

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

SCHEDULE 13G

Under the Securities Exchange Act of 1934

(Amendment No. __)*

Invitae Corporation

(Name of Issuer)

Common Stock, \$.0001 par value per share

(Title of Class of Securities)

46185L103

(CUSIP Number)

December 31, 2015

(Date of Event which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

- Rule 13d-1(b)
- Rule 13d-1(c)
- Rule 13d-1(d)

*The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

The information required in the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act, but shall be subject to all other provisions of the Act (however, see the Notes).

| | | |
|--|--|--------------------------|
| 1 | NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY) | |
| | Thomas, McNerney & Partners II, L.P. | |
| 2 | CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) | |
| | (a) <input type="checkbox"/> | |
| | (b) <input type="checkbox"/> | |
| 3 | SEC USE ONLY | |
| 4 | CITIZENSHIP OR PLACE OF ORGANIZATION | |
| | Delaware limited partnership | |
| NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH | 5 | SOLE VOTING POWER |
| | | 0 |
| | 6 | SHARED VOTING POWER |
| | | 3,732,460 |
| | 7 | SOLE DISPOSITIVE POWER |
| | | 0 |
| | 8 | SHARED DISPOSITIVE POWER |
| | | 3,732,460 |
| 9 | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON | |
| | 3,732,460 | |
| 10 | CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS) <input type="checkbox"/> | |
| 11 | PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) | |
| | 11.7% | |
| 12 | TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) | |
| | PN | |

| | | |
|--|---|---|
| 1 | NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY) TMP Associates II, L.P. | |
| 2 | CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (a) <input type="checkbox"/> (b) <input type="checkbox"/> | |
| 3 | SEC USE ONLY | |
| 4 | CITIZENSHIP OR PLACE OF ORGANIZATION Delaware limited partnership | |
| NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH | 5 | SOLE VOTING POWER 0 |
| | 6 | SHARED VOTING POWER 3,732,460 |
| | 7 | SOLE DISPOSITIVE POWER 0 |
| | 8 | SHARED DISPOSITIVE POWER 3,732,460 |
| 9 | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 3,732,460 | |
| 10 | CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS) <input type="checkbox"/> | |
| 11 | PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 11.7% | |
| 12 | TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) PN | |

| | | |
|--|--|---|
| 1 | NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY) Thomas, McNerney & Partners II, LLC | |
| 2 | CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (a) <input type="checkbox"/> (b) <input type="checkbox"/> | |
| 3 | SEC USE ONLY | |
| 4 | CITIZENSHIP OR PLACE OF ORGANIZATION Delaware limited liability company | |
| NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH | 5 | SOLE VOTING POWER 0 |
| | 6 | SHARED VOTING POWER 3,732,460 |
| | 7 | SOLE DISPOSITIVE POWER 0 |
| | 8 | SHARED DISPOSITIVE POWER 3,732,460 |
| 9 | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 3,732,460 | |
| 10 | CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS) <input type="checkbox"/> | |
| 11 | PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 11.7% | |
| 12 | TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) OO | |

| | | |
|--|---|---|
| 1 | NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY) TMP Nominee II, LLC | |
| 2 | CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (a) <input type="checkbox"/> (b) <input type="checkbox"/> | |
| 3 | SEC USE ONLY | |
| 4 | CITIZENSHIP OR PLACE OF ORGANIZATION Delaware limited liability company | |
| NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH | 5 | SOLE VOTING POWER 0 |
| | 6 | SHARED VOTING POWER 3,732,460 |
| | 7 | SOLE DISPOSITIVE POWER 0 |
| | 8 | SHARED DISPOSITIVE POWER 3,732,460 |
| 9 | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 3,732,460 | |
| 10 | CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS) <input type="checkbox"/> | |
| 11 | PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 11.7% | |
| 12 | TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) OO | |

| | | |
|--|---|---|
| 1 | NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY) James E. Thomas | |
| 2 | CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (a) <input type="checkbox"/> (b) <input type="checkbox"/> | |
| 3 | SEC USE ONLY | |
| 4 | CITIZENSHIP OR PLACE OF ORGANIZATION United States | |
| NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH | 5 | SOLE VOTING POWER 0 |
| | 6 | SHARED VOTING POWER 3,732,460 |
| | 7 | SOLE DISPOSITIVE POWER 0 |
| | 8 | SHARED DISPOSITIVE POWER 3,732,460 |
| 9 | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 3,732,460 | |
| 10 | CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS) <input type="checkbox"/> | |
| 11 | PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 11.7% | |
| 12 | TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) IN | |

