

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

FORM S-1  
REGISTRATION STATEMENT  
UNDER  
THE SECURITIES ACT OF 1933

**GENOCEA BIOSCIENCES, INC.**

(Exact name of registrant as specified in its charter)

**Delaware**  
(State or other jurisdiction of  
incorporation or organization)

**2836**  
(Primary Standard Industrial  
Classification Code Number)

**51-0596811**  
(I.R.S. Employer Identification Number)

**100 Acorn Park Drive  
Cambridge, MA 02140  
(617) 876-8191**

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

**William D. Clark  
President & Chief Executive Officer  
100 Acorn Park Drive  
Cambridge, MA 02140  
(617) 876-8191**

(Name, address, including zip code, and telephone number, including area code, of agent for service)

**Copies to:**

**Marc Rubenstein, Esq.  
Thomas J. Danielski, Esq.  
Ropes & Gray LLP  
Prudential Tower  
800 Boylston Street  
Boston, MA 02199  
(617) 951-7000**

**Derek Meisner, Esq.  
Senior Vice President and General Counsel  
100 Acorn Park Drive  
Cambridge, MA 02140  
(617) 876-8191**

**Brian F. Leaf  
Richard Segal  
Divakar Gupta  
Cooley LLP  
55 Hudson Yards  
New York, NY 10001  
(212) 479-6000**

**Approximate date of commencement of proposed sale to public: As soon as practicable after the effective date of this Registration Statement.**

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

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.  333-232023

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

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

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

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

Emerging growth company

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

#### CALCULATION OF REGISTRATION FEE

<b>Title of Each Class of Securities to be Registered</b>	<b>Amount to be Registered (1)</b>	<b>Proposed Maximum Offering Price Per Share</b>	<b>Proposed Maximum Aggregate Offering Price (2)</b>	<b>Amount of Registration Fee (3)</b>
Common stock, \$0.001 par value per share	575,000	\$3.50	\$2,012,500	\$243.92

- (1) Represents only the additional number of shares being registered and includes 75,000 shares of common stock issuable upon exercise of the underwriters' option to purchase additional shares of common stock. Does not include the securities that the registrant previously registered on the Registration Statement on Form S-1, as amended (File No. 333-232023).
- (2) The registration fee is calculated in accordance with Rule 457(a) under the Securities Act of 1933, as amended, based on the proposed maximum aggregate offering price.
- (3) The registrant previously registered securities at an aggregate offering price not to exceed \$61,065,000 on a Registration Statement on Form S-1 (File No. 333-232023), which was declared effective by the Securities and Exchange Commission on June 19, 2019. In accordance with Rule 462(b) under the Securities Act, an additional amount of securities having a proposed maximum aggregate offering price of \$2,012,500 is hereby registered, which includes shares issuable upon the exercise of the underwriters' option to purchase additional shares.

**This Registration Statement shall become effective upon filing with the Securities and Exchange Commission in accordance with Rule 462(b) promulgated under the Securities Act of 1933, as amended.**

#### **EXPLANATORY NOTE AND INCORPORATION BY REFERENCE**

This Registration Statement is being filed pursuant to Rule 462(b) under the Securities Act of 1933, as amended (the “Securities Act”), with respect to the registration of additional shares of common stock, par value \$0.001 per share, of Genocea Biosciences, Inc., a Delaware corporation (the “Registrant”). The contents of the Registration Statement on Form S-1 (File No. 333-232023) filed by the Registrant with the Securities and Exchange Commission (the “Commission”) on June 7, 2019, and amended on June 18, 2019, which was declared effective by the Commission on June 19, 2019, are incorporated by reference into this Registration Statement.

The required opinions and consents are listed on an Exhibit List attached hereto and filed herewith or incorporated herein by reference in accordance with Rule 439(b) of the Securities Act.

