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

**SCHEDULE 13D**

Under the Securities Exchange Act of 1934

**(Amendment No. 4)\***

**Neuphoria Therapeutics Inc.**

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**(Name of Issuer)**

**Common Stock, par value \$0.00001 per share**

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**(Title of Class of Securities)**

**64136E102**

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**(CUSIP Number)**

**Lynx1 Capital Management LP  
D81 Calle C, STE 301, PMB 1202,  
Dorado, PR, 00646-2051  
929-888-7476**

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**(Name, Address and Telephone Number of Person Authorized to Receive Notices and Communications)**

**12/02/2025**

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**(Date of Event Which Requires Filing of This Statement)**

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of §§ 240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the following box.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

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**SCHEDULE 13D**

**CUSIP No. 64136E102**

Name of reporting person

1

Lynx1 Capital Management LP

2

Check the appropriate box if a member of a Group (See Instructions)

(a)

(b)

3 SEC use only  
Source of funds (See Instructions)

4 AF  
Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e)

5   
Citizenship or place of organization

6 DELAWARE  
Sole Voting Power

7 0.00  
Number of Shares Beneficially Owned by Each Reporting Person With:

8 875,328.00  
Shared Voting Power  
Sole Dispositive Power

9 0.00  
Shared Dispositive Power

10 875,328.00  
Aggregate amount beneficially owned by each reporting person

11 875,328.00  
Check if the aggregate amount in Row (11) excludes certain shares (See Instructions)

12   
Percent of class represented by amount in Row (11)

13 16.3 %  
Type of Reporting Person (See Instructions)

14 PN

**Comment for Type of Reporting Person:** The percentage of Common Stock reported as beneficially owned by the Reporting Person is based on 5,377,329 shares of Common Stock outstanding as of November 13, 2025, as reported in the Company's quarterly report on Form 10-Q for the quarterly period ended September 30, 2025, filed with the SEC on November 14, 2025.

## SCHEDULE 13D

**CUSIP No.** 64136E102

1 Name of reporting person  
Weston Nichols  
Check the appropriate box if a member of a Group (See Instructions)

2  (a)  
 (b)

3 SEC use only  
Source of funds (See Instructions)

4 AF  
Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e)

5

6 Citizenship or place of organization

UNITED STATES

Sole Voting Power

7

Number of  
Shares

0.00

Shared Voting Power

Beneficially

8

Owned by

875,328.00

Each

Sole Dispositive Power

Reporting

9

Person

0.00

With:

Shared Dispositive Power

10

875,328.00

Aggregate amount beneficially owned by each reporting person

11

875,328.00

Check if the aggregate amount in Row (11) excludes certain shares (See Instructions)

12



Percent of class represented by amount in Row (11)

13

16.3 %

Type of Reporting Person (See Instructions)

14

IN

**Comment for Type of Reporting Person:** The percentage of Common Stock reported as beneficially owned by the Reporting Person is based on 5,377,329 shares of Common Stock outstanding as of November 13, 2025, as reported in the Company's quarterly report on Form 10-Q for the quarterly period ended September 30, 2025, filed with the SEC on November 14, 2025.

## SCHEDULE 13D

Item 1. Security and Issuer

Title of Class of Securities:

(a)

Common Stock, par value \$0.00001 per share

Name of Issuer:

(b)

Neuphoria Therapeutics Inc.

Address of Issuer's Principal Executive Offices:

(c)

100 SUMMIT DR, BURLINGTON, MASSACHUSETTS , 01803.

**Item 1 Comment:** Pursuant to Rule 13d-2(a) under the Securities Exchange Act of 1934, as amended, this Amendment No. 4 to the Schedule 13D ("Amendment No. 4") amends certain items of the Schedule 13D filed with the Securities and Exchange Commission (the "SEC") on October 23, 2025 (the "Original Schedule 13D"), as amended and supplemented by Amendment No. 1 filed with the SEC on November 10, 2025, Amendment No. 2 filed with the SEC on November 18, 2025, and Amendment No. 3 filed with the SEC on November 28, 2025 (collectively, the "Schedule 13D"), relating to the Common Stock, par value \$0.00001 per share (the "Common Stock"), of Neuphoria Therapeutics Inc. (the "Issuer" or the "Company"). All capitalized terms contained herein but not otherwise defined shall have the meanings ascribed to such terms in the Schedule 13D. Except as specifically provided herein, this Amendment No. 4 does not modify any of the information previously reported in the Schedule 13D.

Item 4. Purpose of Transaction

Item 4 of the Schedule 13D is hereby amended and supplemented as follows: On December 2, 2025, the Reporting Persons delivered a letter to the Board which contained a new non-binding proposal (the "Recalculated Initial Offer") to acquire, through one or more managed investment funds and vehicles affiliated with the Investment Manager, all of the outstanding shares of capital stock of the Company for a price of \$4.75 per share in cash. The foregoing description of the Recalculated Initial Offer does not purport to be complete and is qualified in its entirety by reference to the Recalculated Initial Offer, a copy of which is filed as an exhibit hereto and is incorporated herein by reference.

Item 6. Contracts, Arrangements, Understandings or Relationships With Respect to Securities of the Issuer  
Item 6 of the Schedule 13D is hereby amended and supplemented as follows: The response to Item 4 of this Amendment No. 4 is incorporated herein by reference.

Item 7. Material to be Filed as Exhibits.

