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

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**POST-EFFECTIVE AMENDMENT NO. 1  
TO  
FORM S-3  
REGISTRATION STATEMENT  
UNDER  
THE SECURITIES ACT OF 1933**

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**Invitae Corporation**  
(Exact Name of Registrant as Specified in Its Charter)

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Delaware  
(State or other jurisdiction of  
incorporation or organization)

27-1701898  
(I.R.S. Employer  
Identification Number)

1400 16th Street  
San Francisco, CA 94103  
(415) 374-7782  
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

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**Kenneth D. Knight**  
Chief Executive Officer  
Invitae Corporation  
1400 16th Street  
San Francisco, CA 94103  
(415) 374-7782  
(Name, address, including zip code, and telephone number, including area code, of agent for service)

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**Approximate date of commencement of proposed sale to the public:** From time to time after this registration statement becomes effective, as determined by market conditions and other factors.

If the only securities being registered on this form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

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, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box.

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

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

If this form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

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	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

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 pursuant to Section 7(a)(2)(B) of the Securities Act.

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**EXPLANATORY NOTE**

This Post-Effective Amendment No. 1 to the Registration Statement on Form S-3 (File No. 333-256683) (“Post-Effective Amendment No. 1”) of Invitae Corporation (the “Company”) is being filed because the Company expects that it will no longer be a “well-known seasoned issuer” (as such term is defined in Rule 405 of the Securities Act of 1933, as amended) when it files its Annual Report on Form 10-K for the fiscal year ended December 31, 2022. Accordingly, the Company is filing this Post-Effective Amendment No. 1 for the purpose of including disclosure required for a registrant other than a well-known seasoned issuer, identifying the securities being registered, registering a specific amount of securities and paying the associated filing fee.

PROSPECTUS

26,632,735 Shares



# Invitae Corporation

## Common Stock

This prospectus relates to the potential sale or disposition from time to time by SB Northstar LP, Chimera Investment LLC and Baker Bros. Advisors LP, or collectively, the selling stockholders of some or all of the shares of common stock, \$0.0001 par value per share, issuable upon conversion of our 1.50% Convertible Senior Notes due 2028, or the Notes, if any, in any manner described under “Plan of Distribution” on page 10 in this prospectus. For purposes of this prospectus, the selling stockholders include their permitted transferees, pledgees, assignees, distributees, donees or successors or others who later hold any of the selling stockholders’ interests. The Notes were acquired from us in a private placement that closed on April 8, 2021 and is more fully described in the section entitled “Prospectus Summary—The Transaction.” We will not receive any proceeds from any sale by the selling stockholders of the shares of common stock offered by this prospectus and any prospectus supplement, but in some cases we have agreed to pay certain registration expenses.

Our common stock is listed on The New York Stock Exchange under the symbol “NVTA.” On February 27, 2023, the last reported sale price of our common stock on The New York Stock Exchange was \$2.02 per share.

**Investing in our common stock involves risks. See the section entitled “[Risk Factors](#)” on page 3 of this prospectus and “Item 1A—Risk Factors” in our most recent report on Form 10-K or 10-Q that is incorporated by reference in this prospectus before making an investment decision.**

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**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.**

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**The date of this prospectus is February 28, 2023.**

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Neither we, nor any selling stockholder nor any underwriter, if any, has authorized anyone to provide any information other than that contained or incorporated by reference into 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, and you should not rely on any other information. Neither we, nor any selling stockholder nor any underwriter, if any, takes any responsibility for, and none of the foregoing can provide any 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 herein or therein, 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.

You should read this prospectus and any prospectus supplement for a specific offering of securities, together with additional information described in the section entitled “Where You Can Find More Information” below, before making an investment decision. If there is any inconsistency between this prospectus and the information contained in a prospectus supplement or any free writing prospectus prepared by or on behalf of us to which we have referred you, you should rely on the information in the prospectus supplement or such free writing prospectus.

Information about the selling stockholders may change over time. Any changed information given to us by the selling stockholders will be set forth in a prospectus supplement if and when necessary. Further, in some cases, the selling stockholders will also be required to provide a prospectus supplement containing specific information about the terms on which they are offering and selling shares of our common stock. If a prospectus supplement is provided and the description of the offering in the prospectus supplement varies from the information in this prospectus, you should rely on the information in the prospectus supplement.

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.

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

We agreed to file the registration statement of which this prospectus forms a part pursuant to an Investment Agreement with the selling stockholders dated April 3, 2021. Additional information with respect to the selling stockholders is contained in this prospectus under the heading “Selling Stockholders.”

When we refer to the selling stockholders in this prospectus, we are referring to the entities named in this prospectus as the selling stockholders and, as applicable, any permitted transferees, pledgees, assignees, distributees, donees or successors or others who later hold any of the selling stockholders’ interests.

