

Registration No. 333-168667  
Registration No. 333-190400  
Registration No. 333-207971  
Registration No. 333-213109  
Registration No. 333-219785  
Registration No. 333-226834  
Registration No. 333-232981  
Registration No. 333-266680  
Registration No. 333-269611

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

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Post-Effective Amendment No. 2 to Registration Statement on Form S-8 (Registration No. 333-168667)  
Post-Effective Amendment No. 1 to Registration Statement on Form S-8 (Registration No. 333-190400)  
Post-Effective Amendment No. 1 to Registration Statement on Form S-8 (Registration No. 333-207971)  
Post-Effective Amendment No. 1 to Registration Statement on Form S-8 (Registration No. 333-213109)  
Post-Effective Amendment No. 1 to Registration Statement on Form S-8 (Registration No. 333-219785)  
Post-Effective Amendment No. 1 to Registration Statement on Form S-8 (Registration No. 333-226834)  
Post-Effective Amendment No. 1 to Registration Statement on Form S-8 (Registration No. 333-232981)  
Post-Effective Amendment No. 1 to Registration Statement on Form S-8 (Registration No. 333-266680)  
Post-Effective Amendment No. 1 to Registration Statement on Form S-8 (Registration No. 333-269611)

**UNDER  
THE SECURITIES ACT OF 1933**

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**ACADIA PHARMACEUTICALS INC.**

(Exact Name of Registrant as Specified in Its Charter)

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

**06-1376651**  
(I.R.S. Employer  
Identification No.)

**12830 El Camino Real, Suite 400  
San Diego, CA 92130  
(858) 558-2871**  
(Address of Principal Executive Offices, Including Zip Code)

**Acadia Pharmaceuticals Inc.  
2010 Equity Incentive Plan  
2023 Inducement Plan**  
(Full title of the plan)

**Jennifer J. Rhodes**  
**Executive Vice President, Chief Legal Officer & Secretary**  
**Acadia Pharmaceuticals Inc.**  
**12830 El Camino Real, Suite 400**  
**San Diego, CA 92130**  
(Name and Address of Agent for Service)

**(858) 558-2871**  
(Telephone number, including area code, of agent for service)

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*Copies to:*

**Carlos Ramirez, Esq.**  
**Cooley LLP**  
**10265 Science Center Drive**  
**San Diego, CA 92121-1117**  
**(858) 550-6000**

Large accelerated filer   
Non-accelerated filer

Accelerated filer   
Smaller reporting company   
Emerging growth company

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.

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## EXPLANATORY NOTE

Acadia Pharmaceuticals Inc. (the “Registrant”) hereby amends its registration statements on Form S-8 (File Nos. 333-168667, 333-190400, 333-207971, 333-213109, 333-219785, 333-226834, 333-232981, 333-266680 and 333-269611) (collectively, the “Registration Statements”) by filing this Post-Effective Amendment No. 1 to the Registration Statements (this “Post-Effective Amendment”) to reflect that the Acadia Pharmaceuticals Inc. 2010 Equity Incentive Plan (the “2010 Plan”) and the Acadia Pharmaceuticals Inc. 2023 Inducement Plan (the “Inducement Plan”) were both replaced by the Acadia Pharmaceuticals Inc. 2024 Equity Incentive Plan (the “2024 Plan”).

On May 29, 2024 (the “Effective Date”), the Registrant’s stockholders approved the 2024 Plan, which is a successor to and continuation of the 2010 Plan. No additional awards will be granted under the 2010 Plan or the Inducement Plan. The maximum number of shares of the Registrant’s common stock that may be issued pursuant to the 2024 Plan will not exceed 34,978,269, which number is the sum of (i) 7,018,288 new shares, plus, (ii) 27,959,981 shares consisting of (1) the number of shares available for the grant of new awards under the 2010 Plan and Inducement Plan as of immediately following the Effective Date and (2) shares of common stock subject to a 2010 Plan award or Inducement Plan award that following the Effective Date: (a) are not issued because such 2010 Plan award or Inducement Plan award or any portion thereof expires or otherwise terminates without all of the shares covered by such 2010 Plan award or Inducement Plan award having been issued; (b) are not issued because such 2010 Plan award or Inducement Plan award or any portion thereof is settled in cash; or (c) are forfeited back to or repurchased by the Registrant because of the failure to meet a contingency or condition required for the vesting of such shares ((1) and (2) together, the “Carryover Shares”).