Item 7 of the Schedule 13D is hereby amended and supplemented as follows: Exhibit 99.4 Recalculated Initial Offer, dated December 2, 2025

#### SIGNATURE

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Lynx1 Capital Management LP

Signature: /s/ Weston Nichols

Name/Title: By: Lynx1 Capital Management GP LLC, General Partner, By: Weston Nichols, Sole Member

Date: 12/02/2025

Weston Nichols

Signature: /s/ Weston Nichols

Name/Title: Weston Nichols, individually

Date: 12/02/2025

Lynx1 Capital Management LP  
D81 Calle C  
Suite 301, PMB 1202  
Dorado, Puerto Rico 00646-2051  
(929) 888-7476

December 2, 2025

The Board of Directors of Neuphoria Therapeutics Inc.  
100 Summit Drive  
Burlington, Massachusetts 01803  
Attention: Alan Fisher, Chairman

Dear Mr. Fisher:

We are pleased to submit this recalculated non-binding indication of interest related to the potential acquisition (the “Acquisition”) of Neuphoria Therapeutics Inc. (“you” or the “Company”) by one or more managed investment funds and vehicles affiliated with Lynx1 Capital Management LP (collectively, “Lynx1” or “we”).

As you are aware, on November 10, 2025, we submitted an initial non-binding indication of interest (the “Initial Offer”) related to the Acquisition. As you are also aware, on November 18, 2025, we withdrew our Initial Offer due to the Company's public disclosures on November 14, 2025, that (1) it had increased its outstanding share count by 128% over a four-week period, such that it had 5,377,329 outstanding shares of common stock as of November 13, 2025 (whereas our Initial Offer assumed 3,298,042 shares outstanding) and (2) it was further registering an additional \$20 million of securities for offer and sale under its at-the-market offering program. This registration indicated to us that there would be even further dilution to the Company's existing shareholders. As we have previously stated, we have continued to stand behind the economics of our Initial Offer, but the Company's share issuances since our Initial Offer made it impossible for us to determine a specific offer price that would capture the economics of those issuances. We understand however from the Company's recent public disclosures that it has now ceased issuing new shares, and so we are pleased to submit a recalculated non-binding indication of interest. It incorporates the Company's recently disclosed share dilution as well as the net cash proceeds to the Company from that dilution (based on figures in the Company's public disclosures), and it supersedes the Initial Offer in all respects.

As such, based on the information publicly available to us at this time, Lynx1 (through its affiliated investment funds and vehicles) proposes to acquire all of the outstanding shares of capital stock of the Company for a price of **\$4.75 per share** in an all-cash transaction (the “Recalculated Initial Offer”). This Recalculated Initial Offer preserves the all-in economics of the Initial Offer, as adjusted for share issuances since October 27, 2025, the Company's more recent cash balance figure (as projected by us, based on the Company's public filings subsequent to the Initial Offer), and the Company's continued spending in defense of its proxy contest with us. The Recalculated Initial Offer constitutes a price per share premium of 16% over the closing price of the Company's common stock on Nasdaq on November 7, 2025, which was the last full trading day prior to the submission and public disclosure of the Initial Offer. This is lower (on a per share basis) than the 27% premium of the Initial Offer due (directly) to the Board's actions since our Initial Offer.

The Recalculated Initial Offer is based on (among other things) the following assumptions:

- The Company will not issue any additional shares of stock during the pendency of its strategic-review process, through the closing of the Acquisition. Specifically, the Company will have 5,377,329 shares outstanding at the closing of the Acquisition, all of which will be shares of common stock.
- The Company will have unrestricted cash and cash equivalents at the closing of the Acquisition, net of our estimate of projected wind-down costs, of approximately \$28 million.
- There will be no participation in the Acquisition by holders of stock options, warrants or any other non-common-stock securities of the Company.

Because our proposal includes an assumption about the amount of the Company's net unrestricted cash at the Acquisition closing, any delays to our consummating the Acquisition that result in a reduction in the actual amount of net unrestricted cash could in turn result in a reduction in our Acquisition price. Also, as with our Initial Offer, because we have sufficient capital available to us to fund the Acquisition, our ability to secure financing will not delay our process and will not be a condition for us to close the Acquisition.

As we stated in the Initial Offer, we are also willing to explore with you a transaction in which we acquire a select asset of the Company rather than the entire Company, if you believe that such a transaction is preferable to the Company's stockholders. This would be subject to our due diligence into the agreement with the collaboration partner and licensee to ensure that the Company's interest in the asset would not be terminated in connection with the transaction.

This letter and the proposal herein are not intended to constitute an offer capable of acceptance and do not create a binding obligation (to negotiate in good faith or otherwise) on Lynx1, the Company or any of their respective representatives. Those obligations would arise only upon our entering into a definitive purchase and related agreements relating to the Acquisition.

As with our Initial Offer, we believe that this proposal represents a highly beneficial outcome for the Company and its stockholders and are excited by the potential benefits that the Acquisition would yield for all stakeholders. We appreciate your consideration of this proposal and look forward to hearing from you as soon as possible, but no later than 12:00 p.m. (noon), New York time, on December 5, 2025.

Please do not hesitate to contact me with any questions or requests for additional information. We and our advisors remain ready to engage with you.

Yours very truly,

/s/ Weston Nichols

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Weston Nichols, Ph.D.  
Chief Investment Officer, Lynx1 Capital Management LP  
[NEUP@lynx1bio.com](mailto:NEUP@lynx1bio.com)

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