

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

SCHEDULE 14A

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

Filed by the Registrant

Filed by a Party other than the Registrant

Check the appropriate box:

- Preliminary Proxy Statement
- Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))**
- Definitive Proxy Statement
- Definitive Additional Materials
- Soliciting Material under §240.14a-12

Genocea Biosciences, Inc.

(Name of Registrant as Specified In Its Charter)

(Name of Person(s) Filing Proxy Statement, if other than the Registrant)

Payment of Filing Fee (Check the appropriate box):

- No fee required.
- Fee computed on table below per Exchange Act Rules 14a-6(i)(1) and 0-11.
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 - (3) Filing Party:
 - (4) Date Filed:

Genocea Biosciences, Inc.
100 Acorn Park Drive,
Cambridge, MA 02140

NOTICE OF ANNUAL MEETING OF STOCKHOLDERS

The 2019 Annual Meeting of Stockholders of Genocea Biosciences, Inc. (the "Company" or "Genocea") will be held on May 15, 2019, at 9:00 a.m. local time, at Ropes & Gray LLP, Prudential Tower, 800 Boylston Street, Boston, MA 02199 (the "Annual Meeting") for the following purposes:

1. To elect Ms. Katrine Bosley and Mr. Michael Higgins as Class II directors, each for a three-year term;
2. To approve an amendment to the Company's restated certificate of incorporation to effect a reverse stock split (the "Reverse Stock Split Proposal");
3. In the event the shareholders approve the Reverse Stock Split Proposal, to approve an amendment to the Company's restated certificate of incorporation to decrease the total number of shares of common stock that the Company is authorized to issue from 250,000,000 shares to 85,000,000 shares;
4. To ratify the appointment of Ernst & Young LLP as the independent registered public accounting firm for the Company for the fiscal year ending December 31, 2019; and
5. To consider and act upon any other matters that properly come before the Annual Meeting or any adjournment or postponement thereof.

Each outstanding share of the Company's common stock (Nasdaq: GNCA) entitles the holder of record at the close of business on March 19, 2019, to receive notice of and to vote at the Annual Meeting or any adjournment or postponement of the Annual Meeting.

WHETHER OR NOT YOU EXPECT TO ATTEND THE ANNUAL MEETING, WE URGE YOU TO VOTE YOUR SHARES BY FOLLOWING THE INSTRUCTIONS TO THE IMPORTANT NOTICE REGARDING THE AVAILABILITY OF PROXY MATERIALS THAT YOU PREVIOUSLY RECEIVED AND SUBMIT YOUR PROXY BY INTERNET, TELEPHONE, OR BY SIGNING, DATING AND RETURNING THE PROXY CARD INCLUDED IN THESE MATERIALS. IF YOU CHOOSE TO ATTEND THE ANNUAL MEETING, YOU MAY STILL VOTE YOUR SHARES IN PERSON, EVEN THOUGH YOU HAVE PREVIOUSLY VOTED OR RETURNED YOUR PROXY BY ANY OF THE METHODS DESCRIBED IN OUR PROXY STATEMENT. IF YOUR SHARES ARE HELD IN A BANK OR BROKERAGE ACCOUNT, PLEASE REFER TO THE MATERIALS PROVIDED BY YOUR BANK OR BROKER FOR VOTING INSTRUCTIONS.

ALL STOCKHOLDERS ARE EXTENDED AN INVITATION TO ATTEND THE ANNUAL MEETING.

By Order of the Board of Directors



William Clark
President and Chief Executive Officer
March 29, 2019

**Genocea Biosciences, Inc.
100 Acorn Park Drive,
Cambridge, MA 02140**

**PROXY STATEMENT FOR ANNUAL MEETING OF STOCKHOLDERS
To Be Held On May 15, 2019 at 9:00 am EDT**

This proxy statement (the "Proxy Statement"), along with the accompanying Notice of 2019 Annual Meeting of Stockholders, contains information about the Annual Meeting, including any adjournments or postponements of the Annual Meeting. We are holding the Annual Meeting at 9:00 a.m. local time, at Ropes & Gray LLP, Prudential Tower, 800 Boylston Street, Boston, MA 02199.

On or about March 29, 2019, we made available this Proxy Statement and the attached Notice of 2019 Annual Meeting of Stockholders to all stockholders entitled to vote at the Annual Meeting, and we began sending the proxy card and the Important Notice Regarding the Availability of Proxy Materials to all stockholders entitled to vote at the Annual Meeting. Although not part of this Proxy Statement, we have also made available with this Proxy Statement our Annual Report on Form 10-K for the fiscal year ended December 31, 2018 (the "Annual Report"), which includes our financial statements for the fiscal year ended December 31, 2018.

**IMPORTANT NOTICE REGARDING THE AVAILABILITY OF PROXY MATERIALS FOR THE STOCKHOLDER MEETING TO BE HELD ON
May 15, 2019**

This Proxy Statement and our Annual Report are available for viewing, printing and downloading at www.proxyvote.com. To view these materials, please have your 16-digit control number(s) available that appears on your proxy card.

Additionally, you can find a copy of our Annual Report on the website of the Securities and Exchange Commission ("SEC") at www.sec.gov, or in the "Financial Filings - Annual Reports and Proxies" tab of the "Investors & Media" section of our website at www.genocea.com. You may also obtain a printed copy of our Annual Report, free of charge, by sending a written request to: Genocea Biosciences, Inc., 100 Acorn Park Drive, Cambridge, Massachusetts 02140, Attention: Secretary. Exhibits, if any, will be provided upon written request and payment of an appropriate processing fee.

GENERAL INFORMATION

When are this Proxy Statement and the accompanying material scheduled to be sent to stockholders?

On or about March 29, 2019, we began sending the Important Notice Regarding the Availability of Proxy Materials to all stockholders entitled to vote at the Annual Meeting.

Who is soliciting my vote?

The Board of Directors of the Company is soliciting your vote for the 2019 Annual Meeting of Stockholders.

When is the record date for the Annual Meeting?

The Company's Board of Directors has fixed the record date for the Annual Meeting as of the close of business on March 19, 2019.

How many votes can be cast by all stockholders?

A total of 112,393,445 shares of common stock of the Company were outstanding on March 19, 2019 and are entitled to be voted at the Annual Meeting. Each share of common stock is entitled to one vote on each matter.

How do I vote?

If you are a stockholder of record and your shares are registered directly in your name, you may vote:

- **By Internet.** Access the website at www.proxyvote.com and follow the instructions provided on the Important Notice Regarding Availability of Proxy Materials on the proxy card. Your shares will be voted in accordance with your instructions. You must specify how you want your shares voted, or your Internet vote cannot be completed and you will receive an error message.
- **By Telephone.** Call 1-800-690-6903 toll-free and follow the instructions on the enclosed proxy card. Your shares will be voted in accordance with your instructions. You must specify how you want your shares voted, or your telephone vote cannot be completed.
- **By Mail.** Complete and mail the enclosed proxy card to Vote Processing, c/o Broadridge, 51 Mercedes Way, Edgewood, NY, 11717 in the enclosed postage prepaid envelope. Your proxy will be voted in accordance with your instructions. If you sign and return the enclosed proxy but do not specify how you want your shares voted, they will be voted (i) **FOR** the election as directors of the nominees named herein to the Company's Board of Directors, (ii) **FOR** the approval of the Reverse Stock Split Proposal; (iii) if the shareholders approve the Reverse Stock Split Proposal, **FOR** the approval of the amendment to the Company's restated certificate of incorporation to decrease the total number of shares of common stock that the Company is authorized to issue from 250,000,000 shares to 85,000,000 shares; (iv) **FOR** the ratification of Ernst & Young LLP as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2019, and (v) will be voted according to the discretion of the proxy holder named in the proxy card upon any other business that may properly be brought before the Annual Meeting and at all adjournments and postponements thereof.
- **In Person at the Annual Meeting.** If you attend the Annual Meeting, be sure to bring a form of personal picture identification with you, and you may deliver your completed proxy card in person, or you may vote by completing a ballot, which will be available at the Annual Meeting.

If your shares of common stock are held in street name (held for your account by a broker or other nominee):

- **By Internet or By Telephone.** You will receive instructions from your broker or other nominee if you are permitted to vote by Internet or telephone.
- **By Mail.** You will receive instructions from your broker or other nominee explaining how to vote your shares.
- **In Person at the Annual Meeting.** If you attend the Annual Meeting, in addition to picture identification, you should both bring an account statement or a letter from the record holder indicating that you owned the shares as of the record date, *and* contact the broker or other nominee who holds your shares to obtain a broker's proxy card and bring it with you to the Annual Meeting.

What are the Board's recommendations on how to vote my shares?

The Board of Directors recommends a vote:

Proposal 1: FOR ALL election of the two Class II directors.

Proposal 2: FOR approving the Reverse Stock Split Proposal

Proposal 3: if the shareholders approve the Reverse Stock Split Proposal, FOR approving the amendment to the Company's restated certificate of incorporation to decrease the total number of shares of common stock that the Company is authorized to issue from 250,000,000 shares to 85,000,000 shares.

Proposal 4: FOR ratification of the appointment of Ernst & Young LLP as the Company's independent registered public accounting firm for the fiscal year 2019.

Who pays the cost for soliciting proxies?

Genocea will bear the cost of solicitation of proxies. This includes the charges and expenses of brokerage firms and others for forwarding solicitation material to beneficial owners of our outstanding common stock. Genocea may solicit proxies by mail, personal interview, telephone, or via the Internet through its officers, directors and other management employees, who will receive no additional compensation for their services.

Can I change my vote?

You may revoke your proxy at any time before it is voted by notifying the Secretary in writing, by returning a signed proxy with a later date, by transmitting a subsequent vote over the Internet or by telephone prior to the close of the Internet voting facility or the telephone voting facility, or by attending the Annual Meeting and voting in person. If your stock is held in street name, you must contact your broker or nominee for instructions as to how to change your vote.

How is a quorum reached?

The presence, in person or by proxy, of holders of at least a majority of the total number of outstanding shares entitled to vote is necessary to constitute a quorum for the transaction of business at the Annual Meeting. Abstentions and "broker non-votes" (i.e., shares represented at the Annual Meeting held by brokers, bankers or other nominees as to which instructions have not been received from the beneficial owners or persons entitled to vote such shares and, with respect to one or more but not all issues, such brokers or nominees do not have discretionary voting power to vote such shares), if any, will be counted for purposes of determining whether a quorum is present for the transaction of business at the Annual Meeting.

What vote is required to approve each item?

Directors are elected by a plurality of votes cast (Proposal 1). A vote to withhold or a broker non-vote will have no direct effect on the outcome. A majority of the shares outstanding as of the record date is necessary for approval of the Reverse Stock Split (Proposal 2) and for the amendment to the Company's restated certificate of incorporation to decrease the total number of shares of common stock that the Company is authorized to issue from 250,000,000 shares to 85,000,000 shares (Proposal 3). Abstentions and broker non-votes will have the effect of a negative vote on Proposal 2 and Proposal 3. A majority of votes cast is necessary for ratification of the selection of Ernst & Young LLP as the Company's independent registered public accounting firm for the fiscal year ending December 31, 2019 (Proposal 4). A vote to abstain will have no direct effect on the outcome.

If there are insufficient votes to approve these proposals, your proxy may be voted by the persons named in the proxy card to adjourn the Annual Meeting in order to solicit additional proxies in favor of the approval of such proposals. If the Annual Meeting is adjourned or postponed for any purpose, at any subsequent reconvening of the Annual Meeting, your proxy will be voted in the same manner as it would have been voted at the original convening of the Annual Meeting unless you withdraw or revoke your proxy.

Could other matters be decided at the Annual Meeting?

Genocea does not know of any other matters that may be presented for action at the Annual Meeting. Should any other business come before the Annual Meeting, the persons named on the enclosed proxy will have discretionary authority to vote the shares represented by such proxies in accordance with their best judgment. If you hold shares through a broker, bank or other nominee as described above, they will not be able to vote your shares on any other business that comes before the Annual Meeting unless they receive instructions from you with respect to such matter.

What happens if the Annual Meeting is postponed or adjourned?

Your proxy may be voted at the postponed or adjourned Annual Meeting. You will still be able to change your proxy until it is voted.

What does it mean if I receive more than one proxy card or voting instruction form?

It means that you have multiple accounts at the transfer agent or with brokers. Please complete and return all proxy cards or voting instruction forms to ensure that all of your shares are voted.

Who should I call if I have any additional questions?

If you hold your shares directly, please call Derek Meisner, Secretary, at 617-876-8191. If your shares are held in street name, please contact the telephone number provided on your voting instruction form or contact your broker or nominee holder directly.

PROPOSAL NO. 1—ELECTION OF DIRECTORS

In accordance with the Company's restated certificate of incorporation and amended and restated by-laws, the Board of Directors is divided into three classes of approximately equal size. The members of each class are elected to serve a three-year term with the term of office of each class ending in successive years. Katrine Bosley and Michael Higgins are the Class II directors whose terms expire at the Annual Meeting. Both Ms. Bosley and Mr. Higgins have been nominated for and have agreed to stand for re-election to the Board of Directors to serve as a Class II director of the Company until the 2022 annual meeting of stockholders and until his or her successor is duly elected.

It is intended that, unless you give contrary instructions, shares represented by proxies will be voted for the election of the two nominees listed above as director nominees. Genocera has no reason to believe that any nominee will be unable to serve. In the event that one or more nominees is unexpectedly not available to serve, proxies may be voted for another person nominated as a substitute by the Board of Directors, or the Board of Directors may reduce the number of directors to be elected at the Annual Meeting. Information relating to each nominee for election as director and for each continuing director, including his or her period of service as a director of Genocera, principal occupation and other biographical material, is shown below.

**THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT YOU VOTE
FOR
ALL OF THESE NOMINEES FOR CLASS II DIRECTOR
(PROPOSAL 1 ON YOUR PROXY CARD)**

DIRECTOR BIOGRAPHIES

Below sets forth information concerning our directors as of February 28, 2019. The biographical description of each director includes the specific experience, qualifications, attributes and skills that the Board of Directors would expect to consider if it were making a conclusion currently as to whether such person should serve as a director.

CLASS II DIRECTOR NOMINEES

Katrine Bosley, age 50, is a Class II director who has served as a member of our Board of Directors since March 2013 and as our chair from August 2013 until December 2018. Ms. Bosley served as the Chief Executive Officer of Editas Medicine Inc. ("Editas") from June 2014 through February 2019. Prior to Editas, Ms. Bosley was the Entrepreneur-in-Residence at The Broad Institute from September 2013 to May 2014. She served as Chief Executive Officer of Avila Therapeutics Inc. ("Avila"), from May 2009 to March 2012, when Avila was acquired by Celgene Corporation. Before Avila, she was Vice President, Strategic Operations at Adnexus Therapeutics Inc. ("Adnexus"), a BMS Company, and was Vice President, Business Development at Adnexus before that. She joined Adnexus from Biogen Idec where she held roles in business development, commercial operations, and portfolio strategy in the United States and Europe. In addition to serving as a director of our Company, Ms. Bosley currently serves as a director of Galapagos NV and Massachusetts Eye and Ear. She also is a member of the BIO Governing Board and Chair of the Emerging Companies Section of the Board. Ms. Bosley graduated from Cornell University with a B.A. in Biology. We believe that Ms. Bosley's experience as a chief executive officer of a biotechnology company and her breadth of experience in creating strategic and business development value qualifies her to serve as a member of our Board of Directors.

