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

DIVISION OF
CORPORATION FINANCE

January 16, 2018

Vimal Mehta, Ph.D.
Chief Executive Officer
BioXcel Therapeutics, Inc.
780 East Main Street
Branford, CT 06405

Re: BioXcel Therapeutics, Inc.
Amendment No. 1 to Draft Registration Statement on Form S-1
Submitted December 26, 2017
CIK No. 0001720893

Dear Dr. Mehta:

We have reviewed your amended draft offering 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 providing the requested information and either submitting an amended draft offering statement or publicly filing your offering statement on EDGAR. 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 draft offering statement or filed offering statement and the information you provide in response to these comments, we may have additional comments.

Amendment No. 1 to Draft Registration Statement submitted December 26, 2017

Prospectus Summary, page 2

1. We note your response to our prior comment 1. While we will not object to a statement that your product candidate was well tolerated, a safety determination is solely within the FDA's authority. Both BXCL501 and BXCL701 have yet to be approved by the FDA. Further, we note your disclosure on page 110 that the FDA stated that the data available could not rule out potential safety issues regarding BXCL701. Please remove all statements that the clinical results or trials demonstrated or provided evidence of a tolerable, strong or acceptable safety profile for either of your product candidates.

Use of Proceeds, page 61

2. We note your response to our prior comment 7. Please disclose the approximate additional amounts you will need to complete registration trials for both of your product candidates.

Business

Our Solution: BXCL701, Potential First-in-Class, Oral, Small Molecule Inhibitor of DPP 8/9 and FAP, page 104

3. We note your response to our prior comment 20. Please specify which mechanisms of action were clinically validated in which trials.

Summary of Existing BXCL701 Clinical Data (Previously Studied as Talabostat), page 108

4. Please indicate in the table what the numbers in the placebo and talabostat columns reflect. Please disclose the number of patients that experienced the adverse events disclosed in this section and how grade 3 and grade 4 adverse events were defined in the trials.

FAP Role in Pancreatic Cancer, page 112

5. We note your response to our prior comment 22 and reissue in part. Please identify the several publications that have shown that inhibiting or blocking the activity of these FAP+ CAFs results in decreased tumor growth.

Employment Agreements with BioXcel, page 144

6. We note your disclosure that BioXcel entered into an amendment to Dr. Mehta's employment agreement on December 21, 2017. Please update the exhibit index accordingly.

You may contact Bonnie Baynes at 202-551-4924 or Angela Connell at 202-551-3426 if you have questions regarding comments on the financial statements and related matters. Please contact Ada D. Sarmento at 202-551-3798 or Mary Beth Breslin at 202-551-3625 with any other questions.

Division of Corporation Finance
Office of Healthcare & Insurance

cc: Jeffrey Fessler