



January 7, 2015

United States Securities and Exchange Commission
Division of Corporation Finance
100 F Street, N.E.
Washington, D.C. 20549
Attn: Jeffrey P. Riedler, Assistant Director

**Re: Flex Pharma, Inc.
Registration Statement on Form S-1
File No. 333-201276**

Dear Mr. Riedler:

On behalf of our client, Flex Pharma, Inc. (the "**Company**"), we are submitting this letter in response to comments received from the staff (the "**Staff**") of the Securities and Exchange Commission (the "**Commission**") by letter dated November 25, 2014 (the "**Comment Letter**"), relating to the Company's confidential draft registration statement on Form S-1 submitted to the Commission on October 29, 2014, which has been amended twice in response to the Comment Letter and a subsequent comment letter from the Staff, and was confidentially submitted to the Commission on December 8, 2014 and filed with the Commission on December 29, 2014 (the "**Registration Statement**"). In this letter, we are responding only to comment number 10 in the Comment Letter, the text of which we have incorporated into this response letter for convenience.

Confidential Treatment Request

Due to the commercially sensitive nature of information contained herein, the Company hereby requests, pursuant to 17 C.F.R. § 200.83, that certain portions of this letter be maintained in confidence, not be made part of any public record and not be disclosed to any person as they contain confidential information. The Company has filed a separate copy of this letter, marked to show the portions redacted from the version filed via EDGAR and for which the Company is requesting confidential treatment. In accordance with 17 C.F.R. § 200.83(d)(1), if any person (including any governmental employee who is not an employee of the Commission) should request access to or an opportunity to inspect this letter, we request that we be immediately notified of any such request, be furnished with a copy of all written materials pertaining to such request (including, but not limited to, the request itself) and be given at least ten business days advance notice of any intended release so that the Company may, if deemed necessary or appropriate, pursue any remedies available to it. In such an event, we request that you telephone the undersigned rather than rely upon the U.S. mail for such notice. The address and telephone number for Marc Recht, the responsible representative, is c/o Cooley LLP, 500 Boylston Street, Boston, MA 02116, telephone number (617) 937-2316.

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Staff Comment and Company Response

Management's Discussion and Analysis of Financial Condition and Results of Operations Critical Accounting Policies and Significant Judgments and Estimates Stock-Based Compensation, page 60

1. *We may have additional comments on your accounting for equity issuances including stock compensation and beneficial conversion features. Once you have an estimated offering price, please provide us an analysis explaining the reasons for the differences between recent valuations of your common stock leading up to the IPO and the estimated offering price.*

Response:

Historically, the fair value of the common stock underlying the Company's stock-based awards has been determined on each grant date by the Company's board of directors (the "**Board**"), with input from management. All options to purchase shares of the Company's common stock were intended to be granted with an exercise price per share no less than the fair value per share of the Company's common stock underlying those options on the date of grant, determined in good faith and based on the information known to the Board on the date of grant. In the absence of a public trading market for the Company's common stock,

on each grant date, the Board considered various objective and subjective factors described in detail in the Registration Statement, along with input from management, to determine the fair value of the Company's common stock.

In addition to the above factors, as part of its assessment of the fair value of the Company's common stock for purposes of making stock option grants, the Board also considered and relied upon valuations of the fair value of the Company's common stock as of April 2, 2014, May 7, 2014, June 30, 2014, September 30, 2014, November 14, 2014 and December 31, 2014 from an independent third-party valuation specialist using methodologies, approaches and assumptions consistent with the American Institute of Certified Public Accountants Audit and Accounting Practice Aid Series: Valuation of Privately Held Company Equity Securities Issued as Compensation (the "**Practice Aid**").

Stock Option Grants

The Company supplementally advises the Staff that, as described beginning on page 62 of the Registration Statement, the Company regularly performs contemporaneous valuations of the Company's common stock to assist the Board with its determination of the common stock's fair value for purposes of granting equity awards. The Board considers numerous objective and subjective factors, including the factors set forth on pages 61 and 62 of the Registration Statement, the Company's initial public offering and the most recent valuation report prepared by the Company and an independent third-party valuation specialist. The Board, as applicable, also determines that the assumptions and inputs used in connection with such contemporaneous valuations reflect the Board's and management's best estimate of the business condition, prospects and operating performance of the Company at each valuation date.

