



DIVISION OF  
CORPORATION FINANCE

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

December 3, 2010

Antony Rogers  
Vice President and Chief Financial Officer  
Senomyx, Inc.  
4767 Nexus Centre Drive  
San Diego, CA 92121

**Re: Senomyx, Inc.**  
**Form 10-K for the Fiscal Year Ended December 31, 2009**  
**Form 10-Q for the Quarterly Period Ended September 30, 2010**  
**File No. 000-50791**

Dear Mr. Rogers:

We have limited our review of your filings to those issues we have addressed in our 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 within ten business days by providing the requested information or by advising us when you will provide the requested response. Where a comment requests you to revise disclosure, the information you provide should show us what the revised disclosure will look like and identify the annual or quarterly filing, as applicable, in which you intend to first include it. If you do not believe a comment applies to your facts and circumstances, please tell us why in your response. Please furnish us a letter on EDGAR under the form type label CORRESP that keys your responses to our comments.

After reviewing the information you provide in response to these comments, we may have additional comments and/or request that you amend your filing.

Form 10-K for the fiscal year ended December 31, 2009

Notes to Financial Statements

4. Product Discovery and Development Collaborations, page 68

1. For each individually significant collaboration agreement, please revise your disclosure to include the amounts recognized for each period presented in accordance with ASC 808-10-50.

Form 10-Q for the quarterly period ended September 30, 2010

Management's Discussion and Analysis of Financial Condition and Result of Operations  
Nine Months Ended September 30, 2010 and 2009  
Revenue Under Collaboration Agreements, page 13

2. You state that revenue increased due to upfront payments, milestones, cost reimbursements and research and development funding based on new agreements entered into in July and August 2010, offset by funding which concluded in 2010. Please revise to quantify each significant factor that contributed to the increase in revenue and that offset the increase for the period. In addition, you stated in the Form 10-K that most of your existing research and development funding agreements would expire in 2010, if not renewed. Please clarify which funding agreements were not renewed in 2010 and quantify the impact of the loss of each agreement on your results of operations.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filings to be certain that the filings include 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 filings;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filings; 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.

You may contact Vanessa Robertson, Staff Accountant, at (202) 551-3649 or Mary Mast, Senior Staff Accountant, at (202) 551-3613 if you have any questions regarding the comments. In this regard, do not hesitate to contact me, at (202) 551-3679 with any other questions.

Sincerely,

Jim B. Rosenberg  
Senior Assistant Chief Accountant