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

POST-EFFECTIVE AMENDMENT NO. 1 TO FORM S-8 **REGISTRATION STATEMENT UNDER**

THE SECURITIES ACT OF 1933

ALDEYRA THERAPEUTICS, INC.

(Exact name of registrant as specified in its charter)

Delaware (State or other jurisdiction of incorporation or organization)

131 Hartwell Avenue, Suite 320 Lexington, MA (Address of Principal Executive Offices)

20-1968197 (I.R.S. Employer Identification No.)

> 02421 (Zip Code)

Aldeyra Therapeutics, Inc. 2023 Equity Incentive Plan (Full title of plan)

> Todd C. Brady, M.D., Ph.D., **President and Chief Executive Officer** 131 Hartwell Avenue, Suite 320 Lexington, MA 02421 (Name and address of agent for service)

(781) 761-4904 (Telephone number, including area code, of agent for service)

Please send copies of all communications to:

Keith J. Scherer Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP **One Marina Park Drive, Suite 900** Boston, MA 02210 Telephone: (617) 648-9100 Telecopy: (617) 648-9199

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

 \mathbf{X} Non-accelerated filer

Accelerated filer Smaller reporting company \mathbf{X} 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. \Box

EXPLANATORY NOTE

This Post-Effective Amendment No. 1 to the Registration Statement on Form S-8 is being filed solely to correct exhibit hyperlinks contained in the Registration Statement on Form S-8 (File No. 333-275315) filed with the Securities and Exchange Commission on November 3, 2023.

Item 8. Exhibits.

| Exhibit Number | Description of Exhibit | |
|-------------------|--|--|
| 3.1 | Restated Certificate of Incorporation of Registrant, (filed as Exhibit 3.1 to the Registrant's Current Report on Form 8-K as filed on May 7, 2014, and incorporated herein by reference). | |
| 3.2 | Amended and Restated Bylaws of the Registrant (filed as Exhibit 3.1 to the Registrant's Current Report on Form 8-K as filed on May 1, 2020, and incorporated herein by reference). | |
| 5.1* | Opinion of Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP. | |
| 23.1* | Consent of BDO USA, P.C., independent registered public accounting firm. | |
| 23.2* | Consent of Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP (included in Exhibit 5.1). | |
| 24.1* | Power of Attorney (included in the signature page to the Registration Statement on Form S-8 (File No. 333-275315) filed on November 3, 2023). | |
| 99.1 | Aldeyra Therapeutics, Inc. 2023 Equity Incentive Plan and form of option agreement, and form of RSU agreement thereunder (filed as Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q, as filed on August 3, 2023, and incorporated herein by reference). | |
| 107* | <u>Filing Fee Table.</u> | |

* Previously filed with the Registration Statement on Form S-8 (File No. 333-275315) on November 3, 2023.

SIGNATURES

Pursuant to the requirements of the Securities Act, 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 Lexington, Commonwealth of Massachusetts, on this 7th day of March, 2024.

ALDEYRA THERAPEUTICS, INC.

/s/ Todd C. Brady, M.D., Ph.D. Todd C. Brady, M.D., Ph.D. President and Chief Executive Officer

Pursuant to the requirements of the Securities Act, this Registration Statement has been signed by the following persons on behalf of the Registrant in the capacities and on the dates indicated.

| Signature | Title | Date |
|--|--|---------------|
| /s/ Todd C. Brady, M.D., Ph.D. Todd C. Brady, M.D., Ph.D. | President, Chief Executive Officer and Director (Principal Executive Officer) | March 7, 2024 |
| * Bruce Greenberg | Interim Chief Financial Officer (Principal Financial and Accounting Officer) | March 7, 2024 |
| * Richard H. Douglas, Ph.D. | Chairman of the Board of Directors | March 7, 2024 |
| * Ben Bronstein, M.D. | Director | March 7, 2024 |
| * Martin J. Joyce | Director | March 7, 2024 |
| * Nancy Miller-Rich | Director | March 7, 2024 |
| Gary Phillips, M.D. | Director | March 7, 2024 |
| * Neal Walker, D.O. | Director | March 7, 2024 |

By: /s/ Todd C. Brady, M.D., Ph.D. Todd C. Brady, M.D., Ph.D Attorney-in-Fact