## PROSPECTUS SUMMARY

*This summary highlights selected information about us and this offering. Because it is a summary, it does not contain all of the information that you should consider before investing. Before you decide to invest in our common stock, you should read carefully and in their entirety this entire prospectus, including the section entitled “Risk Factors,” and the documents we have incorporated by reference in this prospectus, along with our financial statements and accompanying notes incorporated by reference in this prospectus.*

### Our Company

Invitae is in the business of delivering genetic testing services, digital health solutions and health data services that support a lifetime of patient care and improved outcomes. We offer genetic testing across multiple clinical areas, including hereditary cancer, precision oncology, women’s health, rare diseases and pharmacogenomics. We also utilize digital health solutions to improve ease-of-use and to deliver actionable information about risk, prevention, treatment, and monitoring.

### Corporate Information

We were incorporated in 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](http://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.

### The Transaction

On April 3, 2021, we entered into an investment agreement, or the Investment Agreement, with the selling stockholders relating to the issuance and sale of \$1,150,000,000 in aggregate principal amount of our 1.50% Convertible Senior Notes due 2028, or the Notes. The transactions contemplated by the Investment Agreement closed on April 8, 2021. In connection with the issuance of the Notes, on April 8, 2021, we entered into an indenture, or the Indenture, with U.S. Bank National Association, as trustee. The Notes are convertible at the option of the holder at any time until the scheduled trading day prior to the maturity date, including in connection with a redemption by us. The Notes are convertible into shares of our common stock based on an initial conversion rate of 23.1589 shares of our common stock per \$1,000 principal amount of the Notes (which is equal to an initial conversion price of \$43.18 per share), in each case subject to customary anti-dilution and other adjustments as a result of certain extraordinary transactions.

We sold the Notes in a transaction exempt from the registration requirements of the Securities Act, and expect to rely on an exemption for any issuance of the shares of our common stock issuable upon conversion of the Notes.

**The Offering**

Common stock registered for resale by the selling stockholders

The selling stockholders may offer and sell some or all of the 26,632,735 shares of common stock that may be issued upon conversion of the Notes in any manner described under “Plan of Distribution” in this prospectus. Throughout this prospectus when we refer to the shares of common stock being registered on behalf of the selling stockholders, we are referring to the shares of our common stock that may be issued upon conversion of the Notes.

Use of proceeds

The selling stockholders will receive all of the proceeds from the sale under this prospectus of the shares of common stock issuable upon conversion of the Notes, if any. We will not receive any of the proceeds from the sale of the shares of common stock by the selling stockholders.

New York Stock Exchange symbol

“NVTA.”

## RISK FACTORS

*Investing in our common stock involves a high degree of risk. You should carefully consider the risk factors described below, as well as the risk factors discussed under the caption “Risk Factors” in our most recent Annual Report on Form 10-K, Quarterly Reports on Form 10-Q or Current Reports on Form 8-K, as well as any prospectus supplement to this prospectus, and the other information contained in or incorporated by reference into this prospectus and any prospectus supplement to this prospectus before deciding to invest in our common stock. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also impair our business operations. If any of these risks actually occur, our business, financial condition and results of operations could be materially and adversely affected.*

***Our stock price is volatile, and you may not be able to sell shares of our common stock at or above the price you paid.***

The trading price of our common stock is volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control. These factors include:

- actual or anticipated fluctuations in our operating results;
- competition from existing tests or new tests that may emerge;
- announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures, collaborations or capital commitments;
- failure to meet or exceed financial estimates and projections of the investment community or that we provide to the public;
- issuance of new or updated research or reports by securities analysts or changed recommendations for our stock;
- our focus on long-term goals over short-term results;
- the level of short interest in our stock, and the effect of short sellers on the price of our stock;
- the timing and magnitude of our investments in the growth of our business;
- actual or anticipated changes in regulatory oversight of our business;
- additions or departures of key management or other personnel;
- disputes or other developments related to our intellectual property or other proprietary rights, including litigation;
- changes in reimbursement by current or potential payers;
- general economic and market conditions; and
- issuances of significant amounts of our common stock.

In addition, the stock market in general, and the market for stock of life sciences companies in particular, has experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of those companies. Broad market and industry factors, including the novel coronavirus or COVID-19, may seriously affect the market price of our common stock, regardless of our actual operating performance. In addition, in the past, following periods of volatility in the overall market and the market price of a particular company’s securities, securities class action litigation has often been instituted against these companies. This litigation, if instituted against us, could result in substantial costs and a diversion of our management’s attention and resources.

***If securities or industry analysts issue an adverse opinion regarding our stock or do not publish research or reports about our company, our stock price and trading volume could decline.***

The trading market for our common stock will depend in part on the research and reports that equity research analysts publish about us and our business. We do not control these analysts or the content and opinions included in their reports. Securities analysts may elect not to provide research coverage of our company and such lack of research coverage may adversely affect the market price of our common stock. The price of our common stock could also decline if one or more equity research analysts downgrade our common stock, change their price targets, issue other unfavorable commentary or cease publishing reports about us or our business. If one or more equity research analysts cease coverage of our company, we could lose visibility in the market, which in turn could cause our stock price to decline.

