

PROSPECTUS

10,747,123 Shares



Invitae Corporation

Common Stock

The selling stockholders identified in this prospectus may sell up to an aggregate of 10,747,123 shares of our common stock. We will not receive any of the proceeds from the sale of the shares of our common stock by the selling stockholders.

Our registration of the shares of our common stock covered by this prospectus does not mean that the selling stockholders will offer or sell any of the shares of our common stock. The selling stockholders identified in this prospectus may sell the shares of our common stock covered by this prospectus in a number of different ways and at varying prices. For additional information on the possible methods of sale that may be used by the selling stockholders, you should refer to the information under the heading “Plan of Distribution” on page 4 of this prospectus.

Our common stock is listed on The New York Stock Exchange under the symbol “NVTA.” On August 25, 2017, the last reported sale price of our common stock on The New York Stock Exchange was \$9.84 per share.

Investing in our securities involves risks. See the section entitled “[Risk Factors](#)” included or incorporated by reference into this prospectus and in the other documents we incorporate by reference into this prospectus before making an investment decision.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus is August 28, 2017

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We have not authorized anyone to provide any information other than that contained or incorporated by reference in this prospectus, any applicable prospectus supplement or any free writing prospectus prepared by or on behalf of us or to which we have referred you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We are not making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information in this prospectus and any prospectus supplement, or incorporated by reference, is accurate only as of the dates of those documents. Our business, financial condition, results of operations and prospects may have changed since those dates.

ABOUT THIS PROSPECTUS

Unless the context otherwise requires, references in this prospectus to “Invitae,” “we,” “us” and “our” refer to Invitae Corporation and its subsidiaries.

When we refer to the selling stockholders in this prospectus, we are referring to the stockholders identified in the table under the heading “Selling Stockholders” herein as well as any donees, pledgees, transferees or other successors-in-interest that received shares of our common stock after the date of this prospectus from the selling stockholders pursuant to a gift, a pledge, a partnership distribution or other transfer (other than a public sale).

Invitae and the Invitae logo are our trademarks. This prospectus and the documents incorporated by reference into this prospectus may also contain trademarks and trade names that are the property of their respective owners. We do not intend our use or display of other companies’ trade names, trademarks or service marks to imply relationships with, or endorsements or sponsorship of us by, these other companies.

RISK FACTORS

Investing in our securities involves risk. Prior to making a decision about investing in our common stock, you should carefully consider all of the information appearing or incorporated by reference in this prospectus, including the risk factors incorporated by reference to our most recent Annual Report on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, as well as any prospectus supplement to this prospectus. The occurrence of any of these risks or additional risks and uncertainties might cause you to lose all or part of your investment in our common stock.

INVITAE CORPORATION

Invitae Corporation is a genetic information company whose mission is to bring comprehensive genetic information into mainstream medical practice to improve the quality of healthcare for billions of people.

We were incorporated in the state of Delaware on January 13, 2010, as Locus Development, Inc. and changed our name to Invitae Corporation in 2012. Our principal executive offices are located at 1400 16th Street, San Francisco, California 94103 and our telephone number is (415) 374-7782. Our website address is www.invitae.com. We do not incorporate the information on, or accessible through, our website into this prospectus, and you should not consider any information on, or accessible through, our website as part of this prospectus.

FORWARD-LOOKING STATEMENTS

When used in this prospectus, the words “expects,” “believes,” “anticipates,” “estimates,” “may,” “could,” “intends,” and similar expressions are intended to identify forward-looking statements. These statements are subject to known and unknown risks and uncertainties that could cause actual results to differ materially from those projected or otherwise implied by the forward-looking statements. These forward-looking statements speak only as of the date of this prospectus. Given these risks and uncertainties, you should not place undue reliance on these forward-looking statements. We will discuss many of these risks and uncertainties in greater detail in any prospectus supplement under the heading “Risk Factors.” Additional cautionary statements or discussions of risks and uncertainties that could affect our results or the achievement of the expectations described in forward-looking statements may also be contained in the documents we incorporate by reference into this prospectus.

These forward-looking statements speak only as of the date of this prospectus. We expressly disclaim any obligation or undertaking to release publicly any updates or revisions to any forward-looking statements contained herein to reflect any change in our expectations with regard thereto or any change in events, conditions or circumstances on which any such statement is based. You should, however, review additional disclosures we make in our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K filed with the Securities and Exchange Commission, or SEC.

USE OF PROCEEDS

We will not receive any proceeds from the sale of common stock by the selling stockholders. All proceeds from the sale of the shares will be for the accounts of the selling stockholders. See “Selling Stockholders” and “Plan of Distribution.”

