

Mail Stop 6010

January 16, 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 October 21, 2008
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.

Kyowa Hakko Kogyo Co., Ltd. Alliance, page 7

1. We note your response suggesting that estimating the aggregate of all sales milestones under this agreement would be highly speculative, and therefore not material to investors. However, our previous comment did not seek an estimate of future sales, but rather a statement of fact regarding the maximum aggregate sales milestone payments your company might receive under the agreement with Kyowa. Further, we note that this agreement may expire at the end of the Royalty Term, or earlier if any one of several provisions occurs. Please expand your disclosure here to explain how the duration of the agreement may be affected by those provisions and disclose the provisions related to how the Royalty Term is

calculated. In that regard, please note that you cannot protect the confidentiality of the terms of contracts related to duration and termination. Please provide the text of your proposed disclosure in your next response.

Hoffman-La Roche Alliance, page 8

2. We understand that you have disclosed aggregate milestone payments elsewhere in your report, but maintain that the reader is entitled to a comprehensive discussion of the payment in this section of the report. Please revise your disclosure of material terms of the Hoffman-La Roche agreement to include the aggregate of the milestone payments. Please also include a range of the royalty rates. Further, we note that this agreement may expire on the expiration of all royalty and other payment obligations, or earlier if any one of several provisions occurs. Please expand your disclosure here to disclose the duration of the agreement and the other provisions that could cause the earlier termination of the agreement. In that regard, please note that you cannot protect the confidentiality of the terms of contracts related to duration and termination. Please provide the text of your proposed disclosure in your next response.

Patents and Proprietary Rights, page 10

3. We note your response to our previous comment states that you will provide expiration dates for your material patents in future filings. Please provide the actual disclosure you intend to include in future filings. Please provide the text of your proposed disclosure in your next response.

Intellectual Property Agreements

4. We note your response to our previous comment that you did not file certain license agreements that you do not consider “material contracts” as your business is not “substantially dependent” on these agreements. Please provide a substantive analysis as to why you are not substantially dependent on these licensing agreements. In general, if your company could lose access to technology necessary to continue research and development because there are minimum requirements or obligations that must be met in order to maintain your license for that technology, then you should disclose the material terms of those agreements and file the agreements. If applicable please provide the text of your proposed disclosure in your next response.

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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.

Please contact Michael Rosenthal at (202) 551-3674 or me at (202) 551-3715 with any questions.

Sincerely,

Jeffrey P. Riedler
Assistant Director