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The following table summarizes, by grant date, the number of shares of common stock underlying stock options granted since the Company's inception, in February 2014, as well as the estimated fair value of common stock. Such share numbers, as well as all option exercise prices and estimated fair values of common stock referred to in this letter, have been adjusted to reflect an estimated 4.2825-to-1.0 reverse stock split of the Company's capital stock (the "**Reverse Stock Split**"), which the Company plans to implement prior to effectiveness of the Registration Statement:

Grant Date	Number of Shares Subject to Options Granted	Option Exercise Price	Estimated Fair Value of Common Stock per Share at Date of Grant
April 9, 2014	193,107	\$.60	\$.60
May 19, 2014	170,459	\$.77	\$.77
July 2, 2014	11,791	\$ 1.67	\$ 3.73
October 15, 2014	449,203	\$ 4.28	\$ 4.28
November 14, 2014	198,009	\$ 5.44	\$ 5.44
January 7, 2015	196,993	\$ 10.79	\$ 10.79

April and May 2014 Valuations and Grants

In April 2014, the Board granted 193,107 options to purchase shares of common stock and in May 2014 the Board granted 170,459 options to purchase shares of common stock. The Company engaged a valuation specialist to establish the fair value of common stock as of April 2, 2014 and May 7, 2014. In accordance with the Practice Aid, each valuation used an asset-based approach. The asset-based approach was used in light of the Company's limited operating history, uncertainty regarding the Company's products and the likelihood of the Company's success. In particular, as of both dates, the Company had only recently commenced operations and had not conducted any clinical studies of its proprietary treatment. Given the uncertainty of the Company's future, and expected time to liquidity as of the valuation dates, the equity values were allocated to the equity classes using the Option Pricing Model ("**OPM**") method. The OPM treats the rights of the holders of preferred and common shares as equivalent to call options on any value of the enterprise above certain break points of value based upon the liquidation preferences of the holders of preferred shares, as well as their rights to participation and conversion. The estimated value of the common stock can be determined by estimating the value of its portion of each of these call option rights. The resulting fair value of common stock was adjusted using a discount for lack of marketability ("**DLOM**") of 20% at both dates. Based upon these valuations, the fair value of the common stock was determined to be \$0.60 per share and \$0.77 per share for the April 2014 and May 2014 option grants, respectively. In addition, the Board determined that no material events occurred between the dates of the valuations and the dates of the stock option grants and relied upon the valuations detailed above.

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June 30, 2014 Valuation and July Grants

In late May 2014 and June 2014, the Company conducted two clinical studies in which the Company's proprietary treatment achieved statistical significance compared to vehicle control. Also, during May 2014 and June 2014, the Company made significant progress in developing a strategy for both its potential consumer product and drug product candidates, including identifying several potential disease indications. An initial public offering (the "**IPO**") was not being contemplated at this time.

On July 2, 2014, the Board granted 11,791 options to purchase shares of common stock. For the purposes of re-valuing non-employee stock awards and for the granting of these stock options, the Company engaged a valuation specialist to establish the fair value of common stock as of June 30, 2014 (the "**Initial June 2014 Valuation**"). The Board determined that no material events occurred between June 30, 2014 and the July 2, 2014 option grants. The Initial June 2014 Valuation performed by the Company resulted in a fair market value of \$1.67 per share as of June 30, 2014.

June 30, 2014 Retrospective Valuation

Based on events occurring subsequent to the Initial June 2014 Valuation, specifically the Company's progress toward a potential IPO, the Company engaged a valuation specialist to perform a retrospective valuation as of June 30, 2014 (the "**Retrospective Valuation**"). The Retrospective Valuation was provided to the Company on October 9, 2014 and used the market approach, specifically the OPM "backsolve" method. This valuation took into account the expected purchase price of the series B convertible preferred stock based on the information known to the Company as of the June 30, 2014 valuation date. A DLOM of 20% was applied. Based upon this valuation, the fair value of the common stock was retrospectively determined to be \$3.73 per share.

