

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

**FORM 8-K**

**CURRENT REPORT**

Pursuant to Section 13 or 15(d) of the  
Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): **March 7, 2024**

**MIRA PHARMACEUTICALS, INC.**

(Exact Name of Registrant as Specified in its Charter)

<b>Florida</b> (State or Other Jurisdiction of Incorporation)	<b>001-41765</b> (Commission File Number)	<b>85-3354547</b> (IRS Employer Identification No.)
<b>1200 Brickell Avenue, Suite 1950 #1183</b> <b>Miami, Florida</b> (Address of Principal Executive Offices)		<b>33131</b> (Zip Code)

Registrant's telephone number, including area code: **(786) 432-9792**

**855 N. Wolfe St. Suite 601 Baltimore, Maryland 21205**  
(Former Name or Former Address, if Changed Since Last Report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
<b>Common Stock, \$0.0001 par value per share</b>	<b>MIRA</b>	<b>The Nasdaq Capital Market</b>

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

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 13(a) of the Exchange Act.

## Item 8.01. Other Information.

### *Update Background*

The purpose of this Current Report on Form 8-K of Mira Pharmaceuticals, Inc. (the “Company”) is to provide updated information regarding the Company’s patented, pre-clinical drug candidate molecule known as “MIRA1a”. MIRA1a is an oral pharmaceutical marijuana drug candidate under pre-clinical investigation for treating adult patients suffering from anxiety and cognitive decline, often associated with early-stage dementia.

In its prior public filings with the Securities and Exchange Commission and other public disclosures, including in the Company’s two Registration Statements on Form S-1, declared effective on August 2, 2023 and December 27, 2023 (File Nos. 333-273024 and 333-276118, respectively) (the “Registration Statements”), the Company disclosed that it had completed several positive pre-clinical studies of MIRA1a and the results of such studies (the “MIRA1a Studies”).

The Company owns a registered U.S. patent relating to MIRA1a (the “MIRA1a Patent”). The Company disclosed in the Registration Statements that Curia Global, a third-party drug manufacturing organization, provided development and production services relating to the manufacturing of batches of MIRA1a used by the Company in connection with the MIRA1a Studies. In June 2023, the Company began working with Recipharm Israel Ltd. as an alternate third-party drug manufacturing organization.

### *Discovery of New Molecule (MIRA-55)*

Beginning in late 2023, the Company, based on discussions with its contract manufacturers, began to suspect that the compound used in the MIRA1a Studies was not MIRA1a but rather a new molecule with a distinct chemical structure from MIRA1a. The Company then began a process of confirmatory analyses regarding the discovery of this new molecule and its potential attributes. The Company now calls this newly discovered molecule “MIRA-55”.

In early February 2024, based in its analyses, the Company concluded that during manufacturing and scale-up process, the intended MIRA1a compound (based on the MIRA1a Patent) was in fact synthesized as MIRA-55. Subsequent to such synthesis, based on certificates of analysis, the Company used the MIRA-55 compound in the MIRA1a Studies, leading to the positive pre-clinical outcomes reported. Consequently, all previously disclosed pre-clinical testing results, including those in Registration Statements, are attributable to the MIRA-55 compound.

Importantly, based on its pre-clinical analyses to date, the Company believes that MIRA-55 is an improvement over MIRA1a in that it displays enhanced potency and potential for efficacy. In early March 2024, the Company filed a provisional patent application for MIRA-55, aiming for global patent protection. If such patent is issued, the Company would own the patent rights to both MIRA1a and MIRA-55.

Additional testing is required to confirm the Company’s preliminary beliefs. However, based on the Company’s discoveries to date, the Company has decided to advance MIRA-55 as its lead compound for its oral pharmaceutical marijuana drug candidate while still retaining its rights to MIRA1a.

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### **Cautionary Note Regarding Forward-Looking Statements**

This Current Report contains “forward-looking statements,” which are statements other than historical facts made pursuant to the safe harbor provisions of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. These statements may be identified by words such as “aims,” “anticipates,” “believes,” “could,” “estimates,” “expects,” “forecasts,” “goal,” “intends,” “may,” “plans,” “possible,” “potential,” “seeks,” “will,” and variations of these words or similar expressions that are intended to identify forward-looking statements. Any such statements in this Current Report that are not statements of historical fact may be deemed to be forward-looking statements. These forward-looking statements include, without limitation, statements regarding the potential benefits of MIRA-55 versus MIRA1a, and the Company’s regulatory and intellectual property plans and strategies for MIRA-55. Any forward-looking statements in this Current Report are based on the Company’s current expectations, estimates and projections only as of the date of this Current Report and are subject to a number of significant risks and uncertainties (many of which are beyond the Company’s control) that could cause actual results (including the future results of the Company’s continuing analysis and pre-clinical testing of MIRA55 and the potential for intellectual property protection for MIRA-55 as discussed herein) to differ materially and adversely from those set forth in or implied by such forward-looking statements. These and other risks concerning the Company’s programs and operations are described in additional detail in the Registration Statements and other SEC filings, which are filed with the SEC and available at [www.sec.gov](http://www.sec.gov) as well as the Company’s website at <https://www.mirapharmaceuticals.com/investors/sec-filings/all-sec-filings>. The Company explicitly disclaims any obligation to update any forward-looking statements except to the extent required by law.

### **FDA Cautionary Note**

This Current Report discusses product candidates that are in early stage pre-clinical development and have not yet been approved for marketing by the U.S. Food and Drug Administration (“FDA”). No representations are made as to the safety or effectiveness of these product candidates for the uses for which they are being studied. There is no assurance that any product candidate of the Company will proceed through development or will receive FDA approval for marketing.

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**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

**MIRA PHARMACEUTICALS, INC.**

Date, March 7, 2024

By: /s/ Michelle Yanez  
Michelle Yanez  
Chief Financial Officer

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