***Sales of a substantial number of shares of our common stock in the public market could cause our stock price to fall.***

Sales of a substantial number of shares of our common stock in the public market or the perception that these sales might occur could depress the market price of our common stock and could impair our ability to raise capital through the sale of additional equity securities. We are unable to predict the effect that sales may have on the prevailing market price of our common stock. In addition, the sale of substantial amounts of our common stock could adversely impact its price. As of December 31, 2022, we had outstanding 245,562,121 shares of our common stock, options to purchase 2,382,822 shares of our common stock (of which 1,383,848 were exercisable as of that date) and restricted stock units, or RSUs representing 11,895,412 shares of our common stock (which includes an estimated number of RSUs, subject to certain employees' continued service with us, or time-based RSUs, and RSUs that are performance based RSUs, or PRSUs, granted in connection with an acquisition). The foregoing does not include 8,791,334 shares of our common stock that may be issuable in connection with indemnification hold-backs and contingent consideration related to our acquisitions, shares that may be issuable in the future in connection with the convertible senior notes, including the 26,632,735 shares of common stock that we are registering for resale, or shares issuable pursuant to our Sales Agreement with Cowen and Company, LLC, dated as of May 4, 2021. In addition, as of December 31, 2022, 5,499,674 and 2,149,066 shares of common stock are available for future issuance under our 2015 Stock Incentive Plan and Employee Stock Purchase Plan, respectively, and as of January 1, 2023, 9,822,484 and 2,455,621 additional shares of common stock became available for future issuance under our 2015 Stock Incentive Plan and our Employee Stock Purchase Plan, respectively. The sale or the availability for sale of a large number of shares of our common stock in the public market could cause the price of our common stock to decline.

***We have never paid dividends on our capital stock, and we do not anticipate paying dividends in the foreseeable future.***

We have never paid dividends on any of our capital stock and currently intend to retain any future earnings to fund the growth of our business. In addition, the terms of our credit agreement restrict our ability to pay dividends. Any determination to pay dividends in the future will be at the discretion of our board of directors and will depend on our financial condition, operating results, capital requirements, general business conditions and other factors that our board of directors may deem relevant. As a result, capital appreciation, if any, of our common stock will be the sole source of gain for the foreseeable future.

***Anti-takeover provisions in our charter documents and under Delaware law could discourage, delay or prevent a change in control and may affect the trading price of our common stock.***

Provisions in our restated certificate of incorporation and our amended and restated bylaws may have the effect of delaying or preventing a change of control or changes in our management. Our restated certificate of incorporation and amended and restated bylaws include provisions that:

- authorize our board of directors to issue, without further action by the stockholders, up to 20,000,000 shares of undesignated preferred stock;

- require that any action to be taken by our stockholders be effected at a duly called annual or special meeting and not by written consent;
- specify that special meetings of our stockholders can be called only by our board of directors, our chairman of the board or our chief executive officer;
- establish an advance notice procedure for stockholder approvals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to our board of directors;
- establish that our board of directors is divided into three classes, Class I, Class II and Class III, with each class serving staggered terms;
- provide that our directors may be removed only for cause;
- provide that vacancies on our board of directors may, except as otherwise required by law, be filled only by a majority of directors then in office, even if less than a quorum; and
- require a super-majority of votes to amend certain of the above-mentioned provisions as well as to amend our bylaws generally.

In addition, we are subject to the provisions of Section 203 of the Delaware General Corporation Law regulating corporate takeovers. Section 203 generally prohibits us from engaging in a business combination with an interested stockholder subject to certain exceptions.

***Our certificate of incorporation designates the Court of Chancery of the State of Delaware as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or other employees.***

Our certificate of incorporation provides that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for:

- any derivative action or proceeding brought on our behalf;
- any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers, or other employees to us or our stockholders;
- any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law; or
- any action asserting a claim against us governed by the internal affairs doctrine.

Section 27 of the Securities Exchange Act of 1934, or the Exchange Act, creates exclusive federal jurisdiction over all suits brought to enforce any duty or liability created by the Exchange Act or the rules and regulations thereunder. As a result, the exclusive forum provision in our certificate of incorporation will not apply to suits brought to enforce any duty or liability created by the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction. Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all suits brought to enforce any duty or liability created by the Securities Act or the rules and regulations thereunder. As a result, the exclusive forum provision in our certificate of incorporation will not apply to suits brought to enforce any duty or liability created by the Securities Act or any other claim for which the federal and state courts have concurrent jurisdiction.

Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock shall be deemed to have notice of and consented to the provisions of our certificate of incorporation described above. This choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits

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against us and our directors, officers and other employees. Alternatively, if a court were to find these provisions of our certificate of incorporation inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could adversely affect our business, financial condition or results of operations.

