



DIVISION OF  
CORPORATION FINANCE

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

Mail Stop 3030

July 14, 2010

Mr. Paul V. Maier  
Chief Financial Officer  
Sequenom, Inc.  
3595 John Hopkins Court  
San Diego, California 92121

**Re: Sequenom, Inc.**  
**Form 10-K for the year ended December 31, 2009**  
**Filed March 16, 2010**  
**File No. 0-29101**

Dear Mr. Maier:

We have completed our review of your filings and do not have any further comments at this time.

Sincerely,

Kevin L. Vaughn  
Accounting Branch Chief