

CERTAIN PORTIONS OF THIS LETTER AS FILED VIA EDGAR HAVE BEEN OMITTED AND FILED SEPARATELY WITH THE COMMISSION. CONFIDENTIAL TREATMENT HAS BEEN REQUESTED FOR THE OMITTED PORTIONS, WHICH HAVE BEEN REPLACED WITH THE PLACEHOLDER “[*].”**

February 12, 2018

FOIA Confidential Treatment Request
Under 17 C.F.R. §200.83

Securities and Exchange Commission
Division of Corporation Finance
100 F Street, N.E.
Washington D.C. 20549
Attn: Ms. Suzanne Hayes, Assistant Director
Ms. Mary Beth Breslin
Ms. Ada D. Sarmento

Re: **BioXcel Therapeutics, Inc.**
Draft Registration Statement on Form S-1
CIK No. 0001720893

Dear Ms. Hayes:

On behalf of BioXcel Therapeutics, Inc. (the “**Company**”), in response to comments from the staff (the “**Staff**”) of the Securities and Exchange Commission (the “**Commission**”) received by letter dated December 11, 2017 (the “**Comment Letter**”) relating to the Company’s Registration Statement on Form S-1, originally confidentially submitted to the Commission on November 13, 2017, resubmitted to the Commission on December 22, 2017 and January 26, 2018, (the “**Registration Statement**”), we submit this supplemental letter to further address comment 8 of the Comment Letter.

Because of the commercially sensitive nature of information contained herein, this submission is accompanied by the Company’s request for confidential treatment for selected portions of this letter. The Company has filed a separate letter with the Office of Freedom of Information and Privacy Act Operations in connection with the confidential treatment request, pursuant to Rule 83 of the Commission’s Rules on Information and Requests, 17 C.F.R. § 200.83. For the Staff’s reference, we have enclosed a copy of the Company’s letter to the Office of Freedom of Information and Privacy Act Operations, as well as a copy of this correspondence, marked to show the portions redacted from the version filed via EDGAR and for which the Company is requesting confidential treatment.

Confidential treatment has been requested with respect to portions of this letter.

For the convenience of the Staff, we have recited the prior comment from the Staff in italicized type and have followed the comment with the Company’s response. All capitalized terms not otherwise defined herein have the meaning ascribed to them in the Registration Statement.

Critical Accounting Policies and Use of Estimates
Stock-Based Compensation, page 78

8. *Once you have an estimated offering price or range, please provide us an analysis explaining the reasons for the differences between the recent valuations of your common stock leading up to your initial public offer and the estimated offering price. This information will help facilitate our review of your accounting for equity issuances including stock compensation.*

The Company respectfully submits the below additional information to assist the Staff in its review of the Company’s position with respect to its determination of the fair value of its common stock underlying its outstanding equity awards and the reasons for the differences between the recent valuation of its common stock and the estimated offering price for its initial public offering (“**IPO**”).

Preliminary IPO Price Range

The Company supplementally advises the Staff that, while not reflected in the Registration Statement, based on discussions with the Company’s board of directors and reflecting the input from the lead underwriters (the “**Underwriters**”) for the Company’s IPO if the Company were to commence marketing of the transaction today, the Company presently anticipates that the estimated price range would be approximately \$[***] to \$[***] per share for the common stock (the “**Preliminary Price Range**”), with a midpoint of the anticipated range of approximately \$[***] per share (the “**Preliminary Assumed IPO Price**”). Please note that the Company expects to effect a forward stock split of approximately [***]: 1 prior to the IPO (the “**Forward Split**”), and as a result the price range above reflects the impact of the anticipated Forward Split. This Preliminary Price Range is based on a number of factors, including the prevailing market conditions and estimates of the Company’s business potential, the general condition of the securities market, the recent market prices of,

and the demand for, publicly-traded common stock of generally comparable companies and preliminary discussions with the underwriters for this offering regarding potential valuations of the Company.

The Company's final Preliminary Price Range remains under discussion between the Company and the Underwriters, particularly in light of the recent significant volatility in the capital markets, and the final determination of the price range will be included in an amendment to the Registration Statement prior to any distribution of the preliminary prospectus in connection with the Company's road show. The actual price range to be included in a subsequent amendment to the Registration Statement has not yet been determined and remains subject to adjustment based on factors outside of the Company's control. However, the Company believes that the actual price range will be within this Preliminary Price Range.