| | | | |
|--|---|---|--|
| 1 | NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY) Peter McNerney | | |
| 2 | CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (a) <input type="checkbox"/> (b) <input type="checkbox"/> | | |
| 3 | SEC USE ONLY | | |
| 4 | CITIZENSHIP OR PLACE OF ORGANIZATION United States | | |
| NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH | | 5 | SOLE VOTING POWER 0 |
| | | 6 | SHARED VOTING POWER 36,236 |
| | | 7 | SOLE DISPOSITIVE POWER 0 |
| | | 8 | SHARED DISPOSITIVE POWER 36,236 |
| 9 | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 36,236 | | |
| 10 | CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS) <input type="checkbox"/> | | |
| 11 | PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 0.1% | | |
| 12 | TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) IN | | |

Item 1(a). **Name of Issuer:**

Invitae Corporation

Item 1(b). **Address of Issuer’s Principal Executive Offices:**

458 Brannan Street, San Francisco, California 94107 .

Item 2(a). **Names of Persons Filing:**

Thomas, McNerney & Partners II, L.P. (“TMP II”), TMP Associates II, L.P. (“TMPA II”), TMP Nominee II, LLC (“TMPN II”), Thomas, McNerney & Partners II, LLC (“TMP II LLC”), James E. Thomas, and Peter McNerney.

TMP II LLC, the general partner of TMP II and TMPA II, has voting and dispositive power over the shares held by TMP II and TMPA II. In addition, TMPN II has entered into an agreement with TMP II LLC that directs TMPN II to vote and dispose of securities in the same manner as directed by TMP II LLC with respect to the shares held by TMP II and TMPA II. James E. Thomas and Peter McNerney are the managers of TMPN II and have shared voting and dispositive power over such securities, provided that they are obligated to exercise such power in the same manner as TMP II LLC votes and disposes of the securities of the Issuer over which TMP II LLC exercises voting and dispositive power. On December 31, 2015, James E. Thomas, Alex Zisson and Eric Aguiar were the managers of TMP II LLC. On January 1, 2016, Alex Zisson and Eric Aguiar resigned. As of January 1, 2016, James E. Thomas is the sole manager of TMP II LLC. Peter McNerney is a member and former manager of TMP II LLC.

The persons named in this Item 2(a) are referred to individually herein as a “Reporting Person” and collectively as the “Reporting Persons.”

Item 2(b). **Address of Principal Business Office or, if None, Residence:**

The address of the principal office and principal business address of each of the Reporting Persons is 45 South 7th Street, Suite 3060, Minneapolis, MN 55402 .

Item 2(c). **Citizenship:**

TMP II and TMPA II are each a limited partnership organized under the laws of the State of Delaware. TMPN II and TMP II LLC are each a limited liability company organized under the laws of the State of Delaware. Each of James E. Thomas and Peter McNerney are U.S. citizens.

Item 2(d). **Title of Class of Securities:**

Common Stock, \$.0001 par value (“Common Stock”).

Item 2(e). **CUSIP Number:**

46185L103 .

Item 3. **If this statement is filed pursuant to §§ 240.13d-1(b) or 240.13d-2(b) or (c), check whether the person filing is a:**

Not applicable.

Item 4. Ownership

- (a) Amount Beneficially Owned: TMP II is the record owner of 3,682,968 shares of Common Stock as of December 31, 2015 (the “TMP II Shares”). TMPN II is the record owner of 36,236 shares of Common Stock as of December 31, 2015 (the “TMPN II Shares”). TMPA II is the record owner of 13,256 shares of Common Stock as of December 31, 2015 (the “TMPA II Shares” and, collectively with the TMP II Shares, the TPMN II Shares, and the TMPA II Shares, the “Total TMP II Shares”).