## FORWARD-LOOKING STATEMENTS

This prospectus and the documents we have filed with the Securities and Exchange Commission, or SEC, that are incorporated herein by reference contain “forward-looking statements” within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act that involve risks and uncertainties. These statements relate to future periods, future events or our future operating or financial plan or performance. These statements can often be identified by the use of forward-looking terminology such as “expects,” “believes,” “intends,” “anticipates,” “estimates,” “plans,” “may,” or “will,” or the negative of these terms, and other similar expressions. These forward-looking statements reflect our current views with respect to future events, are based on assumptions and are subject to risks and uncertainties. These risks and uncertainties could cause actual results to differ materially from those projected. We discuss many of these risks and uncertainties in greater detail in the section entitled “Risk Factors” and in the documents that are incorporated by reference into this prospectus, which address additional factors that could cause results or events to differ from those set forth in the forward-looking statements. Given these risks and uncertainties, you should not place undue reliance on these forward-looking statements. Except as required by federal securities laws, we undertake no obligation to update any forward-looking statements for any reason, even if new information becomes available or other events occur in the future.

## USE OF PROCEEDS

All of the shares of common stock being offered hereby are being sold by the selling stockholders identified in this prospectus. We will not receive any proceeds from the sale of common stock by the selling stockholders.

## SELLING STOCKHOLDERS

On April 8, 2021, we issued \$1,150,000,000 aggregate principal amount of the Notes to the selling stockholders, pursuant to the Investment Agreement. The Notes were initially convertible into an aggregate of 26,632,735 shares of our common stock and were issued in transactions exempt from the registration requirements of the Securities Act. Upon conversion of the Notes, we will pay or deliver, as the case may be, cash, shares of common stock or a combination of cash and shares of common stock, at our election. With certain exceptions, the selling stockholders are subject to certain transfer restrictions pursuant to the Investment Agreement that contractually prohibit the transfer or any sale of the shares of our common stock issuable upon conversion of the Notes by the selling stockholder to a non-affiliated third-party until the earliest of (i) April 8, 2022 and (ii) a Change in Control (as defined in the Investment Agreement) of us.

The following table sets forth, based on written representations from the selling stockholders, certain information as of December 31, 2022 regarding the beneficial ownership of our common stock by the selling stockholders and the shares being offered by the selling stockholders. The applicable percentage ownership is based on 245,562,121 shares of our common stock outstanding as of December 31, 2022. Information with respect to shares owned beneficially after the offering assumes the sale of all of the shares offered and no other purchases or sales of our common stock. In the table below, the number of shares of common stock that may be offered pursuant to this prospectus is calculated based on the conversion rate of 23.1589 shares of our common stock per \$1,000 aggregate principal amount of notes. The number of shares of common stock issuable upon conversion of the Notes is subject to adjustment under certain circumstances described in the Indenture governing the Notes. Accordingly, the number of shares of common stock issuable upon conversion of the Notes and the number of shares of common stock beneficially owned and offered by the selling stockholders pursuant to this prospectus may increase or decrease from that set forth in the table below. Information about the selling stockholders may change over time. Any changed or new information given to us by selling stockholders will be set forth in supplements to this prospectus or amendments to the registration statement of which this prospectus is a part, if and when necessary. The selling stockholders may offer and sell some, all or none of their shares. Our registration of the shares of our common stock issuable upon conversion of the Notes does not necessarily mean that the selling stockholders will sell all or any of such shares of common stock.

We have determined beneficial ownership in accordance with the rules of the SEC. Except as indicated by the footnotes below, we believe, based on the information furnished to us, that the selling stockholders have sole voting and investment power with respect to all shares of our common stock that they beneficially own, subject to applicable community property laws. To our knowledge, none of the selling stockholders has held any position or office or had any other material relationship with us or our affiliates during the three years prior to the date of issuance and sale of the Notes.

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Name of Selling Stockholder	Shares Beneficially Owned Prior to Offering <sup>(1)</sup>		Number of Shares Being Offered <sup>(6)</sup>	Shares Beneficially Owned After Offering	
	Number	Percent <sup>(5)</sup>		Number	Percent <sup>(5)</sup>
SB Northstar LP <sup>(2)</sup>	—	—	8,858,279	—	—
Chimera Investment LLC <sup>(3)</sup>	—	—	10,826,786	—	—
Baker Bros. Advisors LP	8,402,035 <sup>(4)</sup>	3.4%	6,947,670 <sup>(4)</sup>	8,402,035 <sup>(4)</sup>	3.4%
<b>Total Shares</b>			<b>26,632,735</b>		