Michael Higgins, age 56, is a Class II director who has served as a member of our Board of Directors since February 2015. In January 2015, Mr. Higgins joined Polaris Partners as an Entrepreneur-in-Residence. Prior to joining Polaris Partners, Mr. Higgins served as Chief Operating Officer and Chief Financial Officer at Ironwood Pharmaceuticals ("Ironwood") from 2003 through 2014, playing a key role in Ironwood's evolution from a privately-funded discovery organization through its initial public offering and the launch of its first commercial product. Under his leadership, Ironwood was able to raise more than one billion dollars to help support the development of the business during that period. Prior to his work at Ironwood, from 1997 through 2003, Mr. Higgins worked at Genzyme Corporation ("Genzyme") in a variety of leadership roles including Vice President, Corporate Finance and Vice President, Business Development. While at Genzyme, he was involved with multiple businesses including the Cell Therapy, Gene Therapy, and Orphan Disease business units. Previously, Mr. Higgins served as Chief Financial Officer of Procept, Inc., from 1992 to 1997, and led the company through its initial public offering. Mr. Higgins currently serves as a director of Pulmatrix, Inc. and Voyager Therapeutics. Mr. Higgins began his pharmaceutical career as a sales representative for Schering-Plough Corporation in 1986. Mr. Higgins earned his B.S. from Cornell University and holds an M.B.A. from the Amos Tuck School of Business at Dartmouth College. We believe that Mr. Higgins' financial and business expertise, including his diversified background as an executive officer in public pharmaceutical companies, qualifies him to serve as a member of our Board of Directors.

DIRECTORS NOT STANDING FOR ELECTION AT THE ANNUAL MEETING

Kenneth Bate, age 68, is a Class I director who has served as a member of our Board of Directors since September 2014 and our chair since December 2018. Mr. Bate has served as an independent consultant in the biotechnology field since 2012. From 2009 to 2012, Mr. Bate served as President and Chief Executive Officer of Archemix, Inc., a privately-held biotechnology company. From 2006 to 2009, Mr. Bate served in various positions at NitroMed, Inc., a pharmaceutical company, most recently as President and Chief Executive Officer. From 2002 to 2005, Mr. Bate served as Chief Financial Officer of Millennium Pharmaceuticals Inc., where he headed the commercial organization. Prior to joining Millennium Pharmaceuticals Inc., Mr. Bate co-founded JSB Partners, LLC, a banking and advisory services firm for biopharmaceutical and life sciences companies. From 1990 to 1996, he was with Biogen Inc., a biotechnology company, first as their Chief Financial Officer, and then as head of the commercial organization responsible for launching the multiple sclerosis business. Mr. Bate is currently a director of AVEO Pharmaceuticals, Catabasis Pharmaceuticals, Epizyme Inc., and Madrigal Pharmaceuticals. He holds an M.B.A. from The Wharton School of the University of Pennsylvania and a B.A. from Williams College. We believe that Mr. Bate's experience as a chief executive officer of multiple biotechnology companies, as well as his experience as a director of other companies, qualifies him to serve as a member of our Board of Directors.

Ali Behbahani, M.D., age 42, is a Class I director who has served as a member of our Board of Directors since February 2018. Since 2007, Dr. Behbahani has served in various positions on the healthcare team at New England Associates, most recently as General Partner. The healthcare team specializes in investments in the biopharmaceutical and medical device sectors. He is also currently a member of the board of directors of CRISPR Therapeutics, Adaptimmune and Nevro Corp. He has previously worked as a consultant in business development at The Medicines Company and held positions as a Venture Associate at Morgan Stanley Venture Partners from 2000 to 2002 and as a Healthcare Investment Banking Analyst at Lehman Brothers from 1998 to 2000. Dr. Behbahani conducted basic science research in the fields of viral fusion inhibition and structural proteomics at the National Institutes of Health and at Duke University. He holds an M.D. degree from The University of Pennsylvania School of Medicine and an M.B.A. from The University of Pennsylvania Wharton School. We believe Dr. Behbahani's experience in the biopharmaceutical industry, as well as his experience as a member on the boards of directors of multiple companies in the industry, qualifies him to serve as a member of our Board of Directors.

William Clark, age 50, is a Class III director who has served on our Board of Directors and as our President and Chief Executive Officer since February 2011. Previously he served as our Chief Business Officer from August 2010 to February 2011. Mr. Clark has served on our Board of Directors since February 2011. Prior to joining our Company, he served as Chief Business Officer at Vanda Pharmaceuticals, Inc. ("Vanda"), a biopharmaceutical company he co-founded in 2004. While at Vanda, he led the company's strategic and business development activities, and played a central role in multiple public and private financings. Prior to Vanda, Mr. Clark was a principal at Care Capital, LLC, a venture capital firm investing in biopharmaceutical companies, after serving in a variety of strategic and commercial roles at SmithKline Beecham (now GlaxoSmithKline). Mr. Clark holds a B.A. from Harvard University and an M.B.A. from The Wharton School at the University of Pennsylvania. We believe that Mr. Clark's operational and historical experience with our Company gained from serving as our Chief Executive Officer, President and member of our Board of Directors, combined with his prior experience at Vanda and in the venture capital industry focusing on biopharmaceutical companies, qualifies him to serve as a member of our Board of Directors.

Ronald Cooper, age 56, is a Class III director who has served as a member of our Board of Directors since June 2016. Mr. Cooper is President and CEO of Albireo Pharma ("Albireo"), a position that he was appointed to in June 2015. Mr. Cooper is a life sciences leader with a track record of growing and rejuvenating businesses, brands and organizations in the U.S. and Europe, ranging from entrepreneurial and resource-constrained, up to sales exceeding \$4.5 billion. Prior to Albireo, Mr. Cooper was with Bristol-Myers Squibb ("BMS") for over 25 years working in five different countries and holding positions of increasing responsibility in sales, marketing and general management, culminating in President of Europe. In Europe, Mr. Cooper was responsible for over 30 countries with sales exceeding \$4.5 billion. While at BMS, Mr. Cooper was directly associated with several product successes, including Abilify®, Avapro®, Atripla®, Eliquis®, Orenicia®, Pravachol®, Plavix®, Reyataz®, Sustiva®, Sprycel® and Yervoy®. Mr. Cooper has successfully completed over a dozen business development deals including the creation of the first single tablet HIV/AIDS regimen partnership. Mr. Cooper is a graduate of St. Francis Xavier University in Canada. We believe that Mr. Cooper's experience in the pharmaceutical industry, along with his background as an executive officer of a public company, qualifies him to serve as a member of our Board of Directors.

Howard Mayer, M.D., age 56, is a Class I director who has served as a member of our Board of Directors since March 2017. Dr. Mayer was Senior Vice President and Chief Medical Officer at Shire plc and is currently in a transitional role as Head of the Rare Diseases Therapeutic Area Unit at Takeda. Dr. Mayer joined Shire in 2012 and is responsible for global clinical development across hematology, immunology, oncology, genetic diseases, GI/metabolic, neuroscience and ophthalmology therapeutic areas. From 2009 to 2012 he served as Chief Medical Officer at EMD Serono, a division of Merck KGaA. Prior to

that, he held a variety of global roles at Pfizer Inc. ("Pfizer"), including Head of Clinical Development and Medical Affairs for Virology/Infectious Diseases. Prior to joining Pfizer, he served as Director of Infectious Diseases Clinical Research at BMS for five years. Dr. Mayer obtained his B.A. from the University of Pennsylvania and his M.D. from Albert Einstein College of Medicine in New York, which was followed by an internship and residency at Mount Sinai Hospital and an Infectious Diseases fellowship at Harvard Medical School. Since 2011 he has served on the board of Autism Speaks in New England. In 2011 and 2017, he was honored by PharmaVoice as one of the 100 Most Inspiring People in the Life Sciences Industry. We believe that Dr. Mayer's scientific expertise, which includes clinical development experiences in both infectious disease and oncology, qualifies him to serve as a member of our Board of Directors.

George Siber, M.D., age 74, is a Class III director who has served as a member of our Board of Directors since 2007. From 1996 to 2007, Dr. Siber served as Executive Vice President and Chief Scientific Officer of Wyeth Vaccines ("Wyeth"). While at Wyeth, Dr. Siber oversaw the development and approval of multiple widely-used childhood vaccines, including: Prevnar, a pneumococcal vaccine which has achieved multibillion dollar revenues; Acel-Imune, an acellular pertussis vaccine; and Meningitec, a meningococcal meningitis vaccine. Prior to Wyeth, Dr. Siber was Director of the Massachusetts Public Health Biologic Laboratories and a Harvard Medical School Associate Professor of Medicine at Dana Farber Cancer Institute. During this time, Dr. Siber led the research and manufacturing of multiple vaccines and immune globulins including Respigam, a human immune globulin against respiratory syncytial virus. Since 2007, Dr. Siber has served on the boards of directors of several vaccine companies, including Crucell, Selecta Biosciences, Vedantra Pharmaceuticals and Affinivax Inc., and as a consultant or scientific advisory board member of ClearPath Vaccines Company, of which he is currently the Chief Scientific Officer. PaxVax, Vaxess Technologies, Inc., the Bill & Melinda Gates Foundation, PATH, the Wellcome Trust, the European Commission (on vaccinations), the National Institutes of Health, or NIH, and the Korean FDA. Dr. Siber serves as a member of the Board of Trustees of the International Vaccine Institute. Dr. Siber holds an M.D. degree from McGill University in Canada, received post-doctoral training in Internal Medicine at Rush-Presbyterian Hospital in Chicago and Beth Israel Hospital in Boston and Infectious Disease and vaccinology training at Children's Hospital and Beth Israel Hospital, Harvard Medical School Boston. We believe that Dr. Siber's experience in life sciences and vaccine industries and his experience overseeing the development of multiple vaccines, qualifies him to serve as a member of our Board of Directors.

BOARD OF DIRECTORS AND ITS COMMITTEES

The following table describes which directors serve on each of the committees of the Board of Directors as of March 1, 2019.

Name	Nominating and Corporate Governance Committee	Compensation Committee	Audit Committee
Kenneth Bate		X	(1) X
Ali Behbahani, M.D.		X	
Katrine Bosley	X	(1)	
William Clark			
Ronald Cooper	X		X
Michael Higgins			X (1)
Howard Mayer, M.D.		X	
George Siber, M.D.	X		

(1) Chair of the committee.

THE BOARD OF DIRECTORS AND ITS COMMITTEES

Director Independence

As required by the listing standards of The Nasdaq Capital Market ("Nasdaq"), the Board of Directors has affirmatively determined, upon the recommendation of the Nominating and Corporate Governance Committee, that each of our directors (other than William Clark, our President and Chief Executive Officer) is independent. To make this determination, our Board of Directors reviews all relevant transactions or relationships between each director and Genocera, its senior management and its independent registered public accounting firm. During this review, the Board of Directors considers whether there are any transactions or relationships between directors or any member of their immediate family (or any entity of which a director or an immediate family member is an executive officer, general partner or significant equity holder) and members of our senior management or their affiliates. The Board of Directors consults with Genocera's outside corporate counsel to ensure that the Board of Directors' determinations are consistent with all relevant securities and other laws and regulations regarding the definition of "independent," including those set forth in pertinent Nasdaq listing standards, as in effect from time to time.

Board Meetings and Attendance

The Board of Directors held nine meetings during the year ended December 31, 2018. Each of the directors, other than Howard Mayer and George Siber, attended at least 75% of the meetings of the Board of Directors and the committees of the Board of Directors on which he or she served during the year ended December 31, 2018 (in each case, which were held during the period for which he or she was a director and/or a member of the applicable committee). Each director who is up for election at an annual meeting of stockholders or who has a term that continues after such annual meeting is expected to attend the Annual Meeting. All of our then existing directors on the Board of Directors attended our 2018 annual meeting.

Board Committees

The Board of Directors has standing Audit, Compensation and Nominating and Corporate Governance Committees, each of which is comprised solely of independent directors, and is described more fully below. The charters for the Audit, Compensation and Nominating and Corporate Governance Committees are all available on our website (<http://ir.genocera.com/>) under "Investors" at "Governance".

Audit Committee

Our Audit Committee is composed of Mr. Bate, Mr. Cooper, and Mr. Higgins, with Mr. Higgins serving as chair of the committee. Our Board of Directors has determined, upon the recommendation of the Nominating and Corporate Governance Committee, that each member of the Audit Committee meets the independence requirements of Rule 10A-3 under the Exchange Act of 1934, as amended (the "Exchange Act") and the applicable listing standards of Nasdaq. Our Board of Directors has determined that each of Mr. Bate, Mr. Cooper, and Mr. Higgins is an "audit committee financial expert" within the meaning of the SEC regulations and applicable listing standards of Nasdaq. Our Audit Committee operates pursuant to a written charter and it reviews and assesses the adequacy of its charter annually.

The Audit Committee's responsibilities include:

- appointing, approving the compensation of, and assessing the qualifications, performance and independence of our independent registered public accounting firm by considering (i) evaluations of our independent registered public accounting firm by our management and internal auditors, (ii) our independent registered public accounting firm's effectiveness of communications and working with the Audit Committee and our management and internal auditors, (iii) the length of time our independent registered public accounting firm has served as our independent auditors, (iv) the quality and depth of our independent registered public accounting firm's expertise and experience in the biotech and life sciences industries in light of the breadth, complexity and global reach of our business and (v) the advisability and potential impact of selecting a different independent registered public accounting firm;
- pre-approving audit and permissible non-audit services, and the terms of such services, to be provided by our independent registered public accounting firm;
- reviewing the internal audit plan with the independent registered public accounting firm and members of management responsible for preparing our financial statements;

- reviewing and discussing with management and the independent registered public accounting firm our annual and quarterly financial statements and related disclosures as well as critical accounting policies and practices used by us;
- reviewing the adequacy of our internal control over financial reporting;
- establishing policies and procedures for the receipt and retention of accounting-related complaints and concerns;
- recommending, based upon the Audit Committee's review and discussions with management and the Company's independent registered public accounting firm, whether our audited financial statements shall be included in our Annual Report;
- monitoring our compliance with legal and regulatory requirements as they relate to our financial statements and accounting matters;
- preparing the Audit Committee report required by the rules of the SEC to be included in our annual proxy statement;
- viewing all related party transactions for potential conflict of interest situations and approving all such transactions; and
- reviewing and discussing with management and our independent registered public accounting firm our earnings releases and scripts.

All audit and non-audit services to be provided to us by our independent registered public accounting firm must be approved in advance by the Audit Committee. During the year ended December 31, 2018, the Audit Committee met four times. The report of the Audit Committee is included in this Proxy Statement under "Audit Committee Report".

Compensation Committee

Our Compensation Committee is composed of Mr. Bate, Dr. Behbahani, and Dr. Mayer, with Mr. Bate serving as chair of the committee. The Board of Directors has determined, upon the recommendation of the Nominating and Corporate Governance Committee, that each member of the Compensation Committee is "independent" within the meaning of the rules and regulations of Nasdaq and the SEC. In addition, each member qualifies as an "outside director" within the meaning of Section 162(m) of the Internal Revenue Code and is a "non-employee director" within the meaning of the SEC rules. Our Compensation Committee operates pursuant to a written charter and it reviews and assesses the adequacy of its charter periodically.