Accordingly, pursuant to the undertaking in Item 512(a)(1)(iii) of Regulation S-K that the Registrant disclose a material change in the plan of distribution as originally disclosed in the Registration Statements, the Registrant is filing this Post-Effective Amendment to reflect that, as of the Effective Date, the Carryover Shares may be issued under the 2024 Plan and to file as an exhibit hereto a copy of the 2024 Plan. This Post-Effective Amendment amends and supplements the items listed below. All other items of the Registration Statement are incorporated herein by reference without change.

Contemporaneously with the filing of this Post-Effective Amendment, the Registrant is filing a Registration Statement on Form S-8 to register 7,018,288 shares of the Registrant’s common stock authorized for issuance pursuant to the 2024 Plan, which amount excludes the Carryover Shares. No additional shares of the Registrant’s common stock are being registered by this Post-Effective Amendment.

**PART II**  
**INFORMATION REQUIRED IN THE REGISTRATION STATEMENT**

**Item 3. Incorporation of Documents by Reference.**

The following documents filed by the Registrant with the U.S. Securities and Exchange Commission (the “Commission”) are each incorporated by reference into the Registration Statements:

- (a) The Registrant’s Annual Report on Form 10-K for the fiscal year ended December 31, 2023, filed with the Commission on [February 28, 2024](#).
- (b) The Registrant’s Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2024, filed with the Commission on [May 9, 2024](#).
- (c) The Registrant’s Current Reports on Form 8-K, filed with the Commission on [January 31, 2024](#) and [March 11, 2024](#) (in each case, except for information contained therein which is furnished rather than filed).
- (d) The information specifically incorporated by reference into the Registrant’s Annual Report on Form 10-K for the fiscal year ended December 31, 2023 from the Registrant’s Definitive Proxy Statement on Schedule 14A (other than information furnished rather than filed), filed with the Commission on [April 26, 2024](#).
- (e) The description of the Registrant’s common stock contained in [Exhibit 4.3](#) to the Registrant’s Annual Report on Form 10-K for the fiscal year ended December 31, 2019, filed with the Commission on February 27, 2020, including any amendment or report filed for the purpose of updating such description.

All other reports and documents subsequently filed by the Registrant pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act of 1934, as amended (“Exchange Act”), (other than Current Reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits furnished on such form that relate to such items) on or after the date of this Post-Effective Amendment and prior to the filing of a post-effective amendment to the Registration Statements which indicates that all securities offered have been sold or which deregisters all securities then remaining unsold, shall be deemed to be incorporated by reference herein and to be a part of the Registration Statements from the date of the filing of such reports and documents. Any statement contained in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of the Registration Statements to the extent that a statement contained herein or in any subsequently filed document that also is deemed to be incorporated by reference herein modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of the Registration Statements.

**Item 4. Description of Securities.**

Not applicable.

**Item 5. Interests of Named Experts and Counsel.**

Not applicable.

**Item 6. Indemnification of Directors and Officers.**

The Registrant is incorporated under the laws of the State of Delaware. Section 102 of the General Corporation Law of the State of Delaware allows a corporation to eliminate the personal liability of directors of a corporation to the corporation or its stockholders for monetary damages for a breach of fiduciary duty as a director, except where the director breached their duty of loyalty to the corporation or its stockholders, failed to act in good faith, engaged in intentional misconduct or knowingly violated a law, authorized the payment of a dividend or approved a stock repurchase in violation of Delaware corporate law or obtained an improper personal benefit. The Registrant’s amended and restated certificate of incorporation, as amended, includes such a provision.