- (1) The shares of common stock underlying the Notes are not included in the shares beneficially owned in the table above as we may settle conversion of the Notes in cash rather than shares of common stock at our election. The number of shares being offered assumes for each \$1,000 in principal amount of the Notes a conversion rate, as of the date of this prospectus of 23.1589 shares of our common stock upon conversion and full physical settlement and does not take into account that cash will be issued in lieu of any fractional share issuable upon conversion. This conversion rate is subject to adjustment, and as a result, the number of shares of our common stock issuable upon conversion of the Notes may increase or decrease in the future.
- (2) SB Northstar LP is an indirect subsidiary of SoftBank Group Corporation. The principal business address of SB Northstar LP is 190 Elgin Avenue, George Town, Grand Cayman KY1-9008, Cayman Islands. The principal business address of SoftBank Group Corporation is 38th Floor, Tokyo Portcity Takeshiba Office Tower, 1-7-1, Kaigan, Minato-ku, Tokyo, 105-7537 Japan.
- (3) The principal business address of Chimera Investment LLC is 520 Madison Avenue, 32nd Floor, New York, NY 10022.
- (4) Beneficial ownership as of December 31, 2022, consists of (i) 703,426 shares of common stock held directly by 667, L.P. (“667”) and (ii) 7,698,609 shares of common stock held directly by Baker Brothers Life Sciences, L.P. (“Life Sciences” and together with 667, the “Baker Funds”). The shares being offered consist of (i) 511,557 shares of common stock issuable upon conversion of the Notes held directly by 667 and (ii) 6,436,113 shares of common stock issuable upon conversion of the Notes held directly by Life Sciences. As the conversion of the Notes may be settled in cash, shares of common stock or a combination of cash and shares of common stock, at the Company’s election, the shares issuable to the Baker Funds upon conversion of the Notes and any other convertible notes with similar settlement features are not included in the beneficial ownership amounts disclosed in the table above. Baker Bros. Advisors LP (“BBA”), the management company and investment adviser to the Baker Funds, has the sole voting and investment power over the securities held by the Baker Funds and thus may be deemed to beneficially own the securities directly held by the Baker Funds. Baker Bros. Advisors (GP) LLC (“BBA GP”) is the sole general partner of BBA and thus may be deemed to beneficially own the securities directly held by the Baker Funds. Julian C. Baker and Felix J. Baker, as managing members of BBA GP, may be deemed to beneficially own the securities directly held by the Baker Funds. The address of each such entity is 860 Washington Street, Third Floor, New York, NY 10014.
- (5) The percentage reflects the 245,562,121 shares of our common stock outstanding as of December 31, 2022 and gives effect to the total number of shares of our common stock beneficially owned and offered hereby by the selling stockholders, excluding shares underlying the Notes as described in Note (1) above.
- (6) The table assumes that the selling stockholders will sell all of their shares offered pursuant to this prospectus. We are unable to determine the number of shares that will actually be sold pursuant to this prospectus.

## PLAN OF DISTRIBUTION

The selling stockholders, which as used herein includes permitted transferees, pledgees, assignees, distributees, donees or successors or others who later hold any of the selling stockholders' interests, may, from time to time, offer, sell, transfer or otherwise dispose of any or all of their shares of common stock covered by this prospectus on any stock exchange, market or trading facility on which the shares are traded or in private transactions, and may also decide not to sell all or any of the shares that they are allowed to sell under this prospectus. The selling stockholders will act independently of us in making decisions regarding the timing, manner and size of each disposition. Any 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 a broker-dealer solicits purchasers;
- block trades, including those in which a 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, or in crosses, in which the same broker-dealer acts as an agent on both sides of the trade;
- through one or more underwritten offerings on a firm commitment or best efforts basis;
- through agents, including through at-the-market offerings;
- sales in the over-the-counter market;
- 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;
- short sales or transactions to cover short sales;
- 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, stockholders or creditors;
- broker-dealers may agree with a selling stockholder to sell a specified number of such shares at a stipulated price per share;
- a combination of any such methods of sale; and
- any other method permitted pursuant to applicable law.

The selling stockholders may, from time to time, pledge or grant a security interest in some or all of the shares of common stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of common stock, from time to time, under this prospectus, or under an amendment 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.

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In connection with the sale of 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 the 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 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 underwriters, agents or dealers, 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.

The selling stockholders will not pay any of the costs, expenses and fees incurred in connection with the registration and, except as may be specified in the Investment Agreement, sale of the shares of common stock offered by this prospectus, but they will pay any and all underwriting discounts, selling commissions and stock transfer taxes, if any, attributable to sales of such shares. 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.

The selling stockholders may, or may authorize underwriters, dealers and agents to, solicit offers from specified institutions to purchase shares of our common stock from the selling stockholders at the public offering price listed in the applicable prospectus supplement. These sales may be made under “delayed delivery contracts” or other purchase contracts that provide for payment and delivery on a specified future date. If necessary, any such contracts will be described in, and be subject to the conditions set forth in, a supplement to this prospectus or a post-effective amendment to this registration statement of which this prospectus forms a part.

Broker-dealers or agents may receive compensation in the form of commissions, discounts or concessions from the selling stockholders. Broker-dealers or agents may also receive compensation from the purchasers of shares of our common stock for whom they act as agents or to whom they sell as principals, or both. Compensation to a particular broker-dealer might be in excess of customary commissions and will be in amounts to be negotiated in connection with transactions involving securities. In effecting sales, broker-dealers engaged by the selling stockholders may arrange for other broker-dealers to participate in the resales.