September 30, 2014 Valuation and October Grants

Between June 30, 2014 and September 30, 2014, the Company experienced a number of significant events. In particular, the Company closed several tranches of its series B convertible preferred stock financing, hired its president of consumer goods, received positive results from its third study of its proprietary treatment and engaged several investment banks in connection with the Company's IPO.

The Company engaged a specialist to perform a valuation as of September 30, 2014 to re-value non-employee stock awards as well as for the granting of stock options. On October 15, 2014, the Board granted 449,203 options to purchase shares of common stock. As a result of the commencement of the Company's IPO efforts, and in accordance with the Practice Aid, the September 30, 2014 valuation used the Hybrid Method. The Hybrid Method is a hybrid between the Probability-Weighted Expected Return Method (the "**PWERM**") and the OPM, estimating the probability-weighted value across multiple scenarios, but using the OPM to estimate the

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allocation of value within one or more of those scenarios. The Hybrid Method can be a useful alternative to explicitly modeling all PWERM scenarios in situations where the company has transparency into one or more near term exits, in the Company's case, an IPO, but is unsure about what will occur if the anticipated exit does not occur. Using the Hybrid Method, two scenarios were assumed, an IPO scenario using the PWERM and a merger/sale scenario using the OPM. A DLOM of 20% was applied to both potential scenarios. The time to liquidity was estimated to be six months in the IPO scenario and the equity value was discounted back to the valuation date using a discount rate of 30%. The Hybrid Method weighted the IPO scenario at 30% and the merger/sale scenario at 70%. The resulting fair value of the Company's common stock was \$4.28 per share. The Board determined that no material events occurred between September 30, 2014 and October 15, 2014, and therefore, the September 30, 2014 valuation was used to establish the fair value of common stock for the October 15, 2014 stock option grants.

November 14, 2014 Valuation and November Grants

On November 14, 2014, the Board granted 198,009 options to purchase shares of common stock. On October 29, 2014, the Company submitted to the SEC its Registration Statement on Form S-1. Following this submission, the Company had several meetings with potential investors in reliance on Section 5(d) of the Securities Act of 1933, as amended (the "**Act**"). Prior to the November 14, 2014 option grants, the Company received very preliminary positive feedback from investors, which made it more likely the Company could have a successful IPO by the end of the first quarter of 2015. Other than this submission, there were no material changes in the Company's business between October 15, 2014 and November 14, 2014.

In connection with the November 14, 2014 option grants, the Company engaged a valuation specialist to perform a valuation as of that date. In accordance with the Practice Aid, the November 14, 2014 valuation once again used the Hybrid Method. The equity value used in the IPO scenario for the November 14, 2014 valuation was kept consistent with that used in the September 30, 2014 valuation as the Company felt that the prevailing IPO market conditions and the very preliminary feedback from investors did not warrant an increase in the estimated equity value. The PWERM for the IPO scenario utilized a discount rate of 25%, a DLOM of 20% and an estimated time to liquidity of three months. A DLOM of 20% was also applied to the OPM used for the merger/sale scenario. Based upon the Company's continued progress towards a potential IPO, the Hybrid Method weighted the IPO scenario at 50% and the merger/sale scenario at 50%. The resulting fair value of the Company's common stock was \$5.44 per share.

January 2015 Grants and December 31, 2014 Valuation

On January 7, 2015, the Board granted 196,993 options to purchase shares of common stock. On January 7, 2015, representatives of the lead book-running managers of its IPO advised the Company that, based on then-current market conditions, they anticipated that the underwriters would recommend to the Company a preliminary estimated initial public offering price to be included on the cover of the Company's preliminary prospectus of \$[...***...] to \$[...***...] per share (the "**Preliminary IPO Price Range**").