SELLING STOCKHOLDERS

On July 31, 2017, we entered into an Amended and Restated Registration Rights Agreement (the “Registration Rights Agreement”) with the selling stockholders and certain other stockholders, each of which was an investor in our shares before our initial public offering in February 2015. Pursuant to the Registration Rights Agreement, which superseded a registration rights agreement entered into between us and such stockholders prior to our initial public offering, we agreed that, if requested, we will register the shares of our common stock beneficially owned by such stockholders for resale under the Securities Act of 1933 (the “Securities Act”). Our registration obligations under the Registration Rights Agreement cover all shares of our common stock which were acquired by such stockholders prior to our initial public offering, as well as shares acquired as part of or subsequent to our initial public offering by those such stockholders holding at least 10% of our outstanding stock (measured collectively with their affiliates) as of the date of the Registration Rights Agreement and includes an aggregate of 3,458,823 shares of our common stock issuable upon conversion of the same number of shares of our Series A Convertible Preferred Stock, \$0.0001 par value per share (the “Series A Preferred Stock”). The sale of the Series A Preferred Stock was made pursuant to a Securities Purchase Agreement dated as of July 31, 2017. The Series A Preferred Stock is convertible into common stock on a one-for-one basis, subject to adjustment for events such as stock splits, combinations and the like with a blocker on conversion if the holder would exceed a specified threshold of voting security ownership (as described below). Our obligations under the Registration Rights Agreement will continue in effect for up to ten years, and include our obligation to facilitate certain underwritten public offerings of our common stock by such stockholders in the future. The registration statement of which this prospectus is a part is being filed pursuant to the Registration Rights Agreement.

The following table sets forth, to our knowledge, certain information as of August 10, 2017 regarding the beneficial ownership of our common stock by the selling stockholders and the shares being offered by the selling stockholders. Information with respect to beneficial ownership is based upon information obtained from the selling stockholders. Information with respect to shares owned beneficially after the offering assumes the conversion of all of the Series A Preferred Stock into common stock, the sale of all of the shares offered and no other purchases or sales of our common stock. The selling stockholders may offer and sell some, all or none of their shares.

<u>Name and Address</u>	<u>Shares Beneficially Owned Prior to Offering</u>		<u>Shares Being Offered</u>	<u>Shares Beneficially Owned After Offering</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Number</u>	<u>Percent</u>
Baker Bros. Advisors LP (2)	7,288,300(2)	14.9%	10,747,123(2)	—	—

(1) Based on 48,811,243 shares of our common stock outstanding on August 10, 2017.

(2) Consists of (i) 734,261 shares of common stock and 349,760 shares of common stock issuable upon conversion of 349,760 shares of Series A Preferred Stock held by 667, L.P. (“667”), (ii) 6,480,668 shares of common stock and 3,109,063 shares of common stock issuable upon conversion of 3,109,063 shares of Series A Preferred Stock held by Baker Brothers Life Sciences, L.P. (“Life Sciences”) and (iii) 73,371 shares of common stock held by 14159, L.P. (“14159”, and collectively with 667 and Life Sciences, the “Funds”). Baker Bros. Advisors LP (“Adviser”) may be deemed to have the power to vote or direct the vote

of and the power to dispose or direct the disposition of the foregoing securities and thus may be deemed the beneficial owner of such securities subject to the Beneficial Ownership Limitation (as defined below). Julian C. Baker and Felix J. Baker are the principals of Baker Bros. Advisors (GP) LLC (“Adviser GP”), the sole general partner of the Adviser. Each of the Adviser GP, Julian C. Baker and Felix J. Baker may be deemed to have voting and dispositive power with respect to the securities held by the Funds and thus subject to the Beneficial Ownership Limitation (as defined below) may be deemed the beneficial owner of such securities. The shares of Series A Preferred Stock are only convertible to the extent that after giving effect to such conversion the holders thereof, together with their affiliates and any member of a Section 13(d) group, would beneficially own, for purposes of Rule 13d-3 under the Securities Exchange Act of 1934, no more than 4.99% of the outstanding shares of common stock (the “Beneficial Ownership Limitation”). As a result of the Beneficial Ownership Limitation, the number of shares that may be issued upon conversion of shares of Series A Preferred Stock by the above holders may change depending upon changes in the outstanding shares of common stock. The Beneficial Ownership Limitation may be increased or decreased to any other percentage at the holder’s election upon 61 days’ notice delivered to the Company. Due to the Beneficial Ownership Limitation, no shares of Series A Preferred Stock were convertible by the Funds as of the date of this prospectus. Without giving effect to the Beneficial Ownership Limitation, the Adviser, the Adviser GP, Julian C. Baker and Felix J. Baker may be deemed to beneficially own 10,747,123 shares of common stock.

PLAN OF DISTRIBUTION

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

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

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent, but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- underwritten transactions;
- short sales effected after the date the registration statement of which this prospectus is a part is declared effective by the SEC;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- through the distribution of the common stock by any selling stockholder to its partners, members or stockholders;

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- broker-dealers may agree with the selling stockholders to sell a specified number of such shares at a stipulated price per share;
- a combination of any such methods of sale; and
- any other method permitted pursuant to applicable law.

In addition, any shares covered by this prospectus that qualify for sale pursuant to Rule 144 under the Securities Act may be sold under Rule 144 rather than under this prospectus.