Section 174 of the General Corporation Law of the State of Delaware provides, among other things, that a director who willfully or negligently approves of an unlawful payment of dividends or an unlawful stock purchase or redemption, may be held liable for such actions. A director who was either absent when the unlawful actions were approved or dissented at the time may avoid liability by causing his or her dissent to such actions to be entered in the books containing minutes of the meetings of the board of directors at the time such action occurred or immediately after such absent director receives notice of the unlawful acts.

Section 145 of the General Corporation Law of the State of Delaware provides that a corporation has the power to indemnify a director, officer, employee or agent of the corporation and certain other persons serving at the request of the corporation in related capacities against amounts paid and expenses incurred in connection with an action or proceeding to which they were or are a party or is threatened to be made a party by reason of such position, if such person shall have acted in good faith and in a manner they reasonably believed to be in or not opposed to the best interests of the corporation, and, in any criminal proceeding, if such person had no reasonable cause to believe their conduct was unlawful; provided that, in the case of actions brought by or in the right of the corporation, no indemnification shall be made with respect to any matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the adjudicating court determines that such indemnification is proper under the circumstances.

The Registrant's amended and restated bylaws include provisions that indemnify directors and officers of the corporation for actions taken in such capacity, if the actions were taken in good faith and in a manner reasonably believed to be in the best interests of the corporation and, in a criminal proceeding, the director or officer had no reasonable cause to believe that their conduct was unlawful.

As permitted by the General Corporation Law of the State of Delaware, the Registrant has entered into, and continues to enter into, indemnification agreements with its officers and directors that require the Registrant to indemnify such persons against any and all expenses (including attorneys' fees), witness fees, damages, judgments, fines, settlements and other amounts incurred in connection with any action, suit or proceeding, whether actual or threatened, to which any such person may be made a party by reason of the fact that such person is or was or at any time becomes a director, an officer or an employee of the Registrant or any of its affiliated enterprises, provided that such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the Registrant and, with respect to any criminal proceeding, had no reasonable cause to believe their or her conduct was unlawful.

The Registrant maintains directors and officers insurance providing indemnification for certain of the Registrant's directors, officers, affiliates, partners and employees for certain liabilities.

**Item 7. Exemption from Registration Claimed.**

Not applicable.