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In connection with the January 7, 2015 option grants, the Company engaged a valuation specialist to perform a valuation as of December 31, 2014. Since the Company's November 14, 2014 valuation, the overall biotechnology market has improved and several biotechnology companies have completed successful initial public offerings. Additionally, the Company held additional meetings with potential investors in reliance on Section 5(d) of the Act, receiving positive feedback from several potential investors. As a result of these factors, the Board increased its expectations regarding the anticipated probability of an IPO and the value of the Company. In accordance with the Practice Aid, the December 31, 2014 valuation once again used the Hybrid Method, but substantially increased the weight applied to the IPO scenario and also incorporated the enterprise value implied by the Preliminary IPO Price Range. The IPO scenario utilized a discount of 20%, a DLOM of 9% and a time to liquidity of one month. A DLOM of 20% was applied to the merger/sale scenario. The Hybrid Model weighted the IPO scenario at 90% and the merger/sale scenario at 10%. The resulting fair value of the Company's common stock was \$10.79 per share. The Board determined that no material events occurred between December 31, 2014 and January 7, 2015, and therefore, the December 31, 2014 valuation was used to establish the fair value of common stock for the January 7, 2015 stock option grants.

The Company advises the Staff that once the bona fide initial offering price range has been determined, the Company anticipates retrospectively reassessing, solely for financial accounting purposes, the common stock fair value related to the options granted in January 2015. The Company advises the Staff that the reassessment of fair value for financial accounting purposes of the options granted in January 2015 will be based on the midpoint of the bona fide initial offering price range and that it expects to record any related additional stock-based compensation charges in the first quarter of 2015.

Preliminary IPO Price Range

The Company advises the Staff that it will set forth a bona fide initial offering price range in a pre-effective amendment to the Registration Statement prior to the distribution of any preliminary prospectus. The parameters of that price range will be subject to then-current market conditions, continuing discussions with the underwriters, and any further business, market or other developments impacting the Company.

The Company believes that the difference in value reflected between the fair value of its common stock for each equity issuance since February 2014 and the Preliminary IPO Price Range of this offering is the result of the following factors:

- The number of advancements made since the Company's inception in February 2014;
- Updated market conditions used in the determination of the Preliminary IPO Price Range after discussions with the managing underwriters for this offering.

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- Unlike the valuation methodologies used in connection with the Company's historical equity issuances, the Preliminary IPO Price Range does not take into account the probability of alternative outcomes that could yield lower valuations, such as an acquisition at differing valuations or that the Company may continue as a private, stand-alone entity.
- The holders of the Company's preferred stock currently enjoy substantial economic rights and preferences over the holders of its common stock, including the right to receive dividends prior to any dividends declared or paid on any shares of the Company's common stock and liquidation payments in preference to holders of common stock. The Preliminary IPO Price Range value assumes the conversion of all of the Company's convertible preferred stock upon the completion of its IPO and the elimination of the preferred stock's preferences, which results in a higher value being attributable to the common stock.
- The successful completion of an IPO would strengthen the Company's balance sheet, provide access to public equity and provide enhanced operational flexibility, increasing the value of the Company's common stock compared to that of a private company.

The Company acknowledges the price used for the January 7, 2015 options is below the Preliminary IPO Price Range. The valuation used to determine these grants was performed in accordance with the Practice Aid and based on assumptions the Company believes are appropriate. There are factors that support the discount in the December 31, 2014 valuation determination, compared to the Preliminary IPO Price Range, including (i) the inherent uncertainty of completing a successful initial public offering, (ii) the possibility that the actual initial public offering price could be substantially lower than the Preliminary IPO Price Range recommended by the Company's underwriters and (iii) the 180-day lock-up agreement to which the shares underlying the stock options will be subject following the initial public offering. In light of these factors, the Company respectfully submits to the Staff that the increase in discount between the most recent valuation report described above, compared to the Preliminary IPO Price Range, is reasonable.

Destruction of this Unredacted Letter Pursuant to Rule 418 Under the Act

We further request, pursuant to Rule 418 under the Act, that this unredacted letter be destroyed promptly following the Staff's completion of its review of such information.

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The Company respectfully requests the Staff's assistance in completing its review of the supplemental information contained herein as soon as possible. Please advise us if we can provide any further information or assistance to facilitate your review. And please contact me at (617) 937-2316 if you have any questions regarding the Registration Statement or the foregoing information.

Sincerely,

COOLEY LLP

/s/ Marc A. Recht

Marc A. Recht, Esq.

cc: Christoph Westphal, Flex Pharma, Inc.
Robert Hadfield, Flex Pharma, Inc.

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