



DIVISION OF  
CORPORATION FINANCE

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

Mail Stop 3030

September 22, 2015

Via E-mail

Ms. Carolyn D. Beaver  
Chief Financial Officer  
Sequenom, Inc.  
3595 John Hopkins Court  
San Diego, California 92121

**RE: Sequenom, Inc.**  
**Form 10-K for Fiscal Year Ended December 31, 2014**  
**Filed March 10, 2015**  
**File No. 000-29101**

Dear Ms. Beaver:

We have reviewed your September 14, 2015 response to our comment letter 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 these comments within ten business days by providing the requested information or advise us as soon as possible when you will respond. If you do not believe our comments apply to your facts and circumstances, please tell us why in your response.

After reviewing your response to these comments, we may have additional comments. Unless we note otherwise, our references to prior comments are to comments in our September 1, 2015 letter.

Form 10-K for the Fiscal Year Ended December 31, 2014

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations, page 42

Revenues, page 43

1. We note your response to prior comment 1 and the revised disclosures you included in your June 30, 2015 Form 10-Q. Please further revise that discussion in future filings to clearly disclose that revenues from individual accession transactions are recorded partially on the accrual basis and partially on the cash basis.

Note 3. Significant Acquisitions and Other Transactions, page F-14

Pooled Patents Agreement, page F-15

2. We note your response to prior comment 4. Please revise this note in future filings to provide a more meaningful description of the valuation methodologies utilized for the IVD Samples and IVD License. In addition, revise the critical accounting estimates section of MD&A to include a discussion of the valuation methodologies you used – i.e., the cost to recreate method and the differential cash flow method - and the key inputs, assumptions and uncertainties inherent in those models similar to information provided in your response letter.

You may contact Dennis Hult at (202) 551-3618, or me at (202) 551-3662 with any questions. You may also contact Martin James, Senior Assistant Chief Accountant, at (202) 551-3671.

Sincerely,

/s/ Kevin Kuhar

Kevin Kuhar  
Accounting Branch Chief  
Office of Electronics and Machinery

cc: Jeff Linton, Sr. VP, General Counsel & Secretary  
Aaron Bergener, VP, Controller