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The selling stockholders will be subject to the applicable provisions of Regulation M of the Exchange Act and the rules and regulations thereunder, which provisions may limit the timing of purchases and sales of any of the shares of our common stock by the selling stockholders. Regulation M may also restrict the ability of any person engaged in the distribution of the shares of our common stock to engage in market-making activities with respect to such shares. These restrictions may affect the marketability of such shares.

In order to comply with applicable securities laws of some states or countries, the shares of our common stock may only be sold in those jurisdictions through registered or licensed brokers or dealers and in compliance with applicable laws and regulations. In addition, in certain states or countries the shares of our common stock may not be sold unless they have been registered or qualified for sale in the applicable state or country or an exemption from the registration or qualification requirements is available. In addition, any shares of our common stock of a selling stockholder covered by this prospectus that qualify for sale pursuant to Rule 144 under the Securities Act may be sold in open market transactions under Rule 144 rather than pursuant to this prospectus.

In connection with an offering of shares of our common stock under this prospectus, the underwriters, if any, may purchase and sell securities in the open market. These transactions may include short sales, stabilizing transactions and purchases to cover positions created by short sales. Short sales involve the sale by the underwriters of a greater number of securities than they are required to purchase in an offering. Stabilizing transactions consist of certain bids or purchases made for the purpose of preventing or retarding a decline in the market price of the securities while an offering is in progress.

The underwriters, if any, also may impose a penalty bid. This occurs when a particular underwriter repays to the underwriters a portion of the underwriting discount received by it because the underwriters have repurchased securities sold by or for the account of that underwriter in stabilizing or short-covering transactions.

These activities by the underwriters, if any, may stabilize, maintain or otherwise affect the market price of the shares of our common stock offered under this prospectus. As a result, the price of the shares of our common stock may be higher than the price that otherwise might exist in the open market. If these activities are commenced, they may be discontinued by the underwriters at any time. These transactions may be effected on the New York Stock Exchange or another securities exchange or automated quotation system, or in the over-the-counter market or otherwise.

## LEGAL MATTERS

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

## EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2021, and the effectiveness of our internal control over financial reporting as of December 31, 2021, as set forth in their reports, which are incorporated by reference in this prospectus and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP's reports, 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. The SEC 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, 2021](#);
- our Quarterly Reports on Form 10-Q for the quarters ended [March 31, 2022](#), [June 30, 2022](#) and [September 30, 2022](#);
- our Current Reports on Form 8-K filed with the SEC on [March 2, 2022](#), [April 14, 2022](#), [June 10, 2022](#), [July 19, 2022](#), [July 20, 2022](#), [August 25, 2022](#), [November 9, 2022](#), [December 20, 2022](#), [January 30, 2023](#) and [February 7, 2023](#) (each to the extent filed and not furnished); and
- the description of our common stock set forth in [Exhibit 4.2](#) of our Annual Report on Form 10-K for the fiscal year ended December 31, 2020.

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 filing date of the registration statement of which this prospectus is a part, as well as between the date of this prospectus and the termination of any offering of common stock 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.

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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](http://www.invitae.com).

**PART II****Information Not Required In Prospectus****Item 14. Other Expenses of Issuance and Distribution.**

The following is a statement of estimated expenses in connection with the issuance and distribution of the securities being registered. All of the amounts are estimated except the SEC registration fee.

SEC registration fee	\$ 81,445
Legal fees and expenses	20,000
Accounting fees and expenses	10,000
Printing and miscellaneous fees and expenses	8,555
	<u>\$ 120,000</u>

**Item 15. Indemnification of Directors and Officers.**

Section 102 of the Delaware General Corporation Law (the “DGCL”), allows a corporation to eliminate the personal liability of directors of a corporation to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, except where the director breached the duty of loyalty, failed to act in good faith, engaged in intentional misconduct or knowingly violated a law, authorized the payment of a dividend or approved a stock repurchase in violation of the DGCL or obtained an improper personal benefit.

Section 145 of the DGCL provides, among other things, that we may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding—other than an action by or in the right of the Registrant—by reason of the fact that the person is or was a director, officer, agent or employee of the Registrant, or is or was serving at our request as a director, officer, agent or employee of another corporation, partnership, joint venture, trust or other enterprise against expenses, including attorneys’ fees, judgments, fines and amounts paid in settlement actually and reasonably incurred by the person in connection with such action, suit or proceeding. The power to indemnify applies (a) if such person is successful on the merits or otherwise in defense of any action, suit or proceeding, or (b) if such person acting in good faith and in a manner he or she reasonably believed to be in the best interest, or not opposed to the best interest, of the Registrant, and with respect to any criminal action or proceeding had no reasonable cause to believe his or her conduct was unlawful. The power to indemnify applies to actions brought by or in the right of the Registrant as well but only to the extent of defense expenses, including attorneys’ fees but excluding amounts paid in settlement, actually and reasonably incurred and not to any satisfaction of judgment or settlement of the claim itself, and with the further limitation that in such actions no indemnification shall be made in the event of any adjudication of liability to the Registrant, unless the court believes that in light of all the circumstances indemnification should apply.

