passed comprehensive tax reform bill could adversely affect our business and financial condition. On December 22, 2017, President Trump signed into law new legislation that significantly revises the Internal Revenue Code of 1986, as amended. The newly enacted federal income tax law, among other things, contains significant changes to corporate taxation, including reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%, limitation of the tax deduction for interest expense to 30% of adjusted earnings (except for certain small businesses), limitation of the deduction for net operating losses to 80% of current year taxable income in respect of net operating losses generated during or after 2018 and elimination of net operating loss carrybacks, one time taxation of offshore earnings at reduced rates regardless of whether they are repatriated, elimination of U.S. tax on foreign earnings (subject to certain important exceptions), immediate deductions for certain new investments instead of deductions for depreciation expense over time, and modifying or repealing many business deductions and credits. Notwithstanding the reduction in the corporate income tax rate, the overall impact of the new federal tax law is uncertain and our business and financial condition could be adversely affected. In addition, it is uncertain if and to what extent various states will conform to the newly enacted federal tax law. The impact of this tax reform on holders of our common stock is also uncertain and could be adverse. We urge you to consult with your legal and tax advisors with respect to this legislation and the potential tax consequences of investing in or holding our common stock.