## Item 8. Exhibits.

| Exhibit Number | Description   |
|----------------|---|
| 4.1            | <a href="#"><u>Amended and Restated Certificate of Incorporation, as amended (incorporated by reference to Exhibit 3.1 to the Registrant's Quarterly Report on Form 10-Q, filed August 6, 2015).</u></a>  |
| 4.2            | <a href="#"><u>Certificate of Amendment of Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.2 to the Registrant's Annual Report on Form 10-K, filed February 25, 2021).</u></a>  |
| 4.3            | <a href="#"><u>Amended and Restated Bylaws (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K, filed September 12, 2013).</u></a>   |
| 4.4            | <a href="#"><u>Form of common stock certificate of the Registrant (incorporated by reference to Exhibit 4.1 to Registration Statement No. 333-52492, filed December 21, 2000).</u></a>  |
| 5.1*           | <a href="#"><u>Opinion of Cooley LLP.</u></a>   |
| 23.1*          | <a href="#"><u>Consent of Independent Registered Public Accounting Firm.</u></a>  |
| 23.2*          | <a href="#"><u>Consent of Cooley LLP (included in Exhibit 5.1).</u></a>   |
| 24.1*          | <a href="#"><u>Power of Attorney (included on the signature page).</u></a>  |
| 99.1           | <a href="#"><u>2010 Equity Incentive Plan, as amended (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-K, filed August 9, 2022).</u></a>  |
| 99.2           | <a href="#"><u>Forms of Nonstatutory Stock Option Grant Notice and Stock Option Agreement under Acadia Pharmaceuticals Inc. 2010 Equity Incentive Plan (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q, filed May 9, 2024).</u></a>              |
| 99.3           | <a href="#"><u>Forms of Restricted Stock Unit Grant Notice and Restricted Stock Unit Award Agreement under Acadia Pharmaceuticals Inc. 2010 Equity Incentive Plan (incorporated by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q, filed May 9, 2024).</u></a>   |
| 99.4           | <a href="#"><u>Forms of Performance Stock Unit Grant Notice and Performance Stock Unit Award Agreement under Acadia Pharmaceuticals Inc. 2010 Equity Incentive Plan (incorporated by reference to Exhibit 10.3 to the Registrant's Quarterly Report on Form 10-Q, filed May 9, 2024).</u></a> |
| 99.5           | <a href="#"><u>Acadia Pharmaceuticals Inc. 2023 Inducement Plan (incorporated by reference to Exhibit 99.1 to Registration Statement No. 333-269611).</u></a>   |
| 99.6           | <a href="#"><u>Forms of Stock Option Grant Notice and Stock Option Agreement under Acadia Pharmaceuticals Inc. 2023 Inducement Plan (incorporated by reference to Exhibit 99.2 to Registration Statement No. 333-269611).</u></a>   |
| 99.7           | <a href="#"><u>Forms of Restricted Stock Unit Grant Notice and Restricted Stock Unit Agreement under Acadia Pharmaceuticals Inc. 2023 Inducement Plan (incorporated by reference to Exhibit 99.3 to Registration Statement No. 333-269611).</u></a>   |
| 99.8           | <a href="#"><u>Acadia Pharmaceuticals Inc. 2024 Equity Incentive Plan (incorporated by reference to Exhibit 99.1 to Registration Statement No. 333-279784).</u></a>   |
| 99.9           | <a href="#"><u>Forms of Standard Stock Option Grant Notice and Stock Option Agreement under the Acadia Pharmaceuticals Inc. 2024 Equity Incentive Plan (incorporated by reference to Exhibit 99.2 to Registration Statement No. 333-279784).</u></a>  |
| 99.10          | <a href="#"><u>Forms of Standard Restricted Stock Unit Grant Notice and Restricted Stock Unit Agreement under the Acadia Pharmaceuticals Inc. 2024 Equity Incentive Plan (incorporated by reference to Exhibit 99.3 to Registration Statement No. 333-279784).</u></a>                        |
| 99.11          | <a href="#"><u>Forms of Director Stock Option Grant Notice and Stock Option Agreement under the Acadia Pharmaceuticals Inc. 2024 Equity Incentive Plan (incorporated by reference to Exhibit 99.4 to Registration Statement No. 333-279784).</u></a>  |
| 99.12          | <a href="#"><u>Forms of Director Restricted Stock Unit Grant Notice and Restricted Stock Unit Agreement under the Acadia Pharmaceuticals Inc. 2024 Equity Incentive Plan (incorporated by reference to Exhibit 99.5 to Registration Statement No. 333-279784).</u></a>                        |

\* Filed herewith.

## Item 9. Undertakings.

(a) The undersigned Registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to the Registration Statements:
  - (i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933 (the "Securities Act");
  - (ii) To reflect in the prospectus any facts or events arising after the effective date of the Registration Statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the Registration Statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective Registration Statement;
  - (iii) To include any material information with respect to the plan of distribution not previously disclosed in the Registration Statement or any material change to such information in the Registration Statement;

*Provided, however,* that paragraphs (a)(1)(i) and (a)(1)(ii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the Registrant pursuant to Section 13 or Section 15(d) of the Exchange Act that are incorporated by reference in the Registration Statement; and

- (2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (b) The undersigned Registrant hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the Registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the Registration Statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (c) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

## 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 Post-Effective Amendment to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of San Diego, State of California, on May 29, 2024.