The selling stockholders may, from time to time, pledge or grant a security interest in some or all of the shares of common stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of common stock, from time to time, under this prospectus, or under an amendment or supplement to this prospectus amending the list of selling stockholders to include the pledgee, transferee or other successors in interest as selling stockholders under this prospectus. The selling stockholders also may transfer the shares of common stock in other circumstances, in which case the transferees, pledgees or other successors in interest will be the selling beneficial owners for purposes of this prospectus.

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

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

The selling stockholders and any underwriters, broker-dealers or agents that participate in the sale of the common stock or interests therein may be deemed to be “underwriters” within the meaning of the Securities Act. Any discounts, commissions, concessions or profit they earn on any resale of the shares may be underwriting discounts and commissions under the Securities Act. Selling stockholders who are deemed to be “underwriters” within the meaning of the Securities Act will be subject to the prospectus delivery requirements of the Securities Act. Underwriters and their controlling persons, dealers and agents may be entitled, under agreements entered into with us and the selling stockholders, to indemnification against and contribution toward specific civil liabilities, including liabilities under the Securities Act.

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

To facilitate the offering of the shares offered by the selling stockholders, certain persons participating in the offering may engage in transactions that stabilize, maintain or otherwise affect the price of the common stock. This may include over-allotments or short sales, which involve the sale by persons participating in the

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offering of more shares than were sold to them. In these circumstances, these persons would cover such over-allotments or short positions by making purchases in the open market or by exercising their over-allotment option, if any. In addition, these persons may stabilize or maintain the price of the common stock by bidding for or purchasing shares in the open market or by imposing penalty bids, whereby selling concessions allowed to dealers participating in the offering may be reclaimed if shares sold by them are repurchased in connection with stabilization transactions. The effect of these transactions may be to stabilize or maintain the market price of the common stock at a level above that which might otherwise prevail in the open market. These transactions may be discontinued at any time.

We have agreed to indemnify the selling stockholders against certain liabilities, including liabilities under the Securities Act, relating to the registration of the shares offered by this prospectus.

LEGAL MATTERS

The validity of the common stock offered by this prospectus will be passed upon for us by Pillsbury Winthrop Shaw Pittman LLP.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K, as amended, for the year ended December 31, 2016, as set forth in their report, which is incorporated by reference in this prospectus and elsewhere in this registration statement. Our consolidated financial statements are incorporated by reference in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed a registration statement on Form S-3 with the SEC under the Securities Act. This prospectus is part of the registration statement but the registration statement includes and incorporates by reference additional information and exhibits. We file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy the registration statement and any other document we file with the SEC at the public reference room maintained by the SEC at 100 F Street, N.E., Washington, D.C. 20549. You may obtain information on the operation of the public reference room by calling the SEC at 1-800-SEC-0330. The SEC also maintains a website that contains reports, proxy and information statements and other information regarding companies, such as ours, that file documents electronically with the SEC. The address of that website is <http://www.sec.gov>. The information on the SEC's website is not part of this prospectus, and any references to this website or any other website are inactive textual references only.

The SEC permits us to "incorporate by reference" the information contained in documents we file with the SEC, which means that we can disclose important information to you by referring you to those documents rather than by including them in this prospectus. Information that is incorporated by reference is considered to be part of this prospectus and you should read it with the same care that you read this prospectus. Later information that we file with the SEC will automatically update and supersede the information that is either contained, or incorporated by reference, in this prospectus, and will be considered to be a part of this prospectus from the date those documents are filed. We have filed with the SEC, and incorporate by reference in this prospectus:

- our Annual Report on Form 10-K for the year ended December 31, 2016, as amended by Amendment No. 1 to Form 10-K filed with the SEC on June 23, 2017 and Amendment No. 2 to Form 10-K filed with the SEC on June 26, 2017;
- our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2017 and June 30, 2017;

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- our Current Reports on Form 8-K filed with the SEC on January 6, 2017, January 9, 2017, February 9, 2017, May 19, 2017, June 1, 2017, June 13, 2017, August 1, 2017, August 4, 2017 and August 7, 2017; and
- the description of our common stock contained in our Registration Statement on Form 8-A filed on February 11, 2015, including any amendment or report filed for the purpose of updating such description.

We also incorporate by reference all additional documents that we file with the SEC under the terms of Section 13(a), 13(c), 14 or 15(d) of the Exchange Act that are made after the initial filing date of the registration statement of which this prospectus is a part and the effectiveness of the registration statement, as well as between the date of this prospectus and the termination of any offering of securities offered by this prospectus. We are not, however, incorporating, in each case, any documents or information that we are deemed to furnish and not file in accordance with SEC rules.

You may request a copy of any or all of the documents incorporated by reference but not delivered with this prospectus, at no cost, by writing or telephoning us at the following address and number: Investor Relations, Invitae Corporation, 1400 16th Street, San Francisco, California 94103 and (415) 374-7782. We will not, however, send exhibits to those documents, unless the exhibits are specifically incorporated by reference in those documents.

We make available free of charge on our website our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports, as soon as reasonably practicable after we electronically file or furnish such materials to the SEC. You may also obtain a free copy of these reports in the Investor Relations section of our website, www.invitae.com.