The Compensation Committee's responsibilities include:

- annually reviewing and recommending to the Board of Directors for approval the corporate goals and objectives relevant to the compensation of our Chief Executive Officer;
- evaluating the performance of our Chief Executive Officer in light of such corporate goals and objectives and recommending to the Board of Directors for approval the compensation of our Chief Executive Officer;
- reviewing and approving the compensation of our other executive officers;
- appointing, compensating and overseeing the work of any compensation consultant, legal counsel or other advisor retained by the Compensation Committee;
- conducting the independence assessment outlined in Nasdaq rules with respect to any compensation consultant, legal counsel or other advisor retained by the Compensation Committee;
- annually reviewing and reassessing the adequacy of the committee charter in accordance with the listing requirements of Nasdaq;
- reviewing and establishing our overall management compensation philosophy and policy;
- overseeing and administering our equity compensation and other incentive compensation programs;

- reviewing and approving our equity and incentive policies and procedures for the grant of equity-based awards and approving the grant of such equity-based awards;
- reviewing and making recommendations to the Board of Directors with respect to director compensation; and
- if applicable, producing the compensation committee report to be included in our annual proxy statement and/or Annual Report.

During the year ended December 31, 2018, the Compensation Committee met three times.

Nominating and Corporate Governance Committee

Our Nominating and Corporate Governance Committee is composed of Ms. Bosley, Mr. Cooper, and Dr. Siber, with Ms. Bosley serving as chair of the committee. Our Board of Directors has determined that each member of the Nominating and Corporate Governance Committee is "independent" within the meaning of the rules and regulations of Nasdaq. Our Nominating and Corporate Governance Committee operates pursuant to a written charter and it reviews and assesses the adequacy of its charter periodically.

The Nominating and Corporate Governance Committee's responsibilities include:

- developing and recommending to the Board of Directors criteria for board and committee membership;
- establishing procedures for identifying and evaluating Board of Director candidates, including nominees recommended by stockholders;
- identifying individuals qualified to become members of the Board of Directors;
- recommending to the Board of Directors the persons to be nominated for election as directors and to each of the Board of Directors' committees;
- developing and recommending to the Board of Directors a set of corporate governance principles;
- articulating to each director what is expected, including reference to the corporate governance principles and directors' duties and responsibilities;
- reviewing and recommending to the Board of Directors practices and policies with respect to directors;
- reviewing and recommending to the Board of Directors the functions, duties and compositions of the committees of the Board of Directors;
- reviewing and assessing the adequacy of the committee charter and submitting any changes to the Board of Directors for approval;
- considering and reporting to the Board of Directors any questions of possible conflicts of interest of Board of Directors members;
- providing for new director orientation and continuing education for existing directors on a periodic basis;
- performing an evaluation of the performance of the committee; and
- overseeing the evaluation of the Board of Directors and management.

The Nominating and Corporate Governance Committee does not set specific, minimum qualifications that nominees must meet in order to be recommended to the Board of Directors, but rather believes that each nominee should be evaluated based on his or her individual merits, taking into account the needs of Genoece and the composition of the Board of Directors. Additionally, neither the Nominating and Corporate Governance Committee nor the Board of Directors has a specific policy with regard to the consideration of diversity in identifying director nominees; however, both may consider the diversity of background and experience of a director nominee in the context of the overall composition of the Board of Directors at that time, such as diversity of knowledge, skills, experience, geographic location, age, gender, and ethnicity. Members of the Nominating and Corporate Governance Committee discuss and evaluate possible candidates in detail and suggest individuals to explore in more depth.

The Nominating and Corporate Governance Committee will consider candidates recommended by stockholders. Candidates recommended by stockholders are given appropriate consideration in the same manner as other candidates.

During the year ended December 31, 2018, the Nominating and Corporate Governance Committee met four times.

Board of Directors Leadership Structure

Mr. Bate has served as the chair of our Board of Directors since December 2018. Ms. Bosley previously served as the chair of our Board of Directors from August 2013 through December 2018. The independent members of the Board of Directors have periodically reviewed the Board of Directors' leadership structure and have determined that Genocera and our stockholders are well served with this structure.

The chair of the Board of Directors provides leadership to the Board of Directors and works with the Board of Directors to define its activities and the calendar for fulfillment of its responsibilities. The chair of the Board of Directors approves the meeting agendas after input from the Board of Directors and management, facilitates communication among directors and presides at meetings of our Board of Directors and stockholders.

The Board of Directors' Role in Risk Oversight

The Board of Directors plays an important role in risk oversight through direct decision-making authority with respect to significant matters as well as through the oversight of management by the Board of Directors and its committees. In particular, the Board of Directors administers its risk oversight function through (1) the review and discussion of regular periodic reports by the Board of Directors and its committees on topics relating to the risks that we face, (2) the required approval by the Board of Directors (or a committee of the Board of Directors) of significant transactions and other decisions, (3) the direct oversight of specific areas of our business by the Audit, Compensation and Nominating and Corporate Governance Committees, and (4) regular periodic reports from our independent registered public accounting firm and other outside consultants regarding various areas of potential risk, including, among others, those relating to our internal control over financial reporting and executive compensation. The Board of Directors also relies on management to bring significant matters impacting our Company to the attention of the Board of Directors.

Pursuant to the Audit Committee's charter, the Audit Committee is responsible for reviewing and discussing with management and the independent registered public accounting firm our system of internal controls, our critical accounting practices, and policies relating to risk assessment and management. As part of this process, the Audit Committee discusses our major financial risk exposures and steps that management has taken to monitor and control such exposure. In addition, the Audit Committee has established procedures for the receipt, retention and treatment of complaints received by the Company regarding accounting, internal accounting controls or auditing matters, and the confidential, anonymous submissions by employees of concerns regarding questionable accounting or accounting matters.

Because of the role of the Board of Directors and the Audit Committee in risk oversight, the Board of Directors believes that any leadership structure that it adopts must allow it to effectively oversee the management of the risks relating to our operations. The Board of Directors acknowledges that there are different leadership structures that could allow it to effectively oversee the management of the risks relating to the Company's operations and believes its current leadership structure enables it to effectively provide oversight with respect to such risks.

Compensation Consultant

As a part of determining compensation for our named executive officers, the Compensation Committee engaged Pay Governance LLC ("Pay Governance") as its independent compensation consultant for 2018. As its independent compensation consultant, Pay Governance provided analysis and recommendations to the Compensation Committee regarding:

- trends with respect to executive and director compensation;
- the development of a peer group used for compensation-related purposes;
- forms and levels of compensation for executives and directors;
- stock utilization and related metrics;
- employment and separation agreements with our executive officers; and
- the risk profile of our compensation programs.

When requested, consultants from Pay Governance attended meetings of the Compensation Committee, including executive sessions in which executive compensation matters were discussed. During 2018, Pay Governance reported to the Compensation

Committee and not to management, although Pay Governance met with management for purposes of gathering information for its analyses and recommendations.

Although the Board of Directors and the Compensation Committee considers the advice and recommendations of Pay Governance (or any other compensation consultant it might engage in the future) as related to our executive compensation program, the Board of Directors and the Compensation Committee ultimately make their own decisions about the compensation arrangements for our executive officers.

In determining whether to engage Pay Governance, the Compensation Committee considered the independence of Pay Governance, taking into consideration relevant factors, including the absence of other services provided to the Company by Pay Governance, the amount of fees the Company paid to Pay Governance as a percentage of Pay Governance's total revenues, the policies and procedures of Pay Governance that are designed to prevent conflicts of interest, any business or personal relationship of the individual compensation advisors employed by Pay Governance with any executive officer of the Company, any business or personal relationship of the individual compensation advisors employed by Pay Governance with any member of the Compensation Committee, and any stock of the Company owned by Pay Governance or the individual compensation advisors employed by Pay Governance (the "Independence Factors"). The Compensation Committee has determined, based on its analysis in light of all relevant factors, including the Independence Factors listed above, that the work of Pay Governance and the individual compensation advisors employed by Pay Governance as compensation consultants to the Compensation Committee did not create any conflicts of interest, and that Pay Governance was independent under the independence standards set forth in the Nasdaq listing standards promulgated pursuant to Section 10C of the Exchange Act.

Non-Employee Director Compensation Policy

Our Board of Directors adopted a non-employee director compensation policy that is designed to enable us to attract and retain, on a long-term basis, highly-qualified non-employee directors. Under the policy, as it may be amended from time to time, all non-employee directors will be paid cash compensation as set forth in the table below. Cash fees are prorated for partial years of service.

	Annual Cash Fees	
Board of Directors:		
All non-employee members	\$	35,000
Additional retainer for chair	\$	40,000
Audit Committee:		
Members	\$	7,500
Additional retainer for chair	\$	7,500
Compensation Committee:		
Members	\$	5,000
Additional retainer for chair	\$	5,000
Nominating and Corporate Governance Committee:		
Members	\$	3,500
Additional retainer for chair	\$	3,500

In early 2018, the Board of Directors, with the assistance of Pay Governance, reviewed and updated the Company's non-employee director compensation policy in light of our fourth quarter 2017 restructuring and subsequent January 2018 financing. Under our revised non-employee director compensation policy, effective April 9, 2018, each non-employee director who is initially appointed or elected to our Board of Directors is eligible to be granted options to purchase 75,000 shares of our common stock under the Genoecea Biosciences Inc. Amended and Restated 2014 Equity Incentive Plan ("2014 Equity Plan") at the time of his or her initial appointment or election to our Board of Directors. These options vest annually in equal installments over a three-year period, generally subject to the non-employee director's continued service. In addition, each continuing non-employee director is eligible to be granted options to purchase 45,000 shares of our common stock under our 2014 Equity Plan on an annual basis, which vest in full on the first anniversary of the grant date, generally subject to the non-employee director's continued service through such date. These option grants are made on the date of the Company's annual meeting of stockholders for the relevant year or as soon thereafter as is reasonably practicable.

Director Agreements

Dr. Siber

We entered into a consulting agreement with Dr. Siber dated May 16, 2007, as amended on June 30, 2009, December 16, 2010, June 15, 2011, June 5, 2013, June 15, 2015 and June 13, 2017. The consulting agreement provides for a monthly consulting fee of \$9,833 per month for consulting services performed by Dr. Siber related to strategic scientific and business development.

Dr. Siber has agreed not to solicit our employees, contractors and customers for a period of 12 months following the termination of the consulting agreement and is subject to covenants relating to the use and disclosure of confidential information and the assignment of inventions. Unless extended or earlier terminated, the term of the consulting agreement will expire on June 17, 2019.

Director Compensation

The following table sets forth information concerning the compensation earned by our non-employee directors during 2018. All of our non-employee directors were compensated for service on our Board of Directors under our non-employee director compensation policy and Dr. Siber receives additional compensation as set forth in his consulting agreement, in each case, as described above. Mr. Clark receives no additional compensation for his service as a director, and, consequently, is not included in this table. The compensation received by Mr. Clark as our President and Chief Executive Officer during 2018 is set forth in the "Summary Compensation Table" under the section "Executive Compensation".

Name	Fees earned or paid in cash (\$)(1)	Option awards (\$)(2)(3)	Total (\$)
Kenneth Bate	55,277	44,550	99,827
Ali Behbahani, M.D.	32,034	74,000	106,034
Katrine Bosley	80,043	44,550	124,593
Ronald Cooper	46,000	44,550	90,550
Michael Higgins	50,000	44,550	94,550
Howard Mayer, M.D.	40,000	44,550	84,550
George Siber, M.D.	161,974	44,550	206,524

- (1) Amounts represent annual director fees and, in the case of Dr. Siber, include consulting fees, for services rendered, as described above. Consulting fees paid to Dr. Siber were paid in equal monthly installments and all other director fees were paid quarterly in arrears. Annual director fees paid to Dr. Behbahani for 2018 were prorated for his partial year of service.
- (2) As of December 31, 2018, our directors held the following aggregate number of options to purchase shares of our common stock: Mr. Bate held options to purchase 90,126 shares of our common stock, Dr. Behbahani held options to purchase 75,000 shares of our common stock, Ms. Bosley held options to purchase 117,008 shares of our common stock, Mr. Cooper held options to purchase 85,000 shares of our common stock, Mr. Higgins held options to purchase 85,084 shares of our common stock, Dr. Mayer held options to purchase 70,000 shares of our common stock, and Dr. Siber held options to purchase 160,376 shares of our common stock.
- (3) Amounts in the table represent the aggregate grant date fair value of the options to purchase shares of our common stock granted during 2018. Dr. Behbahani was granted options to purchase 25,000 shares of our common stock in February 2018, upon his election to our Board of Directors. In June 2018, Dr. Behbahani was granted options to purchase an additional 50,000 shares of our common stock in order to align his compensation with our amended non-employee director compensation policy. These options will vest in equal installments on each of the first three anniversaries of the date of grant, generally subject to Dr. Behbahani's continued service. All of our other non-employee directors were granted options to purchase 45,000 shares of our common stock in 2018, which options will vest in full on the one-year anniversary of their respective date of grant, generally subject to the non-employee director's continued service. These grant date fair value amounts were computed in accordance with Financial Accounting Standards Board Accounting Standards Codification Topic 718, Compensation — Stock Compensation ("ASC 718"), excluding the effect of estimated forfeitures. Assumptions used in the calculation of these amounts are included in Note 10 to our financial statements included in our Annual Report.

SECTION 16(a) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE

Our directors, executive officers and beneficial owners of more than 10% of our common stock are required under Section 16(a) of the Securities and Exchange Act of 1934 (the "Exchange Act"), to file reports of ownership and changes in ownership of our securities with the SEC. To our knowledge, based solely on review of these filings and written representations from the certain reporting persons, we believe that all filing requirements applicable to our officers, directors and beneficial owners of more than 10% of our common stock were complied with, except George Siber was delinquent in filing a Form 4 report in September 2018. Such filing has been made at the time of filing this proxy statement.

AUDIT COMMITTEE REPORT

The Audit Committee reviewed the Genocera audited financial statements for the year ended December 31, 2018 and discussed these statements with management and Ernst & Young LLP, the Company's independent registered public accounting firm. Genocera management is responsible for the preparation of the Company's financial statements and for maintaining an adequate system of disclosure controls and procedures and internal control over financial reporting for that purpose. Ernst & Young LLP is responsible for expressing an opinion on the conformity of the audited financial statements with generally accepted accounting principles, discussing their judgments as to the quality, not just the acceptability, of the Company's accounting principles and such other matters as are required to be discussed with the Audit Committee under generally accepted auditing standards. The Audit Committee is responsible for providing independent, objective oversight of the Company's accounting functions and internal controls.

The Audit Committee also received from, and discussed with, Ernst & Young LLP all communications required under the standards of the Public Company Accounting Oversight Board (the "PCAOB"), including the matters required to be discussed by Ernst & Young LLP with the Audit Committee, including the matters to be discussed by Statement on Auditing Standards 1301, *Communications with Audit Committees Concerning Independence*.