Summary of Recent Equity Awards

The Company is providing the following supplemental information to the Staff to facilitate its review process. Since March 29, 2017, the date of incorporation, the Company has issued the following options to its employees, consultants and members of its board of directors, which awards comprise all of the currently outstanding equity awards of the Company:

Grant Date	Number of Shares Subject to Options Granted	Per Share Exercise Price of Options	Per Share Fair Value of Common Stock on Grant Date	Per Share Estimated Fair Value of Options
August 23, 2017	9,271	\$ 97.61	\$ 97.61	\$ 62.45-69.63
September 15, 2017	122	\$ 97.61	\$ 97.61	\$ 63.82
October 2, 2017	354	\$ 1,314.20	\$ 1,314.20	\$ 858.45 – 936.00

Estimated Fair Value Determination and Methodology

The discussion of the Company's equity-based compensation is primarily contained in the section of the Registration Statement entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations—Critical Accounting Policies and Estimates—Stock Based Compensation—BioXcel Therapeutics, Inc. 2017 Equity Incentive Plan." As there has been no public market for the Company's common stock to date, the estimated fair value of the Company's common stock has been determined by the Company's board of directors (the "Board") as of the date of each option grant, with input from management, considering the most recently available valuations of common stock as described below and our Board's assessment of additional objective and subjective factors that it believed were relevant and which may have changed from the date of the most recent valuation through the date of the grant. Three valuations were performed in accordance with the guidance outlined in the American Institute of Certified Public Accountants' Accounting and Valuation Guide, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation* (the "Practice Aid"). For purposes of the awards in the table above, the Board considered independent third-party valuations of the fair value of the Common Stock as of June 30, 2017 and September 30, 2017 (which were, respectively, the then most recent valuations).

June 30, 2017 Valuation

The fair value of the Company's common stock of \$97.61 per share at June 30, 2017 (or approximately \$[***] per share post-Forward Split) was determined by the Board with the assistance of an independent third-party valuation of the common stock. This valuation was used to support the fair value of the Company's common stock with respect to options granted in August 2017 and September 2017. As described in the Registration Statement, this valuation utilized the

option pricing method method ("OPM") to derive the implied equity value for the Company involving its own securities. The OPM estimates the value of the common equity of the Company using the various inputs in the Black-Scholes Option pricing model. The OPM treats the rights of the holders of common stock as equivalent to that of 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. Thus, the value of the common stock can be determined by estimating the value of its portion of each of these call option rights. Given the common stock represents a non-marketable equity interest in a private enterprise, an adjustment to the preliminary value estimates had to be made to account for the lack of liquidity that a shareholder experiences. This adjustment is commonly referred to as a discount for lack of marketability ("DLOM"). For purposes of the valuation at June 30, 2017, an option based analyses was performed in an effort to estimate the appropriate DLOM for the common stock. A DLOM of 35% was used for the valuation at June 30, 2017.

September 30, 2017 Valuation

The fair value of the Company's common stock of \$1,314.20 per share (or approximately \$[***] per share post-Forward Split) at September 30, 2017 was determined by the Board with the assistance of an independent third-party valuation of the common stock. This valuation was used to support the fair value of the Company's common stock with respect to options granted in October 2017. As described in the Registration Statement, this valuation utilized a hybrid of the probability-weighted expected return method ("PWERM") and OPM to allocate the equity value. The valuation assumed a 15% probability of an initial public offering ("IPO") at the most desirable exit value and timing (an "Expected Compound Method"), a 15% probability of an IPO occurring in early 2018 (a "Risk-Adjusted NPV Method"), a 10% probability of dissolution and a 60% probability of remaining private. For each of the possible events, a range of future equity values is estimated, over a range of possible event dates, all plus or minus a standard deviation for value and timing. Specifically, for each future equity value scenario, the rights and preferences of each shareholder class are considered in order to determine the appropriate allocation of value to the shares of common stock. The value of each share of common stock is then multiplied by a discount factor derived from the calculated discount rate and the expected timing of the event. A risk-adjusted discount rate is applied as the probability weightings in the PWERM address the success rates of each scenario. The value per share of common stock, taking into account sensitivities to the timing of the event, is then multiplied by an estimated probability for each of the possible events. The Company also considered macroeconomic and overall market conditions, including the Company's subjective assessment of market

