

Mail Stop 6010

February 9, 2009

Mr. Peter Lawrence  
Chief Executive Officer  
ArQule, Inc.  
19 Presidential Way  
Woburn, Massachusetts 01801

**Re: ArQule, Inc.  
Form 10-K  
Filed March 17, 2008  
Response filed February 3, 2009  
File No. 000-21429**

Dear Mr. Lawrence:

We have reviewed your response and have the following comments. Where the comments request 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 that revised disclosure is necessary, explain the reason in your response. After reviewing the information provided, we may raise additional comments and/or request that you amend your filing.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comment or on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Patents and Proprietary Rights, page 10

1. We note that your response to our previous comment 3 contains several statements about future situations and hypothetical statements such as, “we may include” and “the disclosure may change”. The intent of our previous comment was not to elicit a hypothetical disclosure about disclosure you might include regarding patents and proprietary rights other than for the 10-K for the fiscal year ended December 31, 2008 which you are presently preparing to file. Please revise your disclosure to include proposed disclosure regarding your relevant patents and proprietary rights in your 10-K for the period ending December 31, 2008.

### Intellectual Property Agreements

2. We note your response to our previous comment contains only reasons why an agreement may not be considered material. Please revise your disclosure further to include a substantive analysis of each individual agreement explaining the technology licensed in each agreement and how the relevant facts and circumstances, as applied to the reasons for non-materiality that you list, led you to determine that each agreement was not material.

\* \* \*

Please respond to these comments within 10 business days or tell us when you will provide us with responses. Please furnish a letter that keys your response to our comments and provide the requested information. Detailed letters greatly facilitate our review. Please furnish your letter on EDGAR under the form type label CORRESP.

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 all information required under the Securities Exchange Act of 1934 and that they have provided all information investors require for an informed investment decision. 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 connection with responding to our comments, please provide, in your letter, a 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.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in our review of your filing or in response to our comment on your filing.

Peter Lawrence  
ArQule, Inc.  
February 9, 2009  
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Please contact Michael Rosenthal at (202) 551-3674 or me at (202) 551-3715  
with any questions.

Sincerely,

Jeffrey P. Riedler  
Assistant Director