

April 14, 2019

William McVicar, Ph.D.  
President and Chief Executive Officer  
Flex Pharma, Inc.  
31 St. James Avenue, 6th Floor  
Boston, MA 02116

Re: Flex Pharma, Inc.  
Amendment No. 1 to Registration Statement on Form S-4  
Filed March 26, 2019  
File No. 333-229666

Dear Dr. McVicar:

We have reviewed your amended registration statement and have the following 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 by amending your registration statement and providing the requested information. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments. Unless we note otherwise, our references to prior comments are to comments in our March 15, 2019 letter.

Amendment No. 1 to Form S-4

Salarius Strategic Collaborations and License Agreements, page 214

1. We note your responses to comments 16 and 17. For each agreement discussed in this section, please expand your disclosure to include the aggregate milestone payments and royalty rate or range not to exceed ten percent, as applicable. Also, where an agreement terminates upon the expiration of patents or royalty obligations, please disclose when they are expected to expire.

Exhibits

2. Please file a consent from Weaver and Tidewell, LLP (Exhibit 23.3) that is dated.

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3. We note your response to prior comment 18. Please file a revised Exhibit 8.1 opinion stating that the disclosure identified in the prospectus is the opinion of the named counsel. For guidance, please see Staff Legal Bulletin No. 19 at Sections III.B.2.

You may contact Keira Nakada at 202-551-3659 or Sharon Blume at 202-551-3474 if you have questions regarding comments on the financial statements and related matters. Please contact Jeffrey Gabor at 202-551-2544 or Mary Beth Breslin at 202-551-3625 with any other questions.

Sincerely,

FirstName LastNameWilliam McVicar, Ph.D.

Division of

Corporation Finance  
Comapany NameFlex Pharma, Inc.

Office of

Healthcare & Insurance  
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cc: Walter Van Dorn, Esq.  
FirstName LastName