



DIVISION OF  
CORPORATION FINANCE

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

December 22, 2014

Via E-mail

Mr. Lee Bendekgey  
Chief Financial Officer and General Counsel  
Invitae Corporation  
458 Brannan Street  
San Francisco, California 94107

**Re:   Invitae Corporation  
      Amendment No. 1 to  
      Draft Registration Statement on Form S-1  
      Submitted December 11, 2014  
      CIK No. 0001501134**

Dear Mr. Bendekgey:

We have reviewed your amended draft registration statement and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by providing the requested information and either submitting an amended draft registration statement or publicly filing your registration statement on EDGAR. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing the information you provide in response to these comments and your amended draft registration statement or filed registration statement, we may have additional comments.

Summary

1. We note in your response to comment 4 that you derive the estimation of the U.S. market for hereditary cancer tests from the annualized revenue of a single competitor. Please disclose in the filing the source and basis for the \$650 million estimate.

Mr. Lee Bendekgey  
Invitae Corporation  
December 22, 2014  
Page 2

You may contact Joanna Lam at (202) 551-3476 or Tia Jenkins at (202) 551-3871 if you have questions regarding comments on the financial statements and related matters. Please contact Hillary Daniels at (202) 551-3959 or Pamela Howell at (202) 551-3357 with any other questions.

Sincerely,

/s/ Brigitte Lippmann (for)

John Reynolds  
Assistant Director

cc: Gabriella A. Lombardi, Esq.  
Pillsbury Winthrop Shaw Pittman LLP