Ernst & Young LLP also provided the Audit Committee with the written disclosures and the letter required under the PCAOB, which requires that independent registered public accounting firms annually disclose in writing all relationships that in their professional opinion may reasonably be thought to bear on independence, to confirm their perceived independence and engage in a discussion of independence. The Audit Committee reviewed this disclosure and discussed with Ernst & Young LLP their independence from Genocera.

Based on its discussions with management and our independent registered public accounting firm, and its review of the representations and information provided by management and our independent registered public accounting firm, the Audit Committee recommended to the Board of Directors that the audited financial statements be included in the Genocera Annual Report on Form 10-K for the year ended December 31, 2018, for filing with the SEC.

Respectfully submitted by the

Audit Committee,

Michael Higgins, Chair
Kenneth Bate
Ronald Cooper

EXECUTIVE COMPENSATION

Our named executive officers for the fiscal year ended December 31, 2018 were:

- William Clark, our President and Chief Executive Officer;
- Jessica Baker Fletcher, Ph.D., our Chief Scientific Officer;
- Pamela Carroll, Ph.D., our Senior Vice President, Immuno-Oncology; and
- Eric Hoffman, our former Chief Business Officer*.

*Mr. Hoffman resigned and entered into a separation agreement with the Company, each effective August 31, 2018. For a description of the agreement we entered into with him in connection with his resignation, see "Agreement with Mr. Hoffman" below.

Executive Compensation

Each year, our Compensation Committee considers a variety of factors in assessing the competitiveness of our executive compensation program and the individual compensation of each of our executives, including our named executive officers. These factors include the executive's experience and individual performance, the Company's performance as a whole, and data from surveys, as well as compensation paid at companies in our peer group, as described below, cost of living increases and general industry conditions. Our Compensation Committee does not assign any specific weighting to any one factor when making compensation decisions.

Market Benchmarks and Competitive Analysis

As discussed above, our Compensation Committee engaged Pay Governance as its independent compensation consultant for 2018. Pay Governance assisted the Compensation Committee in the development of a list of peer companies to be used for executive compensation-related purposes. In determining our peer companies, we selected companies that are publicly-traded, that operate in our industry and have a similar market capitalization, and that are of comparable size and scientific stage of development (among the group, market capitalizations ranged from approximately \$75 million to \$900 million). When making compensation decisions with respect to our named executive officers, our Compensation Committee considered data from peer companies as well as broader market compensation surveys provided by Pay Governance.

Elements of Executive Compensation

The compensation of our named executive officers consists of base salary, annual cash bonuses and equity awards, as well as employee benefits that are made available to our salaried employees generally. Mr. Clark is also entitled to compensation and benefits upon certain terminations of his employment, including following a change of control transaction, as described under "Employment Letter Agreements" below.

Base Salaries. Base salaries for our named executive officers are reviewed annually by our Compensation Committee and are set by our Board of Directors. When making its base salary recommendations to our Board of Directors, our Compensation Committee takes the factors described above into account, but does not assign any specific weighting to any one factor. Our Board of Directors determines each named executive officer's base salary after reviewing the Compensation Committee's recommendation with respect to such salaries. In fiscal year 2018, on the recommendation of our Compensation Committee, our Board of Directors approved a base salary of \$517,500 for Mr. Clark, \$348,148 for Dr. Fletcher, and \$340,650 for Mr. Hoffman, representing an increase of 3.5% from the base salary for each such executive in 2017. Dr. Carroll was appointed as an executive officer effective October 2, 2018. Her 2018 compensation prior to such appointment was determined in accordance with our policies for non-executive employees. Her base salary in 2018 was \$324,000, representing an increase of 3.1% from her base salary in 2017.

Annual Cash Bonuses. Our annual cash bonus program promotes and rewards the achievement of key strategic business goals and individual performance goals. For fiscal year 2018, the target annual bonus as a percentage of base salary was 50% for Mr. Clark, 40% for each of Dr. Fletcher and Mr. Hoffman, and 35% for Dr. Carroll. In the case of Mr. Clark, 100% of his annual bonus was based on the achievement of pre-established corporate performance goals and, in the case of Dr. Fletcher, Mr. Hoffman, and Dr. Carroll, their respective annual bonuses were based on the achievement of pre-established corporate performance goals and pre-established individual performance goals. Since Dr. Hoffman resigned effective August 31, 2018, he was not paid a fiscal year 2018 bonus.

At the beginning of fiscal year 2018, our Compensation Committee established the corporate performance goals for fiscal year 2018 and the weighting for each goal. These corporate performance goals included key strategic and financial goals related to business development collaborations and financings, cash management, the development and commencement of certain clinical and commercial programs, and other strategic objectives related to our clinical pipeline. Also at the beginning of fiscal year 2018, our Chief Executive Officer, working with Dr. Fletcher, Dr. Carroll, and Mr. Hoffman, established individual performance goals for each of these named executive officers and their weightings. These goals included, to the extent applicable to the executive, objectives related to oversight of clinical activities for compliance with laws, developing and conducting clinical programs and studies, research and development, managing studies according to schedule and within budgets, business and corporate development and demonstrating leadership with respect to direct reports.

In January 2019, our Compensation Committee met to review and consider the level of corporate and individual performance goals that were achieved for purposes of making its recommendation to our Board of Directors regarding the amount of the annual cash bonus earned by our named executive officers for fiscal year 2018. The Compensation Committee reviewed and evaluated our corporate performance against the pre-established corporate performance goals for the fiscal year, taking into consideration Mr. Clark's evaluation of our performance in 2018. With respect to the individual performance goals applicable to Dr. Fletcher and Dr. Carroll, our Compensation Committee also considered Mr. Clark's determination that Dr. Fletcher and Dr. Carroll had achieved 72% and 64%, respectively, of such individual performance goals. After reviewing the achievement of the fiscal year 2018 corporate performance goals, and after considering Mr. Clark's determination regarding the level of achievement of individual performance goals, our Compensation Committee recommended, and our Board of Directors approved, an 80% level of achievement of corporate performance goals, a 90% and 80% level of achievement of Dr. Fletcher's and Dr. Carroll's individual goals, and a fiscal year 2018 annual cash bonus of \$207,000 for Mr. Clark, \$100,300 for Dr. Fletcher, and \$72,600 for Dr. Carroll.

Equity Awards. Our named executive officers have each been granted stock options, including options intended to qualify as incentive stock options. Our 2014 Equity Plan was adopted by our Board of Directors in connection with our IPO. Prior to our IPO, Mr. Clark was granted equity awards under the Genocera Biosciences, Inc. Amended and Restated 2007 Equity Incentive Plan ("2007 Equity Plan"). Following the adoption of our 2014 Equity Plan and our IPO, all stock options and other equity-based awards have been granted under our 2014 Equity Plan and no future awards may be made under our 2007 Equity Plan.

Stock option awards serve to align the interests of our named executive officers with our stockholders because no value is created unless the value of our common stock appreciates after grant. Stock option awards also encourage retention through the use of time-based vesting conditions. We have from time to time in the past also granted stock options that are subject to performance-based vesting conditions, thereby incentivizing the achievement of key strategic goals.

In February 2018, Mr. Clark, Dr. Fletcher, Dr. Carroll, and Mr. Hoffman were each granted awards of time-based options to purchase 864,000, 300,000, 70,000, and 300,000 shares, respectively, of our common stock under our 2014 Equity Plan. In November 2018, Dr. Fletcher and Dr. Carroll, in recognition of their continued service to the Company, were each granted awards of time-based options to purchase 150,000 and 75,000 shares, respectively, of our common stock under our 2014 Equity Plan. These stock options vest in equal monthly installments over the 48 months following the date of grant, generally subject to the executive's continued employment. In connection with his resignation in August 2018, Mr. Hoffman forfeited all stock options held by him that were unvested as of the date of his termination of employment. Pursuant to his employment letter agreement, stock options held by Mr. Clark would vest automatically upon certain terminations of employment following a change of control. See "Employment Letter Agreements" below for additional details about Mr. Clark's agreement.

Benefits. We provide modest benefits to all of our salaried employees, including our executive officers, which are limited to participation in our 401(k) plan, our employee stock purchase plan, and health and welfare benefit coverage.

Employment Letter Agreement with Mr. Clark. We have entered into an employment letter agreement with Mr. Clark and Ms. Fletcher that includes severance and change of control protections. Prior to his termination of employment, Mr. Hoffman was also party to an employment letter agreement with us. Our named executive officers are also subject to restrictive covenants covering noncompetition, nonsolicitation and confidentiality. See "Employment Letter Agreements" below for additional details about these agreements.

Agreement with Mr. Hoffman. Mr. Hoffman's employment terminated effective August 31, 2018. In connection with his termination of employment, the Company agreed to pay to Mr. Hoffman nine months' of base salary continuation, subject to his execution of a letter agreement that included a release of claims in favor of the Company. Further, the Company agreed to

grant Mr. Hoffman an extension of an additional 90 days to exercise any stock options that were vested as of August 31, 2018, which means that he has until March 1, 2019 to exercise those options.

Summary Compensation Table

The following table sets forth information about compensation earned, awarded or paid to our named executive officers for fiscal years 2018 and 2017.

Name and principal position	Year	Salary \$(1)	Option awards \$(2)	Nonequity incentive plan compensation \$(3)	All other compensation \$(4)	Total (\$)
William Clark, President and Chief Executive Officer	2018	514,583	583,459	207,000	5,984	1,311,026
	2017	493,333	890,755	137,500	5,425	1,527,013
Jessica Baker Fletcher, Ph.D., Chief Scientific Officer	2018	346,186	279,300	100,300	7,758	733,544
	2017	334,479	309,290	66,602	7,733	718,104
Pamela Carroll, Ph.D., Senior Vice President, Immuno- Oncology	2018	322,372	85,626	72,600	7,391	487,989
	2017	313,525	61,858	76,122	7,049	458,554
Eric Hoffman Former Chief Business Officer	2018	225,180	202,590	—	118,176	545,946
	2017	327,275	309,290	57,927	9,000	703,492

- (1) Salaries include amounts contributed by the named executive officer to our 401(k) plan.
- (2) Amounts shown reflect the aggregate grant date fair value of time-based options to purchase shares of our common stock awarded in the applicable fiscal year, computed in accordance with ASC 718, excluding the effect of estimated forfeitures. Assumptions used in the calculation of these amounts are included in Note 10 to our consolidated financial statements included in our Annual Report. As described under "Equity Awards" above, in connection with his resignation in August 2018, Mr. Hoffman forfeited all of his then-unvested stock options.
- (3) Amounts shown for Dr. Fletcher, Dr. Carroll, and Mr. Hoffman reflect the annual cash bonuses paid to the named executive officers that were earned based on the achievement of Company and individual performance goals, and in the case of Mr. Clark, based solely on the achievement of Company performance goals.
- (4) Amounts shown reflect employer matching contributions under our 401(k) plan for all of our named executive officers. For Mr. Hoffman, the amount shown for 2018 also includes \$113,550 in severance paid in connection with his termination of employment.

Outstanding Equity Awards at Fiscal Year-End

The following table sets forth information regarding equity awards held by our named executive officers as of December 31, 2018.

Name	Option Awards					
	Number of securities underlying unexercised options (#) exercisable	Number of securities underlying unexercised options (#) unexercisable		Equity incentive plan awards: number of securities underlying unexercised unearned options (#)	Option Exercise Price (\$)(5)	Option Expiration Date(6)
William Clark	24,716 (1)	—		—	\$ 2.86	12/17/2020
	—	—		39,807 (2)	\$ 2.86	12/17/2020
	340,568 (1)	—		—	\$ 2.02	2/17/2021
	133,602 (3)	—		—	\$ 3.45	7/25/2023
	81,670 (4)	—		—	\$ 3.45	7/25/2023
	132,250 (1)	5,750	(1)	—	\$ 9.08	2/26/2025
	203,999 (1)	84,001	(1)	—	\$ 3.09	2/2/2026
	132,000 (1)	156,000	(1)	—	\$ 4.67	2/28/2027
	180,000 (1)	684,000	(1)	—	\$ 0.98	2/8/2028
Jessica Fletcher, Ph.D.	11,402 (1)	—		—	\$ 12.00	2/4/2024
	14,397 (1)	—		—	\$ 12.10	2/20/2024
	28,750 (1)	1,250	(1)	—	\$ 9.08	2/26/2025
	70,833 (1)	29,167	(1)	—	\$ 3.09	2/2/2026
	45,826 (1)	54,174	(1)	—	\$ 4.67	2/28/2027
	62,490 (1)	237,510	(1)	—	\$ 0.98	2/8/2028
	3,125 (1)	146,875	(1)	—	\$ 0.73	11/6/2028
Pamela Carroll, Ph.D.	36,250 (4)	23,750	(4)	—	\$ 4.31	7/18/2026
	9,158 (1)	10,842	(1)	—	\$ 4.67	2/28/2027
	14,580 (1)	55,420	(1)	—	\$ 0.98	2/8/2028
	1,562 (1)	73,438	(1)	—	\$ 0.73	11/6/2028
Eric Hoffman (7)	187,965 (4)	—		—	\$ 7.85	12/15/2024
	21,874 (1)	—		—	\$ 9.08	2/26/2025
	62,499 (1)	—		—	\$ 3.09	2/2/2026
	37,494 (1)	—		—	\$ 4.67	2/28/2027
	37,494 (1)	—		—	\$ 0.98	2/8/2028

(1) Reflects time-based options to purchase shares of our common stock that vest in 48 equal monthly installments following the date of grant, generally subject to the executive's continued employment.

(2) Reflects performance-based options to purchase shares of our common stock that vest as to 100% of the shares subject to the stock option upon the company's achievement of specified strategic financing or development milestones, generally subject to Mr. Clark's continued employment. These performance-based stock options remain unvested as the performance condition has not yet been achieved.

- (3) Reflects time-based options to purchase shares of our common stock that vested as to 1/8th of the shares subject to the stock option on the date of grant and that continue to vest in equal monthly installments over 42 months following the date of grant, generally subject to the executive's continued employment.
- (4) Reflects time-based options to purchase shares of our common stock that vest as to 25% of the shares subject to the stock option on the vesting commencement date (approximately 12 months from the grant date) and thereafter vest in equal monthly installments over the following 36 months, generally subject to the executive's continued employment.
- (5) The exercise price of each option is not less than the fair market value of a share of our common stock on the date of grant, as determined by our Board of Directors. For stock options granted following our IPO, the exercise price is the closing price of a share of our common stock as reported on Nasdaq on the date of grant of the stock option.
- (6) All options have a 10-year term measured from the date of grant.
- (7) As described under "Equity Awards" above, in connection with his resignation in August 2018, Mr. Hoffman forfeited all stock options that were held by him that were unvested as of his termination of employment.

Retirement Benefits

We do not maintain any qualified or non-qualified defined benefit plans or supplemental executive retirement plans. We offer a tax-qualified defined contribution retirement plan, which we refer to as our 401(k) plan, to eligible employees, including our currently-employed named executive officers. Our 401(k) plan permits eligible employees to defer their annual eligible compensation subject to the limitations imposed by the Internal Revenue Service. We may, but are not required to, make discretionary profit-sharing contributions on behalf of eligible employees under this plan. In fiscal year 2015, we commenced making an employer match of 50% for the first 6% of employee contributions and have continued to do so. Employer matching contributions vest over a four-year period starting with the employee's date of hire.

