

**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 (475) 238-6837**  
(Address, including zip code and telephone number, including area code, of Registrant's principal executive offices)

**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 (475) 238-6837**  
(Name, address, including zip code, and telephone number, including area code, of agent for service)

*Copies to:*

**Peter N. Handrinos  
Keith L. Halverstam  
Latham & Watkins LLP  
200 Clarendon Street  
Boston, MA 02116  
(617) 948-6060**

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 checked="" 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.

## EXPLANATORY NOTE

This Registration Statement on Form S-8 is being filed with the Securities and Exchange Commission (the “Commission”) for the purpose of registering an additional 1,399,016 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 \(File No. 333-238580\)](#) 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 to the extent not modified or superseded hereby or by any subsequently filed document, which is incorporated by reference herein or therein.

### Item 8. EXHIBITS.

Exhibit Number	Exhibit Description	Form	Incorporated by Reference		Exhibit	Filed Herewith
			File Number	Filing Date		
<a href="#">4.1</a>	<a href="#">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="#">4.2</a>	<a href="#">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="#">4.3</a>	<a href="#">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</a>	<a href="#">Opinion of Latham &amp; Watkins LLP</a>					<a href="#">*</a>
<a href="#">23.1</a>	<a href="#">Consent of Ernst &amp; Young, LLP, independent registered public accounting firm</a>					<a href="#">*</a>
<a href="#">23.2</a>	<a href="#">Consent of BDO USA, LLP, independent registered public accounting firm</a>					<a href="#">*</a>
<a href="#">23.3</a>	<a href="#">Consent of Latham &amp; Watkins LLP (included in Exhibit 5.1).</a>					<a href="#">*</a>
<a href="#">24.1</a>	<a href="#">Power of Attorney (included on the signature page of the Registration Statement).</a>					<a href="#">*</a>
<a href="#">99.1</a>	<a href="#">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</a>	<a href="#">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</a>	<a href="#">Filing Fee Table</a>					<a href="#">*</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 16th day of August 2022.

### 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 resubstitution 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.

<b>SIGNATURE</b>	<b>TITLE</b>	<b>DATE</b>
<u>/s/ Vimal Mehta, Ph.D.</u> Vimal Mehta, Ph.D.	Chief Executive Officer, President and Director (principal executive officer)	August 16, 2022
<u>/s/ Richard Steinhart</u> Richard Steinhart	Chief Financial Officer (principal financial officer and principal accounting officer)	August 16, 2022
<u>/s/ Peter Mueller, Ph.D.</u> Peter Mueller, Ph.D.	Chairman of the Board of Directors	August 16, 2022
<u>/s/ June Bray</u> June Bray	Director	August 16, 2022
<u>/s/ Sandeep Laumas, M.D.</u> Sandeep Laumas, M.D.	Director	August 16, 2022
<u>/s/ Krishnan Nandabalan, Ph.D.</u> Krishnan Nandabalan, Ph.D.	Director	August 16, 2022
<u>/s/ Michal Votruba, M.D., Ph.D.</u> Michal Votruba, M.D., Ph.D.	Director	August 16, 2022
<u>/s/ Michael Miller</u> Michael Miller	Director	August 16, 2022

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# LATHAM & WATKINS LLP

August 16, 2022

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

## FIRM / AFFILIATE OFFICES

Austin	Milan
Beijing	Munich
Boston	New York
Brussels	Orange County
Century City	Paris
Chicago	Riyadh
Dubai	San Diego
Düsseldorf	San Francisco
Frankfurt	Seoul
Hamburg	Shanghai
Hong Kong	Silicon Valley
Houston	Singapore
London	Tel Aviv
Los Angeles	Tokyo
Madrid	Washington, D.C.

Re: Registration Statement on Form S-8; 1,399,016 shares of common stock, par value \$0.001 per share, of BioXcel Therapeutics, Inc.