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## EXHIBIT LIST

<b><u>Exhibit No.</u></b>	<b><u>Description</u></b>
5.1	<a href="#">Opinion of Ropes &amp; Gray LLP</a>
23.1	<a href="#">Consent of Ernst &amp; Young LLP, independent registered public accounting firm</a>
23.2	<a href="#">Consent of Ropes &amp; Gray LLP (included in Exhibit 5.1)</a>
24.1	Powers of Attorney (previously filed on the signature page to the registrant's Registration Statement on Form S-1, Registration No. 333-232023 and incorporated by reference herein)

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## SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized in the Cambridge, Commonwealth of Massachusetts, on June 19, 2019.

### GENOCEA BIOSCIENCES, INC.

By: /s/ William Clark  
Name: William Clark  
Title: President and Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated:

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ William Clark</u> William Clark	President, Chief Executive Officer and Director (Principal Executive Officer)	June 19, 2019
<u>/s/ Diantha Duvall</u> Diantha Duvall	Chief Financial Officer, Treasurer and Secretary (Principal Financial Officer and Principal Accounting Officer)	June 19, 2019
<u>*</u> Kenneth Bate	Director	June 19, 2019
<u>*</u> Ali Behbahani	Director	June 19, 2019
<u>*</u> Katrine Bosley	Director	June 19, 2019
<u>*</u> Ronald Cooper	Director	June 19, 2019
<u>*</u> Michael Higgins	Director	June 19, 2019
<u>*</u> Howard Mayer, M.D.	Director	June 19, 2019
<u>*</u> George Siber, M.D.	Director	June 19, 2019

\*By: /s/ Diantha Duvall  
Diantha Duvall  
Attorney-in-Fact

June 19, 2019

Genocea Biosciences, Inc.  
Cambridge Discovery Park  
100 Acorn Park Drive, 5<sup>th</sup> Floor  
Cambridge, MA 02140  
(617) 876-8191

Ladies and Gentlemen:

We have acted as counsel to Genocea Biosciences, Inc., a Delaware corporation (the “Company”), in connection with (i) the Registration Statement on Form S-1 (File No. 333-232023) (as amended through the date hereof, the “Initial Registration Statement”) filed by the Company with the Securities and Exchange Commission (the “Commission”) under the Securities Act of 1933, as amended (the “Securities Act”), and (ii) the second Registration Statement on Form S-1 filed by the Company pursuant to Rule 462(b) under the Securities Act (the “462(b) Registration Statement,” and together with the Initial Registration Statement, the “Registration Statement”). This opinion letter is furnished to you in connection with the filing of the 462(b) Registration Statement, relating to the registration of up to 575,000 shares of common stock, \$0.001 par value per share, of the Company (the “Shares”), which includes shares issuable upon the exercise of the underwriters’ option to purchase additional shares, if any. The Shares are proposed to be sold pursuant to an underwriting agreement (the “Underwriting Agreement”) by and among the Company and the underwriters named therein.

In connection with this opinion letter, we have examined such certificates, documents and records and have made such investigation of fact and such examination of law as we have deemed appropriate in order to enable us to render the opinions set forth herein. In conducting such investigation, we have relied, without independent verification, upon certificates of officers of the Company, public officials and other appropriate persons.

The opinions expressed below are limited to the Delaware General Corporation Law.

Based upon and subject to the foregoing, we are of the opinion that the Shares have been duly authorized and, when issued and delivered pursuant to the Underwriting Agreement and against payment of the consideration set forth therein, will be validly issued, fully paid and non-assessable.

We hereby consent to your filing this opinion as an exhibit to the 462(b) Registration Statement and to the use of our name therein and in the related prospectus under the caption “Legal Matters.” In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission thereunder.

Very truly yours,

/s/ Ropes & Gray LLP  
Ropes & Gray LLP

**CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

We consent to the incorporation by reference in the Registration Statement on Form S-1 filed pursuant to Rule 462(b) of the Securities Act of 1933 of the reference to our firm under the caption "Experts" and to the incorporation by reference of our report dated February 28, 2019, with respect to the consolidated financial statements of Genoece Biosciences, Inc. included in Amendment No. 1 to the Registration Statement (Form S-1 No. 333-232023) and related Prospectus of Genoece Biosciences, Inc. for the registration of its common stock.

/s/ Ernst & Young LLP

Boston, Massachusetts

June 19, 2019