

**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION**  
Washington, D.C. 20549

**FORM S-8  
REGISTRATION STATEMENT**  
*UNDER  
THE SECURITIES ACT OF 1933*

**BioXcel Therapeutics, Inc.**

(Exact name of registrant as specified in its charter)

**Delaware**  
(State or other jurisdiction of  
incorporation or organization)

**82-1386754**  
(I.R.S. Employer  
Identification No.)

**555 Long Wharf Drive  
New Haven, CT 06511**  
(Address of Principal Executive Offices) (Zip Code)

**BioXcel Therapeutics, Inc. 2020 Incentive Award Plan  
BioXcel Therapeutics, Inc. 2020 Employee Stock Purchase Plan**  
(Full title of the plans)

**Vimal Mehta, Ph.D.**  
**Chief Executive Officer**  
**BioXcel Therapeutics, Inc.**  
**555 Long Wharf Drive  
New Haven, CT 06511**  
(Name and address of agent for service)

**(475) 238-6837**  
(Telephone number, including area code, of agent for service)

*Copies to:*

**N. Danny Shulman  
Emily Johns  
Honigman LLP  
1440 New York Avenue, NW Suite 200  
Washington, DC 20005  
(202) 844 3380**

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

## REGISTRATION OF ADDITIONAL SHARES PURSUANT TO GENERAL INSTRUCTION E

This Registration Statement on Form S-8 is being filed with the U.S. Securities and Exchange Commission (the “Commission”) for the purpose of registering an additional 155,120 shares of common stock, par value \$0.001 per share (the “Common Stock”), of BioXcel Therapeutics, Inc. (the “Company”), issuable under the following employee benefit plans for which a registration statement of the Company on Form S-8 (File Nos. [333-238580](#), [333-266922](#), [333-270652](#) and [333-278492](#)) is effective: (i) the BioXcel Therapeutics, Inc. 2020 Incentive Award Plan (the “2020 Plan”) and (ii) the BioXcel Therapeutics, Inc. 2020 Employee Stock Purchase Plan (the “2020 ESPP”). Pursuant to General Instruction E of Form S-8, the contents of the above-referenced prior registration statements are incorporated into this Registration Statement by reference herein.

### INCORPORATION BY REFERENCE

The following documents filed with the Commission by the Registrant are hereby incorporated by reference in this Registration Statement:

- Our Annual Report on [Form 10-K for the fiscal year ended December 31, 2024, filed with the SEC on March 28, 2025](#).
- Our Current Reports on Form 8-K, filed with the SEC on [January 8, 2025](#), [January 16, 2025](#), [January 29, 2025](#), [February 6, 2025](#), [March 3, 2025](#), [March 4, 2025](#), [March 21, 2025](#) and [March 21, 2025](#).
- The description of our common stock contained in [our Registration Statement on Form 8-A, filed with the SEC on March 5, 2018](#), as updated by “Description of the Registrant’s Securities Registered under Section 12 of the Exchange Act” filed as [Exhibit 4.1](#) to our Annual Report on Form 10-K for the fiscal year ended December 31, 2024, and any amendment or report filed with the SEC for the purpose of updating such description.

In addition, all reports and other documents we subsequently file pursuant to Section 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, which we refer to as the “Exchange Act” in this prospectus, prior to the termination of this offering, including all such documents we may file with the SEC after the date of filing of this registration statement and prior to the effectiveness of this registration statement, but excluding any information furnished to, rather than filed with, the SEC, will also be incorporated by reference into this prospectus and deemed to be part of this prospectus from the date of the filing of such reports and documents.

Any statement herein or contained in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this Registration Statement to the extent that a statement contained herein, or in any subsequently filed document, which also is or is deemed to be incorporated by reference herein, modifies or supersedes such prior statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute part of this Registration Statement.

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Item 8. EXHIBITS.

Exhibit Number	Exhibit Description	Incorporated by Reference			Exhibit	Filed Herewith
		Form	File Number	Filing Date		
<a href="#">3.1 Amended and Restated Certificate of Incorporation</a>		<a href="#">10-Q</a>	<a href="#">001-38410</a>	<a href="#">8-10-2021</a>	<a href="#">3.1</a>	
<a href="#">3.2 Certificate of Amendment to the Amended and Restated Certificate of Incorporation</a>		<a href="#">8-K</a>	<a href="#">001-38410</a>	<a href="#">6-12-2024</a>	<a href="#">3.1</a>	
<a href="#">3.3 Certificate of Amendment to the Amended and Restated Certificate of Incorporation</a>		<a href="#">8-K</a>	<a href="#">001-38410</a>	<a href="#">2-6-2025</a>	<a href="#">3.1</a>	
<a href="#">3.4 Amended and Restated Bylaws</a>		<a href="#">8-K</a>	<a href="#">001-38410</a>	<a href="#">3-13-2018</a>	<a href="#">3.2</a>	
<a href="#">3.5 Specimen Stock Certificate evidencing the shares of common stock.</a>		<a href="#">S-1/A</a>	<a href="#">333-22990</a>	<a href="#">2-26-2018</a>	<a href="#">4.2</a>	
<a href="#">5.1 Opinion of Honigman LLP</a>						*
<a href="#">23.1 Consent of Ernst &amp; Young LLP, independent registered public accounting firm</a>						*
<a href="#">23.2 Consent of Honigman LLP (included in Exhibit 5.1)</a>						*
<a href="#">24.1 Power of Attorney (included on the signature page of the Registration Statement)</a>						*
<a href="#">99.1 BioXcel Therapeutics, Inc. 2020 Incentive Award Plan</a>		<a href="#">10-Q</a>	<a href="#">001-38410</a>	<a href="#">8-14-2020</a>	<a href="#">10.1</a>	
<a href="#">99.2 BioXcel Therapeutics, Inc. 2020 Employee Stock Purchase Plan</a>		<a href="#">10-Q</a>	<a href="#">001-38410</a>	<a href="#">8-14-2020</a>	<a href="#">10.2</a>	
<a href="#">107.1 Filing Fee Table</a>						*

## SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of New Haven, State of Connecticut, on this 4th day of April, 2025.

### BIOXCEL THERAPEUTICS, INC.

By /s/ Vimal Mehta  
Vimal Mehta  
Chief Executive Officer, President and Director

## POWER OF ATTORNEY

Each of the undersigned officers and directors of the registrant hereby severally constitutes and appoints Vimal Mehta, Ph.D. and Richard Steinhart, and each of them singly (with full power to each of them to act alone), as his or her true and lawful attorneys-in-fact and agents, with full power of substitution and re-substitution in each of them, for him or her and in his or her name, place and stead, and in any and all capacities, to file and sign any and all amendments, including post-effective amendments, to this registration statement, and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith and about the premises as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or their substitute or substitutes, may lawfully do or cause to be done by virtue hereof. This power of attorney shall be governed by and construed with the laws of the State of Delaware and applicable federal securities laws.

Pursuant to the requirements of the Securities Act of 1933, as amended, this registration statement has been signed by the following persons in the capacities held on the dates indicated.

<u>SIGNATURE</u>	<u>TITLE</u>	<u>DATE</u>
<u>/s/ Vimal Mehta, Ph.D.</u> Vimal Mehta, Ph.D.	Chief Executive Officer, President and Director (principal executive officer)	April 4, 2025
<u>/s/ Richard Steinhart</u> Richard Steinhart	Chief Financial Officer (principal financial officer and principal accounting officer)	April 4, 2025
<u>/s/ Peter Mueller, Ph.D.</u> Peter Mueller, Ph.D.	Chairman of the Board of Directors	April 4, 2025
<u>/s/ June Bray</u> June Bray	Director	April 4, 2025
<u>/s/ Sandeep Laumas, M.D.</u> Sandeep Laumas, M.D.	Director	April 4, 2025
<u>/s/ Michael Miller</u> Michael Miller	Director	April 4, 2025
<u>/s/ Michal Votruba, M.D., Ph.D.</u> Michal Votruba, M.D., Ph.D.	Director	April 4, 2025
<u>/s/ David Mack</u> David Mack	Director	April 4, 2025
<u>/s/ Rajiv Patni, M.D.</u> Rajiv Patni, M.D.	Director	April 4, 2025



April 4, 2025

BioXcel Therapeutics, Inc.  
555 Long Wharf Drive  
New Haven, Connecticut 06511

**Re: Registration Statement on Form S-8**

Ladies and Gentlemen:

We have acted as special counsel to BioXcel Therapeutics, Inc., a Delaware corporation (the "Company"), in connection with the preparation and filing with the Securities and Exchange Commission (the "Commission") on or about April 4, 2025, of a Registration Statement on Form S-8 (the "Registration Statement") for the registration under the Securities Act of 1933, as amended (the "Securities Act"), of the issuance of a maximum of 155,120 shares of the Company's common stock, par value \$0.001 per share (the "Shares"), comprised of (i) 124,096 Shares to be issued pursuant to awards under the BioXcel Therapeutics, Inc. 2020 Incentive Award Plan (the "Plan"), and (ii) 31,024 Shares to be issued pursuant to the BioXcel Therapeutics, Inc. 2020 Employee Stock Purchase Plan (and together with the Plan, the "Plans").

In so acting, we have considered such matters of law and of fact, and relied upon, without independent investigation such documents, records, certificates and other information furnished to us as we have deemed appropriate as a basis for our opinions set forth below. In conducting such review, we have assumed, without independent investigation, the genuineness and authenticity of all signatures on original documents, the legal capacity of all natural persons or entities (other than the Company), the authenticity and completeness of all documents submitted to us as originals, the conformity to authentic original documents of all documents submitted to us as copies, and the accuracy of all statements in certificates of public officials and officers of the Company that we reviewed.

The law covered by the opinions expressed in this opinion letter is limited to the General Corporation Law of the State of Delaware as currently in effect. We express no opinion as to any other laws.