Employment Letter Agreements

We have entered into employment letter agreements with Mr. Clark, which was amended and restated on January 16, 2014 and became effective prior to our IPO, and Ms. Fletcher, which became effective on January 16, 2014 and was amended on September 12, 2016. Each individual's employment letter agreements provide for an initial base salary and target annual bonus as well as severance payments and benefits upon certain terminations of each individual's employment as described below. The terms "change of control," "cause," "good reason" and, in the case of Mr. Clark, "disability" referred to below are defined in their employment letter agreements.

Termination of Employment without Cause or for Good Reason Following a Change of Control. If, within 12 months after a change of control, Mr. Clark or Ms. Fletcher's employment is terminated by us without cause or either individual terminates their employment for good reason, all stock options or other equity awards then held by Mr. Clark or Ms. Fletcher, as applicable, will fully vest. In addition, Mr. Clark and Ms. Fletcher will be entitled to receive base salary and payment of COBRA premiums for 18 and 15 months, respectively, following such individual's termination of employment.

Termination of Employment without Cause or for Good Reason. If the Mr. Clark or Ms. Fletcher's employment is terminated by us without cause or either of Mr. Clark or Ms. Fletcher terminates their employment for good reason other than following a change of control as described above, Mr. Clark and Ms. Fletcher, as applicable, will be entitled to receive base salary and payment of COBRA premiums for 12 and 9 months, respectively, following such termination of employment.

Termination of Employment Due to Death or Disability. If Mr. Clark or Ms. Fletcher's employment is terminated by us due to either individual's disability or death, we will pay Mr. Clark (or, if applicable, the his estate) or Ms. Fletcher, as applicable, a portion of each individual's target annual cash bonus for the year in which such termination of employment occurs, prorated based on the number of days that each individual was employed during such year until the date of such termination.

Severance Subject to Release of Claims. Our obligation to provide Mr. Clark and Ms. Fletcher with any severance payments or other benefits under their employment letter agreement is conditioned on each individual signing and not revoking an effective release of claims in our favor.

Other Termination of Employment. If Mr. Clark or Ms. Fletcher's employment is terminated for any reason other than by us without cause, by either individual for good reason, or due to either individual's death or disability, Mr. Clark and

Ms. Fletcher, as applicable, will only be entitled to receive earned but unpaid base salary and any accrued but not used vacation as of the termination date.

280G Better-of Provision. In the event of a change in ownership or control of our Company under Section 280G of the Internal Revenue Code of 1986, as amended (the "Code"), and the regulations thereunder, if any portion of the payments made pursuant to Mr. Clark's or Ms. Fletcher's employment letter agreement (or otherwise) constitute an "excess parachute payment" within the meaning of Section 280G of the Code, each individual, as applicable, will be entitled to receive an amount of such payments reduced so that no portion of the payments would constitute an excess parachute payment, or the amount otherwise payable to the each individual under the employment letter agreement (or otherwise) reduced by all applicable taxes, including the excise tax imposed under Section 4999 of the Code, whichever amount results in the greater amount payable to each individual on an after-tax basis.

Prior to his termination of employment, Mr. Hoffman was also party to an employment letter agreement with us. As described under "Agreement with Mr. Hoffman" above, Mr. Hoffman received certain payments and benefits in connection with his termination of employment. Dr. Carroll has an employment agreement with us but is not otherwise entitled to severance payments or benefits in connection with a termination of her employment.

As a condition to their employment with us, each of our named executive officers was required to sign and must comply with the terms of an At-Will Employment, Confidential Information, Invention Assignment and Non-Competition Agreement, pursuant to which he has agreed not to compete with us for a period of 12 months following the termination of his employment and not to solicit our employees or independent contractors for a period of 36 months (excepting Dr. Carroll, who is subject to a 12 month solicitation restriction) following the termination of his employment. Each executive has also agreed to covenants relating to the use and disclosure of confidential information and the assignment of inventions.

Equity Compensation Plan Information

The following table provides information as of December 31, 2018 about our common stock that may be issued upon the exercise of options, warrants, and rights under our existing equity compensation plans (in thousands):

Plan Category	Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights	Weighted-Average Exercise Price of Outstanding Options	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans
Equity compensation plans approved by security holders	6,939,044	\$ 2.38	1,977,407
Equity compensation plans not approved by security holders	200,000	\$ 1.21	—
Total	7,139,044	\$ 2.35	1,977,407

PROPOSAL NO. 2—TO APPROVE AN AMENDMENT TO OUR RESTATED CERTIFICATE OF INCORPORATION TO EFFECT A REVERSE STOCK SPLIT

General

Our Board of Directors has unanimously adopted a resolution approving, declaring advisable and recommending to the stockholders for their approval a proposal to amend the Company's restated certificate of incorporation, as amended to date, to effect a reverse stock split of the Company's issued and outstanding common stock at any whole number ratio between, and inclusive of, one for three and one for fifteen (the "Reverse Stock Split"). Approval of this Proposal Number 2 will grant the Board of Directors the authority, without further action by the stockholders, to carry out an amendment to the Company's restated certificate of incorporation to effect the Reverse Stock Split (the "Amendment") at any time within three months after the date stockholder approval for the Reverse Stock Split is obtained, with the exact exchange ratio and timing of the Reverse Stock Split (if at all) to be determined at the discretion of the Board of Directors. Our Board of Director's decision whether or not (and when) to effect the Reverse Stock Split (and at what whole number ratio to effect the Reverse Stock Split) will be based on a number of factors, including market conditions, existing and anticipated trading prices for our common stock and the continued listing requirements of the Nasdaq Capital Market.

A sample form of the certificate of amendment relating to this Proposal Number 2, which we would file with the Secretary of State of the State of Delaware to carry out the Reverse Stock Split, is attached to this proxy statement as Appendix A.

Rationale for a Reverse Stock Split

Our common stock trades on the Nasdaq Capital Market, which we believe helps support and maintain stock liquidity and Company recognition for our stockholders. Companies listed on the Nasdaq Capital Market, however, are subject to various rules and requirements imposed by the Nasdaq Stock Market which must be satisfied in order to continue having their stock listed on the exchange (these are called the Nasdaq's continued listing standards). One of these standards is the "minimum bid price" requirement, which requires that the bid price of the stock of listed companies be at least \$1.00 per share. A listed company risks being delisted and removed from the Nasdaq Capital Market if the closing bid price of its stock remains below \$1.00 per share for an extended period of time.

The closing bid price of our common stock has been below \$1.00 per share since May 3, 2018. On June 15, 2018, we received a delisting determination letter from the Nasdaq Global Stock Market indicating that we were at risk of delisting for failure to remain in compliance with the minimum bid price standard set forth in Nasdaq Marketplace Rule 5450(a)(1). In accordance with Nasdaq Listing Rule 5810(c)(3)(A), we had 180 calendar days, or until December 12, 2018, to regain compliance with the minimum bid price requirement. To regain compliance with the minimum bid price requirement of the Nasdaq Global Market, the closing bid price per share of our common stock would have to be \$1.00 or higher for a minimum of ten consecutive business days during this initial 180-day compliance period. However, this did not happen, and on December 13, 2018, we were notified by Nasdaq that we had not regained compliance with the minimum bid price requirement. Nasdaq determined that we were nevertheless eligible under Nasdaq Listing Rule 5810(c)(3)(A) for an additional 180 calendar day period, or until June 10, 2019, to regain compliance. This second 180 day period relates exclusively to the bid price deficiency. If at any time before June 10, 2019 the bid price of the Company's common stock closes at or above \$1.00 per share for a minimum of 10 consecutive business days, Nasdaq will provide written notice that we have achieved compliance with the Nasdaq listing standards.

Our common stock, which was transferred to and started trading on the Nasdaq Capital Market on December 17, 2018, may be delisted during the 180 days for failure to maintain compliance with any other non-bid price-related Nasdaq continued listing standards during this period, such as the minimum stockholders' equity standard.

If compliance cannot be demonstrated by June 10, 2019, Nasdaq will provide written notification that our common stock will be delisted. At that time, however, we may appeal Nasdaq's determination to a hearings panel. We will be asked to provide a plan to regain compliance to the hearings panel. Historically, the hearings panel has generally viewed a pre-appeal, near-term reverse stock split as the only definitive plan acceptable to resolve a minimum bid price deficiency.

All other things being equal, a reverse stock split by a publicly traded company reduces the number of shares outstanding but leaves the market capitalization of the company the same, which should increase the price per share of the company's stock. Put another way, after a reverse stock split, the enterprise value of a company is spread over fewer shares and so the per share price of the stock should be higher. As an example, a hypothetical company with a market value of \$50 million and 100 million

shares outstanding would have a trading price of \$0.50 per share (\$50 million divided by 100 million), while the same company with only 25 million shares outstanding would have a trading price of \$2.00 per share (\$50 million divided by 25 million).

We are asking stockholders to approve this Proposal Number 2 because we believe a reverse stock split will result in a higher price per share for outstanding shares of our common stock. Approval of this Proposal Number 2 would permit the Board of Directors, in their discretion to file the Amendment with the Secretary of State of Delaware in order to effect a reverse stock split of the Company's issued and outstanding common stock at any whole number ratio between, and inclusive of, one for three and one for fifteen. This, we believe, could provide a number of potential advantages, which we describe below. However, there can be no assurance that we will be able to regain compliance with the minimum bid price requirement or will otherwise be in compliance with other Nasdaq listing standards.

Potential Advantages from a Reverse Stock Split

Potential Advantage #1-Maintain Nasdaq Capital Market Listing. We believe that having our common stock delisted from the Nasdaq Capital Market would be undesirable for our stockholders and potentially bad for our business. Among other things, being delisted could reduce the liquidity of our common stock. We also deem valuable our ticker symbol, which is easily recognized as "GNCA" and which we could lose if we were delisted by the Nasdaq Capital Market. Also, being listed on the Nasdaq Capital Market carries with it certain prestige and we feel it improves the recognition of our company.

While no assurances can be given, our Board of Directors believes that a reverse stock split, at a whole number exchange ratio ranging from one for three (every three shares outstanding would be combined into one share) to one for fifteen (every fifteen shares outstanding would be combined into one share), should result in an increase in the Company's price per share, and thereby help the Company meet the \$1.00 per share minimum bid price requirement.

The Board of Directors believes that it is in the Company's best interests and in the interests of its stockholders to seek approval of the proposed Amendment to effect the Reverse Stock Split, if necessary, so that the Company can regain compliance even if the Company's stock trading price does not increase above \$1.00 per share by June 10, 2019, the end of the Company's second 180-day compliance period. Even if the closing price of the Company's common stock were to satisfy the minimum closing bid price requirements prior to approval of this Proposal Number 2, the Company may still effect the Amendment if its stockholders approve this Proposal Number 2 and the Board of Directors determines that effecting the Reverse Stock Split would be in the best interests of the Company and its stockholders.

Potential Advantage #2-Potential increase in the number of shares authorized for issuance. While the Reverse Stock Split would decrease the number of outstanding shares of our common stock, subject to shareholder approval of Proposal Number 3, the reduction in the number of authorized shares under our restated certificate of incorporation may not be reduced in proportion to the Reverse Stock Split. Consequently, the Reverse Stock Split could have the effect of increasing the number of shares of common stock available for issuance under our restated certificate of incorporation. Although we have no current plan, commitment, arrangement, understanding or agreement regarding the issuance of the additional shares of common stock resulting from the proposed increase in authorized shares that will become available as a result of the Reverse Stock Split, we believe an effective increase in the number of shares authorized but unissued is important to the future growth of the Company because we will need to raise significant additional funds in order to advance the Company's various development programs, including the continued clinical testing of GEN-009, GEN-011 and other product candidates. These additional shares available for issuance would be used to raise money to fund the Company's working capital and other corporate needs, for future acquisitions of assets, programs or businesses, and for other corporate purposes.

The Reverse Stock Split, which could effectively increase the number of authorized shares, would not have any immediate effect on the proportionate voting power or other rights of the existing stockholders. However, upon issuance, any additional shares of authorized common stock issued after the amendment to the restated certificate of incorporation is effected would have rights identical to the currently outstanding shares of common stock. To the extent that the additional authorized shares of capital stock are issued in the future, they may decrease the voting rights of existing stockholders and, depending on the price at which they are issued, could be economically dilutive to existing stockholders and have a negative effect on the market price of the common stock. Current stockholders have no preemptive or similar rights, which means that current stockholders do not have a prior right to purchase any new issue of capital stock in order to maintain their proportionate ownership of the Company. We could also use the additional shares of capital stock for potential strategic transactions including, among other things, acquisitions, spin-offs, strategic partnerships, joint ventures, restructurings, divestitures, business combinations, and investments, although we have no present plans to do so. We cannot provide assurances that any such transactions will be consummated on favorable terms or at all, that they will enhance stockholder value or that they will not adversely affect our business or the trading price of our stock. However, we believe the effective increase in our authorized

capital will be important to preserving our ability to opportunistically acquire assets and technologies to grow our business. A vote against this proposal could therefore hurt our ability to grow our business and complete our existing product development efforts.

Potential Advantage #3-Facilitate Potential Future Financings. By preserving our Nasdaq Capital Market listing, we can continue to consider and pursue a wide range of future financing options to support our ongoing clinical development programs. To move our products through the clinical, regulatory and reimbursement processes, we will need to raise additional money. We believe being listed on a national securities exchange, such as the Nasdaq Capital Market, is valued highly by many investors such as large institutions. A listing on a national securities exchange also has the potential to create better liquidity and reduce volatility for buying and selling shares of our stock, which benefits our current and future stockholders.

Potential Advantage #4-Increase Our Common Stock Price to a Level More Appealing for Investors. We believe that the Reverse Stock Split could enhance the appeal of our common stock to the financial community, including institutional investors, and the general investing public. We believe that a number of institutional investors and investment funds are reluctant to invest in lower priced securities and that brokerage firms may be reluctant to recommend lower priced stock to their clients, which may be due in part to a perception that lower-priced securities are less promising as investments, are less liquid in the event that an investor wishes to sell his, her or its shares, or are less likely to be followed by institutional securities research firms. We believe that the reduction in the number of issued and outstanding shares of our common stock caused by the Reverse Stock Split, together with the anticipated increased stock price immediately following and resulting from the Reverse Stock Split, may encourage further interest and trading in our common stock and thus possibly promote greater liquidity for our stockholders, thereby resulting in a broader market for our common stock than that which currently exists.

Certain Risks Associated with the Reverse Stock Split

While we believe the proposed Reverse Stock Split is critically important to the Company and its stockholders, the Reverse Stock Split does carry with it several significant risks.

We cannot assure you, for example, that the market price per share of our common stock after the Reverse Stock Split will rise or remain constant in proportion to the reduction in the number of shares of common stock outstanding before the Reverse Stock Split. For example, using the closing price of our common stock on February 28, 2019 of \$0.73 per share as an example, if our Board of Directors were to implement the Reverse Stock Split at a one for ten ratio, we cannot assure you that the post-split market price of our common stock would be or would remain at a price of ten times greater than \$0.73, or \$7.30 (\$0.73 x 10). In many cases, the market price of a company's shares declines after a reverse stock split.

