



DIVISION OF  
CORPORATION FINANCE

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

July 9, 2013

Via E-mail

David P. Schenkein, M.D.  
Chief Executive Officer  
Agius Pharmaceuticals, Inc.  
38 Sidney Street, 2<sup>nd</sup> Floor  
Cambridge, MA 02139

**Re: Agius Pharmaceuticals, Inc.  
Amendment No. 1 to Registration Statement on Form S-1  
Filed June 24, 2013  
File No. 333-189216**

Dear Dr. Schenkein:

We have reviewed your amended registration statement and have the following comment. Please respond to this letter by further amending your registration statement as requested. If you do not believe this comment is applicable to your facts and circumstances or do not believe another amendment is appropriate, please tell us why in a response.

After reviewing any additional amendment to your registration statement or the information you provide in response to these comments, we may have additional comments.

General

1. In the third paragraph on page 2 and elsewhere you explain that your use of biomarkers to target patient populations which you also identify as personalized or precision medicine is different from conventional drug development. Please eliminate this comparison here and elsewhere throughout the prospectus as many biotech companies currently developing new drugs in your area employ similar techniques. The comparison to older methods of drug development is not really relevant considering the area in which you are operating. Similarly, the disclosure in the last sentence of the second paragraph on page 2 and elsewhere throughout the prospectus suggests that your methods lead to a greater chance of clear proof of concept and accelerated development. Again, as many other biotech companies operating in your area employ similar drug development methods you should eliminate the last sentence in the second paragraph on page 2 and similar disclosure elsewhere throughout the prospectus. The disclosures mentioned above may suggest to the reader a stronger competitive advantage than actually exists.

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 Act of 1933 and all applicable Securities 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.

Notwithstanding our comment, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

You may contact Donald Abbott at (202) 551-3608 or Lisa Vanjoske at (202) 551-3614 if you have questions regarding comments on the financial statements and related matters. Please contact Scot Foley at (202) 551-3383 or me at (202) 551-3715 with any other questions.

Sincerely,

/s/ Jeffrey P. Riedler

Jeffrey P. Riedler  
Assistant Director

cc: Steven D. Singer, Esq.  
Cynthia T. Mazareas, Esq.  
Wilmer Cutler Pickering Hale and Dorr LLP  
60 State Street  
Boston, MA 02109