This opinion speaks only at and as of its date and is based solely on the facts and circumstances known to us as of such date, and we have no obligation or responsibility to update or supplement this opinion to reflect any facts or circumstances that may hereafter come to our attention or any changes in law that may hereafter occur.

Based upon, subject to and limited by the foregoing, and subject to the assumptions stated and in reliance on statements of fact contained in the documents that we have examined, we are of the opinion that (i) when the Registration Statement has become effective under the Securities Act, (ii) when the individual grants or awards under the Plans are duly authorized by all necessary corporate action and duly granted or awarded and exercised in accordance with the requirements of law and the Plans (and the agreements and awards duly adopted thereunder and in accordance therewith) and (iii) when the Shares are issued and delivered in accordance with the terms of the Registration Statement, the Plans and the terms of such grants or awards, upon receipt by the Company of adequate consideration in excess of par value for the Shares under the terms of such grants or awards, the Shares will be validly issued, fully paid and non-assessable.

We hereby consent to the filing of this opinion with the Commission as an exhibit to the Registration Statement. In giving such consent, we do not admit that we are within the category of persons whose consent is required by Section 7 of the Securities Act or the rules and regulations promulgated thereunder by the Commission.

Very truly yours,

/s/ HONIGMAN LLP

HONIGMAN LLP

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Honigman LLP • 1440 New York Avenue • NW Suite 200 • Washington, DC 20005  
Detroit • Ann Arbor • Bloomfield Hills • Chicago • Grand Rapids • Kalamazoo • Lansing • Washington D.C.

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**Consent of Independent Registered Public Accounting Firm**

We consent to the incorporation by reference in the Registration Statement (Form S-8) pertaining to the 2020 Incentive Award Plan and 2020 Employee Stock Purchase Plan of BioXcel Therapeutics, Inc. of our report dated March 28, 2025, with respect to the consolidated financial statements of BioXcel Therapeutics, Inc. included in its Annual Report (Form 10-K) for the year ended December 31, 2024, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

Stamford, Connecticut  
April 4, 2025

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## Calculation of Filing Fee Tables

Form S-8  
(Form Type)BioXcel Therapeutics, Inc.  
(Exact Name of Registrant as Specified in its Charter)

Table 1—Newly Registered Securities

Security Type	Security Class Title	Fee Calculation Rule	Amount Registered <sup>(1)</sup>	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
Equity	Common stock, \$0.001 par value per share, 2020 Incentive Award Plan	Rule 457(h)	6,463 <sup>(2)</sup>	\$ 7.54	\$ 48,736.19	0.00015310	\$ 7.47
Equity	Common stock, \$0.001 par value per share, 2020 Incentive Award Plan	Rule 457(c) and Rule 457(h)	117,633 <sup>(3)</sup>	\$ 1.91 <sup>(5)</sup>	\$224,737.85	0.00015310	\$ 34.41
Equity	Common stock, \$0.001 par value per share, 2020 Employee Stock Purchase Plan	Rule 457(c) and Rule 457(h)	31,024 <sup>(4)</sup>	\$ 1.91 <sup>(5)</sup>	\$ 59,271.35	0.00015310	\$ 9.08
<b>Total Offering Amounts</b>					<u>\$332,745.39</u>		<u>\$ 50.96</u>
<b>Total Fee Offsets<sup>(6)</sup></b>							<u>—</u>
<b>Net Fee Due</b>							<u>\$ 50.96</u>

- (1) In accordance with Rule 416(b) under the Securities Act of 1933, as amended (the “Securities Act”), the shares of common stock, par value \$0.001 per share (the “Common Stock”), of BioXcel Therapeutics, Inc. (the “Registrant”) being registered hereunder include such indeterminate number of shares of the Common Stock as may be issuable with respect to the shares of the Common Stock being registered hereunder as a result of stock splits, stock dividends or similar transactions.
- (2) Consists of shares issuable upon exercise of stock options under the 2020 Incentive Award Plan (as amended, the “2020 Plan”), that were granted following the addition of 124,096 shares of the Registrant’s Common Stock that were automatically added to the shares authorized for issuance under the Company’s 2020 Incentive Award Plan (as amended, the “2020 Plan”) on January 1, 2025 pursuant to an “evergreen” provision contained in the 2020 Plan.
- (3) Consists of shares reserved for future issuance under the 2020 Plan.
- (4) Consists of 31,024 shares of the Registrant’s Common Stock that were automatically added to the shares authorized for issuance under the Company’s 2020 Employee Stock Purchase Plan (as amended, the “2020 ESPP”) on January 1, 2025 pursuant to an “evergreen” provision contained in the 2020 ESPP.
- (5) Estimated solely for the purpose of calculating the registration fee pursuant to Rules 457(c) and 457(h) of the Securities Act, and based upon the average of the high and low prices of the Registrant’s Common Stock on March 31, 2025 as reported on The Nasdaq Capital Market.
- (6) The Registrant does not have any fee offsets.