

April 17, 2019

VIA EDGAR AND HAND DELIVERY

Mr. Jeffrey Gabor
U.S. Securities and Exchange Commission
Division of Corporation Finance
Office of Healthcare & Insurance
100 F. Street, N.E.
Washington, DC 20549

Re: Flex Pharma, Inc.
Amendment No. 2 to Registration Statement on Form S-4
Filed April 17, 2019 (File No. 333-229666)

Dear Mr. Gabor:

We are writing on behalf of our client, Flex Pharma, Inc. (the “Company”), in response to the letter dated April 14, 2019, from the staff of the Securities and Exchanges Commission transmitting their comments to Amendment No. 1 to Registration Statement on Form S-4 filed by the Company on March 26, 2019 (the “Registration Statement”). Your specific requests for information are set forth verbatim below, followed by the Company’s response. Courtesy copies of Amendment No. 2 to the Registration Statement are included herewith.

Amendment No. 1 to Form S-4**Salarius Strategic Collaborations and License Agreements, page 214**

- 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.**

The Company has updated the disclosures on pages 214 through 216 to expand the disclosures made.

Exhibits

- Please file a consent from Weaver and Tidewell, LLP (Exhibit 23.2) that is dated.**

The Company has filed a consent from Weaver and Tidewell, LLP that is dated.

Hamilton Harrison & Mathews u Mardemootoo Balgobin u HPRP u Zain & Co. u Delany Law u Dinner Martin u Maclay Murray & Spens u Gallo Barrios Pickmann u Muñoz u Cardenas & Cardenas u Lopez Velarde u Rodyk u Boekel u OPF Partners u 大成

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.**

The Company has filed a revised Exhibit 8.1 opinion stating that the disclosure identified in the prospectus is the opinion of the named counsel.

Should you have any questions, please do not hesitate to call me at 212-768-6985 or my colleague, Thomas Redekopp, at 416-863-4511.

Very truly yours,

/s/ Walter Van Dorn
Walter Van Dorn

cc: Dr. William McVicar, Ph.D., Flex Pharma, Inc.