The market price of our common stock will also be based on our performance and other factors, some of which are unrelated to the number of shares outstanding. If the Reverse Stock Split is effected and the market price of our common stock declines, the percentage decline as an absolute number and as a percentage of our overall market capitalization may be greater than would occur in the absence of a Reverse Stock Split. Furthermore, the liquidity of our common stock could be adversely affected by the reduced number of shares that would be outstanding after the Reverse Stock Split.

We also cannot assure you that the Reverse Stock Split will result in per share stock prices that will attract additional investors or increase analyst coverage. In addition, a successful Reverse Stock Split does not guarantee the Company will continue to satisfy the other continued listing requirement of the Nasdaq Capital Market. While our Board of Directors has proposed the Reverse Stock Split to bring the price of the Company's common stock back above \$1.00 per share in order to meet the requirements for the continued listing of the Company's common stock on Nasdaq, there is no guarantee that the price of the Company's common stock will not decrease in the future, or that the Company's common stock will remain in compliance with Nasdaq listing standards. There can be no guarantee that the closing bid price of the Company's common stock will remain at or above \$1.00 for 10 consecutive trading days, whether following the Reverse Stock Split or otherwise, which is required to cure our current Nasdaq listing standard deficiency.

Management is unaware of any specific effort to obtain control of the Company, and has no present intention of using the proposed effective increase in the number of authorized shares of common stock as an anti-takeover device. In addition, the Board of Directors does not have any intent for the Reverse Stock Split to be the first step in a "going-private transaction" within the meaning of Rule 13e-3 of the Exchange Act. In fact, since all fractional shares of Common Stock resulting from the Reverse Stock Split will be rounded up to the nearest whole share, there will be no reduction in the number of shareholders of record that could provide the basis for a going-private transaction. However, the Company's authorized, but unissued, capital stock could be used to make an attempt to effect a change in control more difficult.

Principal Effects of the Amendment

Text of the Amendment to our certificate of incorporation. If the stockholders approve this Proposal Number 2 to authorize our Board of Directors to implement the Amendment and our Board of Directors decides to implement the Amendment, we will amend subsection (a) of Article IV of our restated certificate of incorporation by deleting it in its entirety and replacing it with the following in lieu thereof:

“(a) That, effective upon the filing of this Certificate of Amendment to the Restated Certificate of Incorporation with the Secretary of State of Delaware (the “Effective Time”), every [three] ... [fifteen] shares of the Corporation’s common stock, \$0.001 par value per share (the “Common Stock”), issued and outstanding prior to the Effective Time, without further action, will be combined into and automatically become one share of issued and outstanding Common Stock of the Corporation (such reclassification and combination of shares, the “Reverse Stock Split”). The Corporation will not issue fractional shares on account of the Reverse Stock Split; all shares that are held by a stockholder as of the Effective Time shall be aggregated and each fractional share resulting from the Reverse Stock Split after giving effect to such aggregation shall be rounded up to the nearest whole number. The total number of shares of stock which the Corporation shall have authority to issue is 110,000,000, consisting of 85,000,000 shares of Common Stock and 25,000,000 shares of Preferred Stock, par value \$0.001 per share (“Preferred Stock”). Such stock may be issued from time to time by the Corporation for such consideration as may be fixed by the board of directors of the Corporation (the “Board of Directors”).”

To carry out the Amendment, we would file with the Secretary of State of Delaware a certificate of amendment in substantially the form attached as Appendix A. Stockholders are encouraged to review this carefully as it would modify the capitalization of the company upon filing.

Reverse Stock Split ratio and resulting share numbers. If approved by our stockholders and Board of Directors, the Reverse Stock Split would be effected simultaneously for all of our then-existing common stock and the exchange ratio would be the same for all of our shares of issued and outstanding common stock. The Reverse Stock Split would affect all of our stockholders uniformly and would not affect any stockholder’s percentage ownership interests in us, except to the extent that the Reverse Stock Split results in any of our stockholders owning a fractional share. Shares of common stock issued pursuant to the Reverse Stock Split (the “New Shares”) would remain fully paid and nonassessable. The Reverse Stock Split would not affect our continuing to be subject to the periodic reporting requirements of the Securities Exchange Act of 1934, as amended.

The information in the following table, which summarizes the possible effect of the Reverse Stock Split, is based on the following issued and outstanding equity, as of February 28, 2019: (i) 112,371,154 shares of common stock issued and outstanding; (ii) outstanding equity awards (options and RSUs) to acquire up to 10,448,413 shares of common stock, (iii) warrants outstanding to acquire up to 41,051,180 shares of common stock and preferred stock outstanding to acquire up to 1,635,000 shares of common stock.

Split Ratio for Issued and Outstanding Shares	Common Stock Outstanding after the Reverse Stock Split (1)	Warrant, Preferred Stock and Option Shares Reserved after the Reverse Stock Split	Common Stock Authorized after the Reverse Stock Split	Post-Split Common Stock Authorized but Unissued and Unreserved after the Reverse Stock Split (1)
1 for 3	37,457,051	17,711,531	85,000,000	47,542,949
1 for 4	28,092,789	13,283,648	85,000,000	56,907,211
1 for 5	22,474,231	10,626,919	85,000,000	62,525,769
1 for 6	18,728,526	8,855,766	85,000,000	66,271,474
1 for 7	16,053,022	7,590,656	85,000,000	68,946,978
1 for 8	14,046,394	6,641,824	85,000,000	70,953,606
1 for 9	12,485,684	5,903,844	85,000,000	72,514,316
1 for 10	11,237,115	5,313,459	85,000,000	73,762,885
1 for 11	10,215,559	4,830,418	85,000,000	74,784,441
1 for 12	9,364,263	4,427,883	85,000,000	75,635,737
1 for 13	8,643,935	4,087,276	85,000,000	76,356,065
1 for 14	8,026,511	3,795,328	85,000,000	76,973,489
1 for 15	7,491,410	3,542,306	85,000,000	77,508,590

- (1) The actual number of shares of common stock outstanding after the Reverse Stock Split may be higher depending on the number of fractional shares that are rounded up. As of February 28, 2019, the Company had approximately 129,616,022 authorized but unissued and available shares of common stock.

Procedure for Effecting Reverse Stock Split and Exchange of Stock Certificates

If this Proposal Number 2 is approved by our stockholders and if our Board of Directors concludes that the Reverse Stock Split is in the best interests of the Company and its stockholders on a date within three months after stockholder approval is obtained, our Board of Directors would cause the Reverse Stock Split to be implemented at the whole number ratio between one for three and one for fifteen, as selected by our Board of Directors in its sole discretion. We would file the Certificate of Amendment with the Secretary of State of Delaware at such time as our Board of Directors has determined the appropriate effective time for the Amendment. Our Board of Directors may delay effecting the Amendment without resoliciting stockholder approval to any time within three months after the date stockholder approval is obtained (if at all). The Amendment would become effective on the date the Certificate of Amendment is filed with the Secretary of State of Delaware (the "Reverse Split Effective Date"). All of our registered holders of common stock that hold their shares electronically in book-entry form with our transfer agent, Computershare Trust Company, will be provided with a statement, by the transfer agent, reflecting the number of shares of our common stock registered in their accounts. No action needs to be taken to receive post-Reverse Stock Split shares because the exchange will be automatic.

Fractional Shares

No fractional shares would be issued in connection with the Reverse Stock Split. Stockholders of record who otherwise would be entitled to receive fractional shares would be entitled to rounding up of their fractional share to the nearest whole share.

Effect on Options, Warrants, Preferred Stock and Other Securities

All outstanding options, warrants, preferred stock and other securities entitling their holders to purchase shares of our common stock would be adjusted as a result of the Reverse Stock Split, as required by the terms of each security. In particular, the conversion ratio for each security would be reduced proportionately, and the exercise price, if applicable, would be increased proportionately, in accordance with the terms of each security and based on the exchange ratio implemented in the Reverse Stock Split.

Accounting Matters

The Amendment would not affect the common stock capital account on our balance sheet. As of the Reverse Split Effective Date, the stated capital on our balance sheet attributable to our common stock would be reduced proportionately based on the selected exchange ratio, and the additional paid-in capital account would be credited with the amount by which the stated capital is reduced. In future financial statements, we would restate net income or loss per share and other per share amounts for periods ending before the Reverse Stock Split to give retroactive effect to the Reverse Stock Split. The per share net income or loss and net book value of our common stock would be increased because there would be fewer shares of our common stock outstanding.

Discretionary Authority of the Board of Directors to Abandon Reverse Stock Split

The Board of Directors reserves the right to abandon the Amendment without further action by our stockholders at any time before the effectiveness of the filing with the Secretary of State of Delaware of the Certificate of Amendment to the Company's restated certificate of incorporation, even if the Reverse Stock Split has been authorized by our stockholders at the Annual Meeting. By voting in favor of the Reverse Stock Split, you are expressly also authorizing our Board of Directors to determine not to proceed with, and abandon, the Reverse Stock Split, if it should so decide.

No Dissenter's Rights

Neither Delaware law, the Company's restated certificate of incorporation, nor the Company's amended and restated by-laws provides for appraisal or other similar rights for dissenting stockholders in connection with this proposal. Accordingly, the Company's stockholders will have no right to dissent and obtain payment for their shares, and we will not independently provide stockholders with any such right.

Directors' Recommendation

The affirmative vote of a majority of all outstanding shares of common stock is required to approve the Reverse Stock Split at the Annual Meeting. If you abstain from voting on this Proposal Number 2 to approve the Reverse Stock Split, it will have the same effect as a vote "AGAINST" the proposal. Your vote is therefore extremely important.

THE BOARD OF DIRECTORS RECOMMENDS A VOTE FOR THE PROPOSAL TO AMEND THE COMPANY'S CERTIFICATE OF INCORPORATION TO EFFECT THE REVERSE STOCK SPLIT OF THE COMPANY'S ISSUED AND OUTSTANDING COMMON STOCK AS DESCRIBED IN THIS PROPOSAL NUMBER 2.

Please Note: This proxy statement contains forward looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Securities Exchange Act that involve substantial risks and uncertainties. Such statements include, without limitation, all statements as to expectation or belief and statements as to the future trading price and liquidity of our common stock, whether traded on the Nasdaq Capital Market or otherwise; our future results of operations; our ability to satisfy all the listing requirements of Nasdaq; the prospect for analyst coverage; and the need for, and timing of, additional capital and capital expenditures. Our actual results may vary materially from those contained in such forward-looking statements because of risks to which we are subject, including our estimates regarding the timing and amount of funds we require to initiate clinical trials for GEN-009 and to continue our investments in immuno-oncology; our estimate for when we will require additional funding; our plans to commercialize GEN-009 and our other product candidates; the timing of, and our ability to, obtain and maintain regulatory approvals for our product candidates; the rate and degree of market acceptance and clinical utility of any approved product candidate; the potential benefits of strategic partnership agreements and our ability to enter into strategic partnership arrangements; our ability to quickly and efficiently identify and develop product candidates; our commercialization, marketing and manufacturing capabilities and strategy; our intellectual property position; our estimates regarding expenses, future revenues, capital requirements, the sufficiency of our current and expected cash resources and our need for additional financing; and other risks to which we are subject. All forward-looking statements attributable to us or to persons acting on our behalf are expressly qualified in their entirety by the cautionary statements and risk factors set forth in "Risk Factors" in Part I, Item 1A of our Form 10-K for the fiscal year ended December 31, 2018.

**THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT YOU VOTE
FOR
THE APPROVAL OF THE AMENDMENT TO OUR RESTATED CERTIFICATE OF INCORPORATION TO EFFECT A REVERSE STOCK SPLIT
(PROPOSAL 2 ON YOUR PROXY CARD)**

PROPOSAL NO. 3-SUBJECT TO SHAREHOLDER APPROVAL OF PROPOSAL NO. 2, TO APPROVE AN AMENDMENT TO OUR RESTATED CERTIFICATE OF INCORPORATION TO DECREASE THE TOTAL NUMBER OF SHARES OF COMMON STOCK THAT THE COMPANY IS AUTHORIZED TO ISSUE FROM 250,000,000 TO 85,000,000 SHARES

General

The Board of Directors has recommended that, subject to the shareholders' approval of Proposal 2, the shareholders approve an amendment to the Company's restated certificate of incorporation to decrease the number of shares of authorized common stock from 250,000,000 shares to 85,000,000 shares.

Reason for the Decrease of Authorized Shares

The Board believes that a decrease of the number of shares of authorized (but unissued) common stock is appropriate to reduce Delaware franchise tax.

Effect of the Decrease of Authorized Shares

The decrease of the number of shares of authorized common stock (if it is approved by the Company's shareholders) will not change any rights of any holder of our common stock as such decrease would only apply to unissued authorized common stock. Voting rights of the holders of the issued shares of common stock will remain the same.

Less authorized common stock will limit future potential issuances of additional shares of our common stock. On the one hand, limiting potential future issuances of additional shares of our common stock could have the effect of limiting dilution of earnings per share and book value per share of existing shareholders. On the other hand, there may be less authorized (but not yet issued) shares of our common stock for such potential purposes as, for example, raising capital, providing equity incentives to employees, officers or directors, establishing strategic relationships with other companies, and expanding the Company's business, products or product candidates through the acquisition of other businesses or products.

Even after the number of shares of authorized common stock is decreased to 85,000,000 shares (if it is approved by the Company's shareholders), the remaining authorized but unissued shares could still be used in the future for various purposes without further shareholder approval, except as such approval may be required in particular cases by our charter documents, applicable law or the rules of the Nasdaq Capital Market or any stock exchange or other market on which our securities may then be listed. These potential purposes may include: raising capital, providing equity incentives to employees, officers or directors, establishing strategic relationships with other companies, and expanding our business, products or product candidates through the acquisition of other businesses or products.

If the number of shares of authorized common stock is decreased to 85,000,000 shares (if it is approved by the Company's shareholders), less additional authorized but unissued shares would be available to oppose a hostile takeover attempt or to delay or prevent changes in control or management of the Company. Although the proposal to decrease the authorized common stock is not related to any hostile takeover attempt (nor is the Board of Directors currently aware of any such attempts directed at the Company), nevertheless, shareholders should be aware that Proposal 3 could potentially hinder future efforts by us to deter or prevent changes in control of the Company, including transactions in which shareholders of the Company might otherwise receive a premium for their shares over then current market prices. However, the Board of Directors has a fiduciary duty to act in the best interests of the Company's shareholders at all times.

Required Vote

The proposal to approve an amendment to our certificate of incorporation to decrease the number of shares of authorized common stock from 250,000,000 shares to 85,000,000 shares will be approved if (i) shareholders approve Proposal No. 2 and (ii) a majority of the outstanding shares entitled to vote on the proposal vote for approval of Proposal 3. As a result, abstentions and broker non-votes will have the same effect as a vote against Proposal 3.