To the addressees set forth above:

We have acted as special counsel to BioXcel Therapeutics, Inc., a Delaware corporation (the “*Company*”), in connection with the registration by the Company of 1,119,213 shares (the “*Plan Shares*”) of its common stock, \$0.001 par value per share (the “*Common Stock*”), issuable under the BioXcel Therapeutics, Inc. 2020 Incentive Award Plan (the “*Plan*”) and 279,803 shares (the “*ESPP Shares*”) and, together with the Plan Shares, the “*Shares*”) of Common Stock issuable under the BioXcel Therapeutics, Inc. 2020 Employee Stock Purchase Plan (the “*ESPP*”). The Shares are included in a registration statement on Form S-8 under the Securities Act of 1933, as amended (the “*Act*”), filed with the Securities and Exchange Commission (the “*Commission*”) on August 16, 2022 (the “*Registration Statement*”). This opinion is being furnished in connection with the requirements of Item 601(b)(5) of Regulation S-K under the Act, and no opinion is expressed herein as to any matter pertaining to the contents of the Registration Statement or related prospectus, other than as expressly stated herein with respect to the issue of the Shares.

As such counsel, we have examined such matters of fact and questions of law as we have considered appropriate for purposes of this letter. With your consent, we have relied upon certificates and other assurances of officers of the Company and others as to factual matters without having independently verified such factual matters. We are opining herein as to the General Corporation Law of the State of Delaware (the “*DGCL*”), and we express no opinion with respect to any other laws.

Subject to the foregoing and the other matters set forth herein, it is our opinion that, as of the date hereof, when the Shares shall have been duly registered on the books of the transfer agent and registrar therefor in the name or on behalf of the recipients thereof, and have been issued by the Company against payment therefor in the circumstances contemplated by and pursuant to the Plan and the ESPP, and assuming in each case that the individual issuances, grants or awards under the Plan or the ESPP, as applicable, are duly authorized by all necessary corporate action and duly issued, granted or awarded and exercised in accordance with the requirements of law and the Plan or the ESPP (and the agreements and awards duly adopted thereunder and in accordance therewith), as applicable, the issue and sale of the Shares will have been duly authorized by all necessary corporate action of the Company, and the Shares will be validly issued, fully paid and nonassessable. In rendering the foregoing opinion, we have assumed that the Company will comply with all applicable notice requirements regarding uncertificated shares as provided in the DGCL.

August 16, 2022

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**LATHAM & WATKINS** LLP

This opinion is for your benefit in connection with the Registration Statement and may be relied upon by you and by persons entitled to rely upon it pursuant to the applicable provisions of the Act. We consent to your filing this opinion as an exhibit to the Registration Statement. In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Act or the rules and regulations of the Commission thereunder.

Sincerely,

/s/ Latham & Watkins LLP

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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 BioXcel Therapeutics, Inc. 2020 Incentive Award Plan and the BioXcel Therapeutics, Inc. 2020 Employee Stock Purchase Plan of our report dated March 10, 2022, with respect to the financial statements of BioXcel Therapeutics, Inc. included in its Annual Report (Form 10-K) for the year ended December 31, 2021, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

Stamford, Connecticut  
August 16, 2022

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Consent of Independent Registered Public Accounting Firm

BioXcel Therapeutics, Inc.  
New Haven, CT

We hereby consent to the incorporation by reference in this Registration Statement on Form S-8 of our report dated March 12, 2021, relating to the financial statements of BioXcel Therapeutics, Inc. appearing in the Company's Annual Report on Form 10-K for the year ended December 31, 2021.

/s/ BDO USA, LLP  
Stamford, CT  
August 16, 2022

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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(1)	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(c) and Rule 457(h)	1,119,213(2)	\$ 15.22(4)	\$ 17,034,421.86	0.0000927	\$ 1,579.09
Equity	Common stock, \$0.001 par value per share, 2020 Employee Stock Purchase Plan	Rule 457(c) and Rule 457(h)	279,803(3)	\$ 15.22(4)	\$ 4,258,601.66	0.0000927	\$ 394.77
<b>Total Offering Amounts</b>					<b>\$ 21,293,023.52</b>		<b>\$ 1,973.86</b>
<b>Total Fee Offsets(5)</b>							<b>\$ —</b>
<b>Net Fee Due</b>							<b>\$ 1,973.86</b>

- (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 1,119,213 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, 2022 pursuant to an “evergreen” provision contained in the 2020 Plan.
- (3) Consists of 279,803 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, 2022 pursuant to an “evergreen” provision contained in the 2020 ESPP.
- (4) 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 August 11, 2022 as reported on The Nasdaq Capital Market.
- (5) The Registrant does not have any fee offsets.