



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

May 5, 2011

Via Facsimile and U.S. Mail

Mr. Harry F. Hixson, Jr., Ph.D.  
Chief Executive Officer  
Sequenom, Inc.  
3595 John Hopkins Court  
San Diego, CA 92121

**Re: Sequenom, Inc.**  
**Form 10-K for the year ended December 31, 2010**  
**Filed March 9, 2011**  
**File No. 0-29101**

Dear Mr. Hixson:

We have reviewed your filings and have the following comments. We have limited our review to only your financial statements and related disclosures and do not intend to expand our review to other portions of your documents. 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 within ten business days by amending your filing, by providing the requested information, or by advising us when you will provide the requested response. 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 any amendment to your filing and the information you provide in response to these comments, we may have additional comments.

Form 10-K for the year ended December 31, 2010

Item 7A. Quantitative and Qualitative Disclosures About Market Risk, page 67

– Foreign Currency Rate Fluctuations, page 68

1. We note your disclosure here of foreign subsidiaries whose functional currencies are the Great British Pound, the Japanese Yen, the Indian Rupee and the Euro. We further note that you occasionally invoice Australian customers in their local currency. Finally, we note that you provide quantitative disclosures relating to the Australian dollar and the

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Euro. Please explain to us why you have not also provided quantitative disclosures relating to the Great British Pound, the Japanese Yen, the Indian Rupee or any other foreign currencies to which you may be exposed. Revise future filings as appropriate.

Item 9A. Controls and Procedures, page 68

2. Please refer to our prior comment 7 in our letter dated May 27, 2010 and your response in your letter dated June 15, 2010 whereby you indicated you would revise your disclosures in future filings. We note that you continue to include the statement that “a control system, no matter how well conceived, implemented and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met.” However, we do not see where you have revised the disclosures to state clearly, if true, that your disclosure controls and procedures are designed to provide reasonable assurance of achieving their objectives and that your principal executive officer and principal financial officer concluded that your disclosure controls and procedures are effective at that reasonable assurance level. Please revise future filings, including any amendment to this filing, to include these disclosures. In the alternative, please remove the reference to the level of assurance of your disclosure controls and procedures. Please refer to Section II.F.4 of Management’s Reports on Internal Control Over Financial Reporting and Certification of Disclosure in Exchange Act Periodic Reports, SEC Release No. 33-8238, available on our website at [www.sec.gov/rules/final/338238g.htm](http://www.sec.gov/rules/final/338238g.htm).

Notes to Consolidated Financial Statements, page F-7

Note 2. Summary of Significant Accounting Policies, page F-7

–Stock-based Compensation, page F-14

3. We note your disclosure here indicates that total stock-based compensation expense included in net loss for 2010, 2009 and 2008 was \$11,513, \$13,333 and \$7,699, respectively. Please reconcile these amounts with the amounts disclosed in the statements of cash flows (\$10,865, \$11,814 and \$7,276 for 2010, 2009 and 2008, respectively). Please revise future filings to insure your disclosure in this note either reconciles to the financial statements or describes any reason(s) for the difference.

Note 8. Commitments and Contingencies, page F-23

– Litigation, page F-24

4. We note your disclosures here regarding ‘Xenomics Litigation’ and ‘Paul Hawran Litigation.’ Please revise future filings to provide the disclosures required by section 450-20-50 of the FASB Accounting Standards Codification. For any unrecognized contingencies whereby an accrual has not been made because the conditions in paragraph 450-20-25-2 of the FASB Accounting Standards Codification have not been met or an

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exposure to loss exists in excess of the amount accrued, please revise future filings to disclose an estimate of the possible loss or range of loss in accordance with paragraph 450-20-50-4 of the FASB Accounting Standards Codification.

Note 11. Income Taxes, page F-33

5. Please revise future filings to provide all of the disclosures required by Rule 4-08(h)(1) of Regulation S-X.

Note 13. Geographic Information, page F-36

6. Please revise future filings to disclose the basis for attributing revenues from external customers to individual countries. Refer to paragraph 280-10-50-41(a) of the FASB Accounting Standards Codification.
7. Further to the above, please tell us whether revenues from external customers attributed to an individual foreign country are material. If so, revise future filings to separately disclose those revenues in accordance with paragraph 280-10-50-41(a) of the FASB Accounting Standards Codification.

Exhibit 23.1

8. We note that the consent filed as Exhibit 23.1 is dated March 8, 2010. Please amend to provide a properly dated consent.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Exchange Act of 1934 and all applicable Exchange Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

In responding to our comments, please provide a written statement from the company acknowledging that:

- the company is responsible for the adequacy and accuracy of the disclosure in the filing;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

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You may contact David Burton, Staff Accountant at (202) 551-3626 or me at (202) 551-3643 if you have questions regarding these comments. In this regard, do not hesitate to contact Martin James, Senior Assistant Chief Accountant at (202) 551-3671.

Sincerely,

Kevin L. Vaughn  
Accounting Branch Chief