**SUBJECT TO SHAREHOLDER APPROVAL OF PROPOSAL NO. 2, THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT YOU
VOTE
FOR
THE APPROVAL OF AN AMENDMENT TO OUR RESTATED CERTIFICATE OF INCORPORATION TO DECREASE THE TOTAL NUMBER OF
SHARES OF COMMON STOCK THAT THE COMPANY IS AUTHORIZED TO ISSUE FROM 250,000,000 TO 85,000,000 SHARES**

(PROPOSAL 3 ON YOUR PROXY CARD)

**PROPOSAL NO. 4—RATIFICATION OF SELECTION OF INDEPENDENT REGISTERED
PUBLIC ACCOUNTING FIRM**

The Audit Committee and the Board of Directors believe that the continued retention of Ernst & Young LLP as our independent registered public accounting firm is in the best interest of the Company and our stockholders and we are asking our stockholders to ratify the Audit Committee's selection of Ernst & Young LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2019. Although ratification is not required by our amended and restated by-laws or otherwise, the Board of Directors is submitting the selection of Ernst & Young LLP to our stockholders for ratification as a matter of good corporate practice. If the selection is not ratified, the Audit Committee will consider whether it is appropriate to select another independent registered public accounting firm. Even if the selection is ratified, the Audit Committee in its discretion may select a different registered public accounting firm at any time during the year if the committee determines that such a change would be in the best interests of the Company and our stockholders.

The Board of Directors first approved Ernst & Young LLP as our independent registered public accounting firm in 2009, and Ernst & Young LLP has audited our consolidated financial statements at December 31, 2018 and 2017, and for the years ended December 31, 2018 and 2017. Representatives of Ernst & Young LLP are expected to be present at the Annual Meeting. They will be given an opportunity to make a statement at the Annual Meeting if they desire to do so, and they will be available to respond to appropriate questions.

The Audit Committee pre-approves all audit and permitted non-audit services (including the fees and terms thereof) to be performed by Ernst & Young LLP, subject to the de minimis exception for non-audit services that are approved by the Audit Committee prior to the completion of an audit. The Audit Committee may delegate pre-approval authority to one or more members of the Audit Committee consistent with applicable law and listing standards, provided that the decisions of such Audit Committee member or members must be presented to the full Audit Committee at its next scheduled meeting. All of the services described in the following fee table were approved in conformity with the Audit Committee's pre-approval process.

Principal Accountant Fees and Services

We regularly review the services and fees of our independent registered public accounting firm. These services and fees are also reviewed by the Audit Committee on an annual basis. The aggregate fees billed for the fiscal years ended December 31, 2018 and 2017 for each of the following categories of services are as follows:

Fee Category	2018	2017
Audit Fees	\$ 769,466	\$ 513,703
Audit-Related Fees	—	—
Tax Fees	—	—
All Other Fees	—	—
Total Fees	\$ 769,466	\$ 513,703

Audit Fees. Consists of fees billed for professional services rendered for the audit of our annual financial statements, the review of interim financial statements and services provided in connection with our registration statements on Form S-8 and Form S-3.

Audit-Related Fees. Consist of fees billed for assurance and related services that are reasonably related to the performance of the audit or review of our financial statements and are not reported under Audit Fees.

Tax Fees. Consists of fees billed for tax compliance, tax advice and tax planning and includes fees for tax return preparation.

All Other Fees. Consists of all other fees billed other than those described above under Audit Fees, Audit-Related Fees and Tax Fees.

All of the services under the captions "Audit Fees" were pre-approved by our Audit Committee.

Pre-Approval Policies and Procedures

Our Audit Committee has adopted policies and procedures relating to the approval of all audit and non-audit services that are to be performed by our registered public accounting firm. This policy generally provides that we will not engage our registered public accounting firm to render audit or non-audit services unless the service is specifically approved in advance by our Audit Committee or the engagement is entered into pursuant to one of the pre-approval procedures described below.

From time to time, our Audit Committee may pre-approve specified types of services that are expected to be provided to us by our registered public accounting firm during the next 12 months. Any such pre-approval is detailed as to the particular service or type of services to be provided and is also generally subject to a maximum dollar amount.

**THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT YOU VOTE
FOR
THE RATIFICATION OF THE APPOINTMENT OF ERNST & YOUNG LLP AS THE COMPANY'S
INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM.**

(PROPOSAL 4 ON YOUR PROXY CARD)

BENEFICIAL OWNERSHIP OF COMMON STOCK

The following table sets forth information relating to the beneficial ownership of our common stock as of February 28, 2019, by: each person, or group of affiliated persons, known by us to beneficially own more than 5% of our outstanding shares of common stock; each of our directors; each of our named executive officers; and all directors and executive officers as a group.

The percentage of shares beneficially owned is computed on the basis of 112,371,154 shares of our common stock outstanding as of February 28, 2019. The number of shares beneficially owned by each entity, person, director or executive officer is determined in accordance with the rules of SEC, and the information is not necessarily indicative of beneficial ownership for any other purpose. Shares of our common stock that a person has the right to acquire within 60 days of February 28, 2019 are deemed outstanding for purposes of computing the percentage ownership of the person holding such rights, but are not deemed outstanding for purposes of computing the percentage ownership of any other person, except with respect to the percentage ownership of all directors and executive officers as a group. Unless otherwise indicated below, the address for each beneficial owner listed is c/o Genoclea Biosciences, Inc., Cambridge Discovery Park, 100 Acom Park Drive, Cambridge, MA 02140.

Name and Address of Beneficial Owned	Number of Shares Beneficially Owned	Percentage of Shares Beneficially Owned
5% or greater stockholders:		
New Enterprise Associates 16, L.P. (1) 1954 Greenspring Drive, Suite 600 Timonium, MD 21093	49,935,336	39.21%
S.R. One, Limited (2) 980 Great West Road Brentford, Middlesex, TW8 9GS England	14,557,004	12.67%
BVF Partners L.P. (3) 44 Montgomery Street, 40th Floor San Francisco, CA 94104	11,602,974	9.99%
Vivo Opportunity, LLC (4) 505 Hamilton Avenue, Suite 2017 Palo Alto, CA 94301	11,563,933	9.99%
Directors and Named Executive Officers:		
William Clark (5)	1,490,735	1.31%
Jessica Baker Fletcher, Ph.D. (6)	373,981	*
Pamela Carroll, Ph.D. (7)	100,230	*
Eric Hoffman (8)	15,790	*
Kenneth Bate (9)	45,126	*
Ali Behbahani, M.D. (10)	8,333	*
Katrine Bosley (11)	103,100	*
Ronald Cooper (12)	31,666	*
Michael Higgins (13)	40,084	*
Howard Mayer, M.D. (14)	16,666	*
George Siber, M.D. (15)	264,264	*
All executive officers and directors as a group (16 persons) (16)	2,665,179	2.33%

* Represents beneficial ownership of less than one percent of our outstanding common stock.

- (1) Based on a Schedule 13D filed with the SEC on February 14, 2019, consisting of 34,948,269 shares of common stock and warrants to purchase 14,987,067 shares of common stock. NEA Partners 16, L.P. ("NEA Partners 16") is the sole general partner of NEA 16. NEA 16 GP, LLC ("NEA 16 LLC") is the sole general partner of NEA Partners 16. The individual managers of NEA 16 LLC are Peter J. Barris, Forest Baskett, Ali Behbahani, Carmen Chang, Anthony A. Florence, Jr., Mohamad H. Makhzoumi, Joshua Makower, David M. Mott, Scott D. Sandell, Peter W. Sonsini and Paul Walker (collectively, the "Managers"). The Managers share voting and dispositive power with regard to the shares held directly by NEA 16.

- (2) Based on a Schedule 13D filed with the SEC on February 25, 2019, consisting of 12,069,937 shares of common stock and 2,487,067 shares of common stock issuable upon the exercise of warrants. These shares and warrants are held directly by S.R. One, Limited, an indirect wholly-owned subsidiary of GlaxoSmithKline plc.
- (3) Based on a Schedule 13G filed with the SEC on February 14, 2019, which discloses shares as of December 31, 2018, and securities purchased in connection with a private placement in February 2019. Consists of 3,777,888 shares of common stock held of record by Biotechnology Value Fund, L.P. ("BVF"), 2,924,147 shares of common stock held of record by Biotechnology Value Fund II, L.P. ("BVF2"), 591,427 shares of common stock held of record by Biotechnology Value Trading Fund OS LP ("Trading Fund OS"), and 534,781 shares of common stock held of record by the Partners Managed Accounts ("Managed Accounts"). Also includes 3,774,731 shares of common stock issuable upon exercise of warrants held by the above referenced BVF entities. Excludes 4,716,216 shares of common stock issuable upon the exercise of warrants, which are not exercisable within 60 days of February 28, 2019 by virtue of the beneficial ownership limitation described below. The number of shares of common stock into which the warrants are convertible is limited to that number of shares of common stock which would result in the stockholders, together with its affiliates, having an aggregate beneficial ownership of no more than 9.99% of the total issued and outstanding shares of common stock. This beneficial ownership limitation may be increased or decreased to an amount not to exceed 19.99% of the number of shares of common stock outstanding immediately after giving effect to the issuance of shares of common stock issuable upon exercise of warrants.
- (4) Based on a Schedule 13G filed with the SEC on January 26, 2018, consisting of 8,180,000 shares of common stock, 1,635,000 shares of common stock upon conversion of 1,635 shares of Series A convertible preferred stock held of record by Vivo Opportunity Fund, L.P., and 1,748,933 shares of common stock issuable upon exercise of 3,497,866 warrants. Excludes 3,158,567 shares of common stock issuable upon the exercise of warrants, which are not exercisable within 60 days of February 28, 2019 by virtue of the beneficial ownership limitation described below. Vivo Opportunity, LLC is the general partner of Vivo Opportunity Fund, L.P. The voting members of Vivo Opportunity, LLC are Frank Kung, Albert Cha, Shan Fu, Gaurav Aggarwal and Michael Chang, none of whom has individual voting or investment power with respect to these shares of common stock and each of whom disclaims beneficial ownership of such shares of common stock. The number of shares of common stock into which the Series A convertible preferred stock are convertible is limited to that number of shares of common stock which would result in the stockholder, together with its affiliates, having an aggregate beneficial ownership of no more than 9.99% of the total issued and outstanding shares of common stock. The number of shares of common stock issuable upon exercise of warrants is limited to that number of shares of common stock which would result in the stockholder, together with its affiliates, having an aggregate beneficial ownership of no more than 4.99% to the total issued and outstanding shares of common stock. This beneficial ownership limitation may be increased or decreased to an amount not to exceed 9.99% of the number of shares of common stock outstanding immediately after giving effect to the issuance of shares of common stock issuable upon exercise of the warrants.
- (5) Consisting of 104,931 shares of common stock and 1,385,804 shares of common stock that can be acquired upon the exercise of options within 60 days of February 28, 2019.
- (6) Consisting of 16,787 shares of common stock and 357,194 shares of common stock that can be acquired upon the exercise of options within 60 days of February 28, 2019.
- (7) Consisting of 11,600 shares of common stock and 88,630 shares of common stock that can be acquired upon the exercise of options within 60 days of February 28, 2019.
- (8) Consisting of 15,790 shares of common stock.
- (9) Consisting of 45,126 shares of common stock that can be acquired upon the exercise of options within 60 days of February 28, 2019.
- (10) Consisting of 8,333 shares of common stock that can be acquired upon the exercise of options within 60 days of February 28, 2019.
- (11) Consisting of 31,092 shares of common stock and 72,008 shares of common stock that can be acquired upon the exercise of options within 60 days of February 28, 2019.
- (12) Consisting of 31,666 shares of common stock that can be acquired upon the exercise of options within 60 days of February 28, 2019.

- (13) Consisting of 40,084 shares of common stock that can be acquired upon the exercise of options within 60 days of February 28, 2019.
- (14) Consisting of 16,666 shares of common stock that can be acquired upon the exercise of options within 60 days of February 28, 2019.
- (15) Consisting of 165,417 shares of common stock and 98,847 shares of common stock that can be acquired upon the exercise of options within 60 days of February 28, 2019.
- (16) Consisting of 415,617 shares of common stock and 2,249,562 shares of common stock that can be acquired upon the exercise of options within 60 days of February 28, 2019.

CERTAIN RELATIONSHIPS AND RELATED PERSON TRANSACTIONS

The following is a description of transactions since January 2018, to which we have been a party, in which the amount involved exceeded or will exceed \$120,000, and in which any related person had a direct or indirect material interest.

Indemnification Agreements

We entered into indemnification agreements with each of our directors and executive officers. These agreements will require us to indemnify these individuals and, in certain cases, affiliates of such individuals, to the fullest extent permissible under Delaware law against liabilities that may arise by reason of their service to us or at our direction, and to advance expenses incurred as a result of any proceeding against them as to which they could be indemnified.

Registration Rights Agreement

We are a party to a registration rights agreement with certain holders of common stock, including some of our directors, executive officers and 5% stockholders and their affiliates and entities affiliated with our directors. The registration rights agreement provides these holders the right to demand that we file a registration statement or request that their shares be covered by a registration statement that we are otherwise filing.

Transactions with Our Executive Officers, Directors and 5% Stockholders

In connection with our January 2018 equity financing, we agreed to elect one representative from New Enterprise Associates, or NEA, to serve as a member of our Board of Directors. NEA was a lead investor in both the January 2018 equity financing and a February 2019 equity financing and beneficially owns approximately 39% of our common stock as of February 28, 2019. In February 2018, the Board of Directors elected Ali Behbahani, a partner in the healthcare group at NEA, as a director of the Company. We do not have any obligation to continue to nominate NEA's representative on our Board of Directors.

Related Person Transactions Policy

Pursuant to our written related person transaction approval policy, if we want to enter into a transaction with a related person or an affiliate of a related person, our Chief Financial Officer will review the proposed transaction to determine, based on applicable Nasdaq and SEC rules, if such transaction requires pre-approval by the Audit Committee and/or Board of Directors. If pre-approval is required, such matters will be reviewed at the next regular or special Audit Committee and/or Board of Directors meeting. We may not enter into a related person transaction unless our Chief Financial Officer has either specifically confirmed in writing that no further reviews are necessary or that all requisite corporate reviews have been obtained.

Transactions with related persons

If a related person proposes to enter into such a transaction, arrangement or relationship, which we refer to as a "related person transaction," the related person must report the proposed related person transaction to our Chief Financial Officer. The policy calls for the proposed related person transaction to be reviewed and, if deemed appropriate, approved by our Audit Committee. Whenever practicable, the reporting, review and approval will occur prior to entry into the transaction. If advance review and approval is not practicable, the Audit Committee will review, and, in its discretion, may ratify the related person transaction. The policy also permits the chair of the Audit Committee to review and, if deemed appropriate, approve proposed related person transactions, in which the amount involved does not exceed \$500,000, that arise between Audit Committee meetings, subject to ratification by the Audit Committee at its next meeting. Any related person transactions that are ongoing in nature will be reviewed annually.

A related person transaction reviewed under the policy will be considered approved or ratified if it is authorized by the Audit Committee after full disclosure of the related person's interest in the transaction.