TMP II LLC, the general partner of TMP II and TMPA II, has voting and dispositive power over the shares held by TMP II and TMPA II. In addition, TMPN II has entered into an agreement with TMP II LLC that directs TMPN II to vote and dispose of securities in the same manner as directed by TMP II LLC with respect to the shares held by TMP II and TMPA II. Consequently, TMP II LLC may be deemed to own beneficially the Total TMP II Shares. James E. Thomas and Peter McNerney are the managers of TMPN II and have shared voting and dispositive power over such securities, provided that they are obligated to exercise such power in the same manner as TMP II LLC votes and disposes of the securities of the Issuer over which TMP II LLC exercises voting and dispositive power. On December 31, 2015, James E. Thomas, Alex Zisson and Eric Aguiar may have been deemed to beneficially own the Total TMP II Shares. As of January 1, 2016, Alex Zisson and Eric Aguiar no longer beneficially own the Total TMP II Shares by virtue of each of Alex Zisson’s and Eric Aguiar’s resignation from their respective positions as managers of TMP II LLC. As of January 1, 2016, James E. Thomas is the sole manager of TMP II LLC and may be deemed to beneficially own the Total TMP II Shares.

By virtue of their relationship as affiliated entities ultimately controlled by TMP II LLC and its individual manager, each of the Reporting Persons other than Peter McNerney may be deemed to share the power to direct the disposition and vote of the Total TMP II Shares. Peter McNerney may be deemed to share the power to direct the disposition and vote of the shares held by TMPN II.

- (b) Percent of Class: See Line 11 of cover sheets. The percentages set forth on the cover sheet for each Reporting Person are calculated based on 31,926,026 shares of Common Stock reported by the Issuer to be outstanding as of October 30, 2015 on Form 10-Q as filed with the Securities and Exchange Commission on November 10, 2015 .
- (c) Number of shares as to which such person has:
- (i) sole power to vote or to direct the vote: See Line 5 of cover sheets.
 - (ii) shared power to vote or to direct the vote: See Line 6 of cover sheets.
 - (iii) sole power to dispose or to direct the disposition of: See Line 7 of cover sheets.
 - (iv) shared power to dispose or to direct the disposition of: See Line 8 of cover sheets.

Each Reporting Person disclaims beneficial ownership of such Securities except for the shares, if any, such Reporting Person holds of record.

Item 5. Ownership of Five Percent or Less of a Class.

Not applicable.

Item 6. Ownership of More than Five Percent on Behalf of Another Person.

Not applicable.

Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on by the Parent Holding Company or Control Person.

Not applicable.

Item 8. Identification and Classification of Members of the Group.

Not applicable. The Reporting Persons expressly disclaim membership in a “group” as used in Rule 13d-5(b).

Item 9. Notice of Dissolution of Group.

Not applicable.

Item 10. Certification.

Not applicable. This Schedule 13G is not filed pursuant to Rule 13d-1(b) or Rule 13d-1(c).

Material to be Filed as Exhibits .

Exhibit 1 – Agreement regarding filing of joint Schedule 13G.

SIGNATURE

After reasonable inquiry and to the best of its knowledge and belief, each of the undersigned certifies that the information set forth in this statement is true, complete and correct.

Date: February 16, 2016

/s/ James E. Thomas February 16, 2016
Manager of Thomas, McNerney & Partners II, LLC, the general partner of Thomas, McNerney & Partners II, L.P.

/s/ James E. Thomas February 16, 2016
Manager of TMP Nominee II, LLC

/s/ James E. Thomas February 16, 2016
Manager of Thomas, McNerney & Partners II, LLC, the general partner of TMP Associates II, L.P.

/s/ James E. Thomas February 16, 2016
Manager of Thomas, McNerney & Partners II, LLC

/s/ James E. Thomas February 16, 2016
James E. Thomas

/s/ Peter McNerney February 16, 2016
Peter McNerney



EXHIBIT 1AGREEMENT

Pursuant to Rule 13d-1(k)(1) under the Securities Exchange Act of 1934, the undersigned hereby agree that only one statement containing the information required by Schedule 13G need be filed with respect to the ownership by each of the undersigned of shares of stock of Invitae Corporation.

EXECUTED this 16th day of February, 2016.

/s/ James E. Thomas February 16, 2016
Manager of Thomas, McNerney & Partners II, LLC, the general partner of Thomas, McNerney & Partners II, L.P.

/s/ James E. Thomas February 16, 2016
Manager of TMP Nominee II, LLC

/s/ James E. Thomas February 16, 2016
Manager of Thomas, McNerney & Partners II, LLC, the general partner of TMP Associates II, L.P.

/s/ James E. Thomas February 16, 2016
Manager of Thomas, McNerney & Partners II, LLC

/s/ James E. Thomas February 16, 2016
James E. Thomas

/s/ Peter McNerney February 16, 2016
Peter McNerney