### ACADIA PHARMACEUTICALS INC.

By: /s/ Stephen R. Davis

Stephen R. Davis  
*Chief Executive Officer*

## POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Stephen R. Davis and Jennifer J. Rhodes, and each of them, his or her true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this Post-Effective Amendment and any and all amendments (including post-effective amendments) to the Registration Statements (File Nos. 333-168667, 333-190400, 333-207971, 333-213109, 333-219785, 333-226834, 333-232981, 333-266680 and 333-269611), 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, 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 either of them, or their or his or her substitutes or substitute, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this Post-Effective Amendment has been signed by the following persons in the capacities and on the dates indicated.

| <u>Signature</u>                                  | <u>Title</u>   | <u>Date</u>  |
|---|--|--------------|
| <u>/s/ Stephen R. Davis</u><br>Stephen R. Davis   | Chief Executive Officer and Director<br><i>(Principal Executive Officer)</i>                     | May 29, 2024 |
| <u>/s/ Mark C. Schneyer</u><br>Mark C. Schneyer   | Executive Vice President and Chief Financial Officer<br><i>(Principal Financial Officer)</i>     | May 29, 2024 |
| <u>/s/ James K. Kihara</u><br>James K. Kihara     | Vice President, Chief Accounting Officer and Controller<br><i>(Principal Accounting Officer)</i> | May 29, 2024 |
| <u>/s/ Stephen R. Biggar</u><br>Stephen R. Biggar | Chairman of the Board  | May 29, 2024 |
| <u>/s/ Julian C. Baker</u><br>Julian C. Baker     | Director   | May 29, 2024 |
| <u>/s/ Laura A. Brege</u><br>Laura A. Brege       | Director   | May 29, 2024 |



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|---|----------|--------------|
| <u>/s/ James M. Daly</u><br>James M. Daly                 | Director | May 29, 2024 |
| <u>/s/ Elizabeth A. Garofalo</u><br>Elizabeth A. Garofalo | Director | May 29, 2024 |
| <u>/s/ Edmund P. Harrigan</u><br>Edmund P. Harrigan       | Director | May 29, 2024 |
| <u>/s/ Adora Ndu</u><br>Adora Ndu                         | Director | May 29, 2024 |
| <u>/s/ Daniel B. Soland</u><br>Daniel B. Soland           | Director | May 29, 2024 |



Carlos Ramirez  
T: +1 858 550 6157  
cramirez@cooley.com

May 29, 2024

Acadia Pharmaceuticals Inc.  
12830 El Camino Real, Suite 400  
San Diego, CA 92130

**Re: Acadia Pharmaceuticals Inc. – Post-Effective Amendments to Registration Statements on Form S-8**

Ladies and Gentlemen:

We have acted as counsel to Acadia Pharmaceuticals Inc., a Delaware corporation (the “*Company*”), in connection with the filing by the Company with the Securities and Exchange Commission (the “*Commission*”) of a Post-Effective Amendment No. 1 to each of the Company’s registration statements on Form S-8 (File Nos. 333-168667, 333-190400, 333-207971, 333-213109, 333-219785, 333-226834, 333-232981, 333-266680 and 333-269611), as filed with the Commission on August 9, 2010, August 6, 2013, November 12, 2015, August 12, 2016, August 8, 2017, August 14, 2018, August 2, 2019, August 9, 2022 and February 7, 2023, respectively (such registration statements, collectively, the “*Prior Registration Statements*,” and the post-effective amendment to each of the Prior Registration Statements, collectively, the “*Post-Effective Amendments*”).