In addition to the transactions that are excluded by the instructions to the SEC's related person transaction disclosure rule, our Board of Directors has determined that the following transactions are pre-approved by the Audit Committee even if the aggregate amount of such transaction exceeds \$120,000:

- employment of executive officers where the related compensation is required to be reported in a proxy statement (general applicable to "named executive officers") or the executive officer is not an immediate family member of another executive officer or director, the related compensation would be reported as

compensation in a proxy statement and the Compensation Committee approved (or recommended that the Board of Directors approve) such compensation;

- any compensation paid to a director if the compensation is required to be reported in a proxy statement;
- any transaction with another company at which a related person's only relationship is an employee (other than an executive officer), director or beneficial owner of less than 10% of that company's shares, if the aggregate amount involved does not exceed the greater of \$1 million or 2% of that company's total annual revenues;
- any transaction where our Company is indebted to another company at which a related person's only relationship is an employee (other than an executive officer), director or beneficial owner of less than 10% of that company's shares, if the total amount of our Company's indebtedness to the other company at the end of that company's last completed fiscal year does not exceed 1% of that company's total consolidated assets;
- any transaction where the related person's interest arises solely from the ownership of our Company's common stock and all holders of our Company's common stock received the same benefit on a pro rata basis;
- any transaction involving a related person where the rates or charges involved are determined by competitive bids;
- any transaction with a related person involving the rendering of services as common or contract carrier, or public utility, at rates or charges fixed in conformity with law or governmental authority; or
- any transaction with a related person involving services as a bank depository of funds, transfer agent, registrar, trustee under a trust indenture, or similar services.

GENERAL MATTERS

Code of Business Conduct and Ethics and Corporate Governance Guidelines

We have adopted a Code of Business Conduct and Ethics for our directors, officers and employees. A copy of the Code of Business Conduct and Ethics may be accessed free of charge by visiting our website at <http://ir.genocoea.com/> and going to the "Investor Relations—Governance" section or by requesting a copy in writing from Derek Meisner, General Counsel and Secretary, at our Cambridge, Massachusetts office. We intend to post on our website amendments to, or waivers under, a provision of the Code of Business Conduct and Ethics that apply to certain of our executive officers within four business days following the date of such amendment or waiver.

A copy of the Corporate Governance Guidelines may also be accessed free of charge by visiting the website at <http://ir.genocoea.com/> and going to the "Investors Relations—Governance" section or by requesting a copy in writing from Derek Meisner, General Counsel and Secretary, at our Cambridge, Massachusetts office.

Availability of Certain Documents

A copy of our 2018 Annual Report has been posted on the Internet along with this Proxy Statement. We will mail without charge, upon written request, a copy of our 2018 Annual Report excluding exhibits. Please send a written request to our Corporate Secretary at:

Genocoea Biosciences, Inc.
100 Acorn Park Drive

Cambridge, MA 02140

Attention: General Counsel and Secretary

Only one copy of this Proxy Statement is being delivered to multiple stockholders sharing an address, unless we have received contrary instructions from one or more of the stockholders. We will undertake to deliver promptly, upon written or oral request, a separate copy to a stockholder at a shared address to which a single copy of the Proxy Statement was delivered. You may make a written or oral request by sending a written notification to our Secretary at the address above, providing your name, your shared address, and the address to which we should direct the additional copy of the Proxy Statement. Multiple stockholders sharing an address who have received one copy of the Proxy Statement and would prefer us to mail each stockholder a separate copy of future mailings should contact us at our principal executive offices. Additionally, if current stockholders with a shared address received multiple copies of the Proxy Statement and would prefer us to mail one copy of future mailings to stockholders at the shared address, notification of that request may also be made through our principal executive offices.

Stockholder Proposals and Nominations

Requirements for Stockholder Proposals to be Considered for Inclusion in our Proxy Materials. To be considered for inclusion in next year's Proxy Statement, stockholder proposals pursuant to Rule 14a-8 under the Exchange Act must be received by our Secretary at Genocoea Biosciences, Inc., 100 Acorn Park Drive, Cambridge, MA 02140 no later than 120 days prior to March 29, 2020.

Requirements for Stockholder Proposals or Director Nominations to be Brought Before an Annual Meeting. Our amended and restated by-laws provide that, for stockholder nominations to the Board of Directors or other proposals to be considered at an annual meeting, the stockholder must have given timely notice thereof in writing to the Secretary at Genocoea Biosciences, Inc., 100 Acorn Park Drive, Cambridge, MA 02140. To be timely for the 2020 annual meeting, the stockholder's notice must be delivered to or mailed and received by us not more than 120 days, and not less than 90 days, before the anniversary date of the preceding annual meeting, except that if there was no annual meeting in the prior year or if the current year's annual meeting is more than 30 days before or after the anniversary date of the previous year's annual meeting, we must receive the notice not later than the close of business on the tenth day following the day on which we provide notice or public disclosure of the date of the meeting. Such notice must provide the information required by our by-laws with respect to each matter the stockholder proposes to bring before the 2020 annual meeting.

Communications with the Board of Directors

A stockholder may send general communications to our Board of Directors, any committee of our Board of Directors or any individual director by directing such communication to our Corporate Secretary at:

Genocea Biosciences, Inc.
100 Acorn Park Drive
Cambridge, Massachusetts 02140
Attention: Secretary

The communication must prominently display the legend "BOARD COMMUNICATION" in order to indicate to the Secretary that it is a communication for the Board of Directors. Upon receiving such a communication, the Secretary will promptly forward the communication to the relevant individual or group to which it is addressed. Certain items that are unrelated to the Board of Directors' duties and responsibilities may be excluded, such as spam, junk mail and mass mailings, resumes and other forms of job inquiries, surveys and business solicitations or advertisements. The Secretary will not forward any communication determined in his good faith belief to be frivolous, unduly hostile, threatening, illegal or similarly unsuitable.

Other Matters

As of the date of this Proxy Statement, the Board of Directors does not intend to present any matters other than those described herein at the Annual Meeting and is unaware of any matters to be presented by other parties. If other matters are properly brought before the Annual Meeting for action by the stockholders, proxies will be voted in accordance with the recommendation of the Board of Directors or, in the absence of such a recommendation, in accordance with the judgment of the proxy holder.

Directions to Annual Meeting

Directions to the 2019 Annual Meeting of Stockholders, to be held at Ropes & Gray LLP, Prudential Tower, 800 Boylston Street, Boston, MA 02199 are set forth below:

From North of Boston: From Route 93 take exit 26, Leverett Connector/Storrow Drive, and follow to the Copley Square exit on the left. Take a right onto Beacon Street and follow to Exeter Street. Take a left onto Exeter Street and follow 11 blocks. Take a right on Huntington Avenue. The Prudential Center Garage will be on the right.

From West of Boston: Follow the Mass Pike eastbound into Boston (the Mass Pike is accessible from Route 128/I-95). Get off at exit 22, Copley Square/Prudential Center. Follow signs for Prudential Center. This will take you directly to the Prudential Center Garage entrance, which will be on your right.

From South of Boston: From Route 93 take exit 18, Massachusetts Avenue. Follow sign to Massachusetts Avenue and turn right. Follow Massachusetts Avenue for about 2 miles to Huntington Avenue. Take a right on Huntington Avenue. Take a left on Belvidere Street. The Prudential Center garage entrance will be on your right before Sovereign Bank.

From Logan Airport: Access Boston via the Sumner Tunnel and exit onto Route 93 North. Take exit 26, Leverett Connector/Storrow Drive, and follow to the Copley Square exit on the left. Take a right onto Beacon Street and follow to Exeter Street. Take a left onto Exeter Street and follow 11 blocks. Take a right on Huntington Avenue. The Prudential Center Garage will be on the right.

Parking: The Prudential Tower is best accessed via the South Garage, which has two entrances on Huntington Avenue, one on Dalton Street and one on Belvedere Street. The Red and Yellow levels are both part of the South Garage. Attendant parking is available on both levels at no additional charge.

By Order of the Board of Directors



William Clark
President and Chief Executive Officer
March 29, 2019

**CERTIFICATE OF AMENDMENT
TO THE
RESTATED CERTIFICATE OF INCORPORATION
OF
GENOCEA BIOSCIENCES, INC.**

Genocea Biosciences, Inc., a corporation organized and existing under the General Corporation Law of the State of Delaware (the "Corporation"), DOES HEREBY CERTIFY:

FIRST: The Certificate of Incorporation of the Corporation was filed with the Secretary of State of Delaware on August 16, 2006 under the name "Genocea, Inc."

SECOND: The Certificate of Incorporation was amended and restated on December 21, 2006, on February 10, 2009, on December 17, 2010 and on September 27, 2012, and was amended on September 30, 2013, January 21, 2014 and February 10, 2014. The Certificate of Incorporation was most recently amended and restated on June 21, 2018 (the "Amended and Restated Certificate of Incorporation").

THIRD: This Certificate of Amendment amends the Amended and Restated Certificate of Incorporation and has been duly adopted in accordance with the provisions of Sections 228 and 242 of the General Corporation Law of the State of Delaware by the directors and stockholders of the Corporation.

FOURTH: The Amended and Restated Certificate of Incorporation is hereby amended by deleting subsection (a) of Article IV "Capital Stock" in its entirety and replacing it as following in lieu thereof:

"That, effective upon the filing of this Certificate of Amendment to the Restated Certificate of Incorporation with the Secretary of State of Delaware (the "Effective Time"), every [three] ... [fifteen] shares of the Corporation's common stock, \$0.001 par value per share (the "Common Stock"), issued and outstanding prior to the Effective Time, without further action, will be combined into and automatically become one share of issued and outstanding Common Stock of the Corporation (such reclassification and combination of shares, the "Reverse Stock Split"). The Corporation will not issue fractional shares on account of the Reverse Stock Split; all shares that are held by a stockholder as of the Effective Time shall be aggregated and each fractional share resulting from the Reverse Stock Split after giving effect to such aggregation shall be rounded up to the nearest whole number. The total number of shares of stock which the Corporation shall have authority to issue is 110,000,000, consisting of 85,000,000 shares of Common Stock and 25,000,000 shares of Preferred Stock, par value \$0.001 per share ("Preferred Stock"). Such stock may be issued from time to time by the Corporation for such consideration as may be fixed by the board of directors of the Corporation (the "Board of Directors")."

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to be signed by its duly authorized officer this _____ day of _____, 2019.

By: _____
Name:
Title:

GENOCEA BIOSCIENCES, INC.
 100 AODRN PARK DRIVE 5TH FLOOR
 ATTN: CORPORATE CONTROLLER
 CAMBRIDGE, MA 02140

VOTE BY INTERNET - www.proxyvote.com

Use the Internet to transmit your voting instructions and for electronic delivery of information up until 11:59 P.M. Eastern Time the day before the cut-off date or meeting date. Have your proxy card in hand when you access the web site and follow the instructions to obtain your records and to create an electronic voting instruction form.

ELECTRONIC DELIVERY OF FUTURE PROXY MATERIALS

If you would like to reduce the costs incurred by our company in mailing proxy materials, you can consent to receiving all future proxy statements, proxy cards and annual reports electronically via e-mail or the Internet. To sign up for electronic delivery, please follow the instructions above to vote using the Internet and, when prompted, indicate that you agree to receive or access proxy materials electronically in future years.

VOTE BY PHONE - 1-800-690-6903

Use any touch-tone telephone to transmit your voting instructions up until 11:59 P.M. Eastern Time the day before the cut-off date or meeting date. Have your proxy card in hand when you call and then follow the instructions.

VOTE BY MAIL

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

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

KEEP THIS PORTION FOR YOUR RECORDS

THIS PROXY CARD IS VALID ONLY WHEN SIGNED AND DATED.

DETACH AND RETURN THIS PORTION ONLY

<p>The Board of Directors recommends you vote FOR the following:</p> <p>1. Election of Class II Directors for a three-year term</p> <p style="text-align: center;">Nominees</p> <p>01 Ms. Katrine Bosley 02 Mr. Michael Higgins</p> <p>The Board of Directors recommends you vote FOR proposals 2, 3, and 4.</p> <p>2. Approve an amendment to the Company's restated certificate of incorporation to effect a reverse stock split (the "Reverse Stock Split").</p> <p>3. In the event the shareholders approve the Reverse Stock Split, to approve an amendment to the Company's restated certificate of incorporation to decrease the total number of shares of common stock that the Company is authorized to issue from 250,000,000 shares to 85,000,000 shares.</p> <p>4. Ratify the appointment of Ernst & Young LLP as the independent registered public accounting firm for the Company for the fiscal year ending December 31, 2019.</p> <p>NOTE: Consider and act upon any other matters that properly come before the Annual Meeting or any adjournment or postponement thereof.</p> <p>For address change/comments, mark here. (see reverse for instructions)</p> <p>Please sign exactly as your name(s) appear(s) hereon. When signing as attorney, executor, administrator, or other fiduciary, please give full title as such. Joint owners should each sign personally. All holders must sign. If a corporation or partnership, please sign in full corporate or partnership name by authorized officer.</p>	<p style="text-align: center;">For All Withhold All For All Except</p> <p style="text-align: center;"><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>To withhold authority to vote for any individual nominee(s), mark "For All Except" and write the number(s) of the nominee(s) on the line below.</p> <p style="text-align: center;">_____</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td></td> <td>For</td> <td>Against</td> <td>Abstain</td> </tr> <tr> <td>2.</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>3.</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>4.</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table> <p style="text-align: center;"><input type="checkbox"/></p>		For	Against	Abstain	2.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<table border="1" style="width: 100%;"> <tr> <td style="width: 50%; height: 20px;"></td> <td style="width: 50%; height: 20px;"></td> </tr> <tr> <td style="font-size: small;">Signature [PLEASE SIGN WITHIN BOX] Date</td> <td style="font-size: small;">Signature (Joint Owners) Date</td> </tr> </table>			Signature [PLEASE SIGN WITHIN BOX] Date	Signature (Joint Owners) Date													
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Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting:
The Notice & Proxy Statement and Form 10-K are available at www.proxyvote.com

PROXY

THIS PROXY IS SOLICITED ON BEHALF OF THE BOARD OF DIRECTORS
OF GENOCEA BIOSCIENCES, INC.

The undersigned hereby appoints William Clark as proxy and attorney-in-fact, with full power of substitution, and hereby authorizes him to represent and vote, as provided on the other side, all the shares of GENOCEA BIOSCIENCES, INC. common stock which the undersigned is entitled to vote and, in their discretion, to vote upon such other business as may properly come before the Annual Meeting of Stockholders of the Company to be held at Ropes & Gray LLP, Prudential Tower, 800 Boylston Street, Boston, MA 02199, on Wednesday, May 15, 2019 at 9:00 A.M. EDT or any adjournment thereof, with all powers which the undersigned would possess if present at the Meeting.

THIS PROXY CARD, WHEN PROPERLY EXECUTED, WILL BE VOTED IN THE MANNER DIRECTED HEREIN BY THE UNDERSIGNED. IF NO DIRECTION IS MADE BUT THE CARD IS SIGNED, THIS PROXY CARD WILL BE VOTED (i) FOR the election as directors of the nominees named herein to the Company's Board of Directors; (ii) FOR approval of an amendment to the Company's restated certificate of incorporation to effect (the "Reverse Stock Split"), (iii) in the event the shareholders approve the Reverse Stock Split, to approve an amendment to the Company's restated certificate of incorporation to decrease the total number of shares of common stock that the Company is authorized to issue from 250,000,000 shares to [] shares; (iv) FOR the ratification of Ernst & Young LLP as the independent registered public accounting firm for the Company for the fiscal year ending December 31, 2019; and (v) according to the discretion of the proxy holder named in the proxy card upon any other business that may properly be brought before the Annual Meeting and at all adjournments and postponements thereof.

Address Changes/Comments:

(If you noted any Address Changes and/or Comments above, please mark corresponding box on the reverse side.)

Continued and to be signed on reverse side

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