December 31, 2017 Valuation

The fair value of the Company's common stock of \$1,966.75 per share (or approximately \$[***] per share post-Forward Split) at December 31, 2017 was determined by the Board with the assistance of an independent third-party valuation of the common stock. As described in the Registration Statement, this valuation utilized a hybrid of the PWERM and OPM to allocate the equity value. The valuation assumed a 35% probability of an IPO using the Expected Compound Method, a 35% probability of an IPO using the Risk-Adjusted NPV Method, a 5% probability of dissolution and a 25% probability of remaining private. For each of the possible events, a range of future equity values is estimated, over a range of possible event dates, all plus or minus a standard deviation for value and timing. Specifically, for each future equity value scenario, the rights and preferences of each shareholder class are considered in order to determine the appropriate allocation of value to the shares of common stock. The value of each share of common stock is then multiplied by a discount factor derived from the calculated discount rate and the expected timing of the event. A risk-adjusted discount rate is applied as the probability weightings in the PWERM address the success rates of each scenario. The value per share of common stock, taking into account sensitivities to the timing of the event, is then multiplied by an estimated probability for each of the possible events. The Company also considered macroeconomic and overall market conditions, including the Company's subjective assessment of market conditions for IPOs of companies similarly situated to the Company and the Company's subjective assessment as to the likelihood of successfully executing an IPO in the coming months, among other factors.

Discussion of Price Range

As is typical in IPOs, the Preliminary Price Range for the offering was not derived using a formal determination of fair value, but was determined by negotiations between the Company and the Underwriters. Among the factors that were considered in setting this range were:

- an analysis of the typical valuation ranges seen in recent IPOs for companies in the Company's industry;
- the general condition of the securities markets and the recent market prices of, and the demand for, publicly traded common stock of generally comparable companies;
- the Company's historical performance;
- estimates of the Company's business potential and earnings prospects;
- as assessment of the Company's management;
- an assumption that there would be a receptive public trading market for data center companies such as the Company; and

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- an assumption that there would be sufficient demand for the Company's common stock to support an offering of the size contemplated by the Company.

The Company respectfully advises the Staff that it believes the difference in the per share fair value of its common stock as of the date of October 2017 equity grants, as of December 31, 2017 and the Preliminary Price Range for the Company's common stock for this offering is primarily due to the following factors:

- The Company and the third-party firm utilized quantitative methodologies to determine the fair value of the common stock, which may differ from the more qualitative and subjective methodologies that may be used by some public market investors to determine the price they are willing to pay in an IPO. Also, other factors may have an impact, such as the inherent uncertainty of completing a successful IPO and the possibility that the actual offering price could be substantially lower than the estimated offering price range provided by the Company's underwriters.
- The Company respectfully submits that the difference between the fair value per share of common stock at September 30, 2017, December 31, 2017 and the Preliminary Price Range is primarily attributable to the fact that the methodology applied for determining the fair value of the shares of common stock at September 30, 2017 and December 31, 2017 incorporated multiple assumptions and probabilities that do not apply to the establishment of a Preliminary Price Range. Additionally, because the Company will now be publicly traded, there is no DLOM. In contrast, the Preliminary Price Range assumes with 100% probability that the Company completes an IPO. Additionally, the Preliminary Price Range assumes only a single potential liquidity event and does not include other liquidity events that the Company included in its valuation methodologies. As a result, the Preliminary Price Range was not affected by other expected business equity values from other potential future liquidity events nor DLOM.
- The Preliminary Price Range represents a future price for shares of common stock that, if issued in the IPO, will be immediately freely tradable in a public market, whereas the estimated fair value of the common stock at September 30, 2017 and December 31, 2017 represents a contemporaneous estimate of the fair value of common stock that were then illiquid, might never become liquid and, even if an IPO were successfully completed, would remain illiquid at least until the expiration of the 180-day lockup period following the IPO. This illiquidity also accounts for a substantial difference between the fair value of the Common Units as of the award grant dates and the Preliminary Price Range.
- The successful completion of an IPO would strengthen the Company's balance sheet, provide access to public equity and provide enhanced operational flexibility.

Conclusion

The Company has historically determined the fair value of its common stock consistent with the guidance set forth in the Practice Guide, including, specifically, its use of OPM and PWERM, which is an accepted valuation method under the Practice Guide. The Company believes that the deemed per share values used as the basis for determining equity-based compensation in connection with its equity awards, the valuation at December 31, 2017 and the Preliminary Price Range are reasonable and appropriate for the reasons described herein.

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We hope that the foregoing has been responsive to the Staff's comments and look forward to resolving any outstanding issues as quickly as possible. Please do not hesitate to contact me at (212) 653-8166 with any questions or further comments you may have regarding this submission or if you wish to discuss the above.

Sincerely,

/s/ Stephen A. Cohen

Stephen A. Cohen
for SHEPPARD, MULLIN, RICHTER & HAMPTON LLP

cc: Vimal Mehta, BioXcel Therapeutics, Inc.
Jeffrey J. Fessler, Sheppard, Mullin, Richter & Hampton LLP