Section 174 of the DGCL provides, among other things, that a director, who willfully or negligently approves of an unlawful payment of dividends or an unlawful stock purchase or redemption, may be held liable for such actions. A director who was either absent when the unlawful actions were approved or dissented at the time, may avoid liability by causing his or her dissent to such actions to be entered in the books containing minutes of the meetings of the board of directors at the time such action occurred or immediately after such absent director receives notice of the unlawful acts.

The Registrant’s restated certificate of incorporation, filed as Exhibit 3.1 to the Registrant’s Current Report on Form 8-K filed on February 23, 2015 and the Registrant’s amended and restated bylaws, filed as Exhibit 3.1 to the Registrant’s Current Report on Form 8-K filed on March 23, 2021, provide that the Registrant shall indemnify its directors, officers, employees and other agents to the fullest extent not prohibited by the DGCL or

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any other applicable law. In addition, the Registrant has entered into agreements to indemnify its directors and expects to continue to enter into agreements to indemnify all of its directors. These agreements require the Registrant, among other things, to indemnify its directors and officers against certain liabilities which may arise by reason of their status or service as directors or officers to the fullest extent not prohibited by law. These indemnification provisions and the indemnification agreements may be sufficiently broad to permit indemnification of the Registrant's officers and directors for liabilities, including reimbursement of expenses incurred, arising under the Securities Act.

**Item 16. Exhibits.**

<u>Exhibit No.</u>	<u>Description</u>
4.1	<a href="#">Specimen Common Stock Certificate (incorporated by reference to Exhibit 4.1 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2020).</a>
4.2	<a href="#">Indenture, dated as of April 8, 2021, between Invitae Corporation and U.S. Bank National Association (including form of Note) (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed April 8, 2021).</a>
5.1	<a href="#">Opinion of Pillsbury Winthrop Shaw Pittman LLP.</a>
10.1	<a href="#">Investment Agreement, dated as of April 3, 2021, by and among Invitae Corporation and parties listed therein (including form of Indenture relating to 1.50% Convertible Senior Notes due 2028) (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed April 5, 2021).</a>
23.1	<a href="#">Consent of Pillsbury Winthrop Shaw Pittman LLP (included in Exhibit 5.1).</a>
23.2	<a href="#">Consent of Independent Registered Public Accounting Firm.</a>
24.1	<a href="#">Power of Attorney (included on the signature page hereof).</a>
107	<a href="#">Filing Fee Table.</a>

**Item 17. Undertakings.**

(a) The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the SEC pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (i), (ii) and (iii) above do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the SEC by the registrant pursuant to section 13 or section 15(d) of the Exchange Act that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for the purpose of determining liability under the Securities Act to any purchaser:

(A) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(B) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by section 10(a) of the Securities Act shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.

(5) That, for the purpose of determining liability of the registrant under the Securities Act to any purchaser in the initial distribution of the securities: The undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

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

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(b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

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

## SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Post-Effective Amendment No. 1 to the Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized in the City of San Francisco, State of California, on February 28, 2023.

### INVITAE CORPORATION

By /s/ Kenneth D. Knight

Kenneth D. Knight  
Chief Executive Officer

## POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints Kenneth D. Knight and Yafei (Roxi) Wen, and each of them, his or her true and lawful attorneys-in-fact and agents, each with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments, including post-effective amendments, to this Post-Effective Amendment No. 1 to the Registration Statement, and any registration statement relating to the offering covered by this Post-Effective Amendment No. 1 to the Registration Statement and filed pursuant to Rule 462(b) under the Securities Act of 1933, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done, as fully for all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that each of said attorneys-in-fact and agents, or his or her substitute or substitutes may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this Post-Effective Amendment No. 1 to the 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/ Kenneth D. Knight</u> Kenneth D. Knight	Chief Executive Officer (Principal Executive Officer) and Director	February 28, 2023
<u>/s/ Yafei (Roxi) Wen</u> Yafei (Roxi) Wen	Chief Financial Officer (Principal Financial Officer)	February 28, 2023
<u>/s/ Robert F. Werner</u> Robert F. Werner	Chief Accounting Officer (Principal Accounting Officer)	February 28, 2023
<u>/s/ Randal W. Scott, Ph.D.</u> Randal W. Scott, Ph.D.	Chair of the Board and Director	February 28, 2023
<u>*</u> Eric Aguiar, M.D.	Director	February 28, 2023
<u>*</u> Geoffrey S. Crouse	Director	February 28, 2023
<u>*</u> Christine M. Gorjanc	Director	February 28, 2023

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<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>*</u> Kimber D. Lockhart	Director	February 28, 2023
<u>*</u> Chitra Nayak	Director	February 28, 2023
<u>/s/ William H. Osborne</u> William H. Osborne	Director	February 28, 2023