The Prior Registration Statements covered the offering of shares of the Company’s common stock, par value \$0.0001 per share (“*Common Stock*”), previously available for issuance under the Acadia Pharmaceuticals Inc. 2023 Inducement Plan (the “*2023 Plan*”) and the Acadia Pharmaceuticals Inc. 2010 Equity Incentive Plan, as amended (together with the 2023 Plan, the “*Prior Plans*”). For purposes of this opinion, the “*Shares*” means up to 27,959,981 shares of Common Stock, which is the sum of 5,167,736 shares of Common Stock that had been available for grants of new awards under the Prior Plans and 22,792,245 shares of Common Stock subject to outstanding stock awards granted under the Prior Plans, that from and after May 29, 2024, may become available for grant under the Acadia Pharmaceuticals Inc. 2024 Equity Incentive Plan (the “*2024 Plan*”) as described in the Post-Effective Amendments.

In connection with this opinion, we have examined and relied upon (a) the Prior Registration Statements, the Post-Effective Amendments and related prospectuses, (b) the Company’s certificate of incorporation and bylaws, each as currently in effect, (c) the Prior Plans, (d) the 2024 Plan, and (e) such other records, documents, opinions, certificates, memoranda and other instruments as in our judgment are necessary or appropriate to enable us to render the opinion expressed below. We have assumed the genuineness of all signatures, the authenticity of all documents submitted to us as originals, the conformity to originals of all documents submitted to us as copies, the accuracy, completeness and authenticity of certificates of public officials and the due authorization, execution and delivery of all documents by all persons other than the Company where authorization, execution and delivery are prerequisites to the effectiveness thereof. As to certain factual matters, we have relied upon a certificate of an officer of the Company and have not independently verified such matters.

Our opinion is expressed only with respect to the General Corporation Law of the State of Delaware. We express no opinion to the extent that any other laws are applicable to the subject matter hereof and express no opinion and provide no assurance as to compliance with any federal or state securities law, rule or regulation.

10265 Science center drive, San Diego, CA 92121 T: (858) 550-6000 F: (858) 550-6420 www.cooley.com

May 29, 2024

Page Two

On the basis of the foregoing, and in reliance thereon, we are of the opinion that the Shares, when sold and issued in accordance with the 2024 Plan, the Post-Effective Amendments and related prospectus, will be validly issued, fully paid, and nonassessable (except as to shares issued pursuant to deferred payment arrangements which will be fully paid and nonassessable when such deferred payments are made in full).

This opinion is limited to the matters expressly set forth in this letter, and no opinion has been or should be implied, or may be inferred, beyond the matters expressly stated. This opinion speaks only as to law and facts in effect or existing as of the date hereof 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.

We consent to the filing of this opinion as an exhibit to the Post-Effective Amendments. 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 Securities Act of 1933, as amended, or the rules and regulations of the Commission thereunder.

Very truly yours,

COOLEY LLP

By: /s/ Carlos Ramirez

Carlos Ramirez

10265 Science center drive, San Diego, CA 92121 T: (858) 550-6000 F: (858) 550-6420 [www.cooley.com](http://www.cooley.com)

**Consent of Independent Registered Public Accounting Firm**

We consent to the incorporation by reference in Post-Effective Amendment No. 2 to Form S-8 to the Registration Statement (Form S-8 No. 333-168667) and to the incorporation by reference in Post-Effective Amendment No. 1 to Form S-8 to the Registration Statements (Form S-8 Nos. 333-190400, 333-207971, 333-213109, 333-219785, 333-226834, 333-232981, 333-266680, 333-269611) pertaining to the 2010 Equity Incentive Plan and the 2023 Inducement Plan of Acadia Pharmaceuticals Inc., both replaced by the Acadia Pharmaceuticals Inc. 2024 Equity Incentive Plan, of our reports dated February 27, 2024, with respect to the consolidated financial statements and schedule of Acadia Pharmaceuticals Inc. and the effectiveness of internal control over financial reporting of Acadia Pharmaceuticals Inc. included in its Annual Report (Form 10-K) for the year ended December 31, 2023, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

San Diego, California  
May 29, 2024