\*By: /s/ Yafei (Roxi) Wen  
Yafei (Roxi) Wen  
Attorney-in-Fact

PILLSBURY WINTHROP SHAW PITTMAN LLP  
2550 Hanover Street  
Palo Alto, CA 94304-1115

February 28, 2023

Invitae Corporation  
1400 16th Street  
San Francisco, CA 94103

Ladies and Gentlemen:

We are acting as counsel for Invitae Corporation, a Delaware corporation (the “Company”), in connection with the issuance and sale of up to 26,632,735 shares (the “Shares”) of common stock, \$0.0001 par value per share, of the Company, all of which are authorized but heretofore unissued shares to be offered and sold by the Company, pursuant to the Registration Statement on Form S-3 (Registration No. 333-263205), as amended (the “Registration Statement”), filed by the Company with the Securities and Exchange Commission (the “Commission”) under the Securities Act of 1933 (the “Act”), and related prospectus, dated February 28, 2023, relating to the offer and sale of the Shares (as so supplemented, the “Prospectus”), issuable upon conversion of the Company’s 1.5% Convertible Senior Notes due 2028 (the “Notes”). The Notes have been issued under the Indenture, dated as of April 8, 2021, between the Company and U.S. Bank National Association, as trustee (the “Indenture”).

We have reviewed the Registration Statement, the Prospectus and such other agreements, documents, records, certificates and other materials, and have reviewed and are familiar with such corporate proceedings and satisfied ourselves as to such other matters, as we have considered relevant or necessary as a basis for our opinions set forth in this letter. In such review, we have assumed the accuracy and completeness of all agreements, documents, records, certificates and other materials submitted to us, the conformity with the originals of all such materials submitted to us as copies (whether or not certified and including facsimiles), the authenticity of the originals of such materials and all materials submitted to us as originals, the genuineness of all signatures and the legal capacity of all natural persons.

On the basis of the assumptions and subject to the qualifications and limitations set forth herein, we are of the opinion that the Shares have been duly authorized and, when issued and sold by the Company in the manner described in the Registration Statement and the Prospectus and in accordance with the resolutions adopted by the Board of Directors of the Company, will be validly issued, fully paid and nonassessable.

Our opinions set forth in this letter are limited to the General Corporation Law of the State of Delaware, as in effect on the date hereof.

We hereby consent to the filing of this letter as Exhibit 5.1 to the Registration Statement and to the use of our name under the caption “Legal Matters” in the Prospectus. In giving this consent, we do not thereby admit that we are within the category of persons whose consent is required under Section 7 of the Act or the rules and regulations of the Commission thereunder.

Very truly yours,

/s/ Pillsbury Winthrop Shaw Pittman LLP

**CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

We consent to the reference to our firm under the caption “Experts” in the Post-Effective Amendment No. 1 to the Registration Statement on Form S-3 (No. 333-256683) and related Prospectus of Invitae Corporation for the registration of common stock and to the incorporation by reference therein of our reports dated March 1, 2022, with respect to the consolidated financial statements of Invitae Corporation, and the effectiveness of internal control over financial reporting of Invitae Corporation, included in its Annual Report (Form 10-K) for the year ended December 31, 2021, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

San Mateo, California

February 28, 2023

## Calculation of Filing Fee Tables

**S-3**  
(Form Type)

**Invitae Corporation**  
(Exact Name of Registrant as Specified in its Charter)

Table 1: Newly Registered and Carry Forward Securities

	Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered (1)	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee	Carry Forward Form Type	Carry Forward File Number	Carry Forward Initial effective date	Filing Fee Previously Paid In Connection with Unsold Securities to be Carried Forward
<b>Newly Registered Securities</b>												
Fees Previously Paid	Equity	Common Stock, \$0.0001 par value per share	457(c)	26,632,735	\$28.03	\$746,515,563	0.0001091	\$81,445(2)				
<b>Carry Forward Securities</b>												
Carry Forward Securities	Equity	Common Stock, \$0.0001 par value per share	457(b)	26,632,735		\$746,515,563			S-3ASR	333-256683	June 1, 2021	\$81,445
	<b>Total Offering Amounts</b>					\$746,515,563		\$81,445(2)				
	<b>Total Fees Previously Paid</b>							\$81,445(2)				
	<b>Total Fee Offsets</b>							—				
	<b>Net Fee Due</b>							\$0				

- (1) Represents the maximum number of shares of the Registrant's common stock issuable upon conversion of the Registrant's 1.50% Convertible Senior Notes due 2028 (the "Notes") at a conversion rate corresponding to the initial conversion rate of 23.1589 shares of the Registrant's common stock per \$1,000 principal amount of the Notes. Pursuant to Rule 416(a) of the Securities Act of 1933 (the "Securities Act"), this Registration Statement also covers any additional shares of the Registrant's common stock that becomes issuable by reason of any stock dividend, stock split, recapitalization, conversion of the notes as a result of the anti-dilution provisions thereof or other similar transactions.
- (2) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(c) under the Securities Act based on the average of the high and low prices of the Registrant's common stock on The New York Stock Exchange on May 24, 2021.