

☐ Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).

☐ Check this box to indicate that a transaction was made pursuant to a contract, instruction or written plan for the purchase or sale of equity securities of the issuer that is intended to satisfy the affirmative defense conditions of Rule 10b5-1(c). See Instruction 10.

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

| OMB APPROVAL                                 |           |
|----------------------------------------------|-----------|
| OMB Number:                                  | 3235-0287 |
| Estimated average burden hours per response: | 0.5       |

|                                                                                                                                                                                                                                                                           |                                                                                                       |                                                                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Name and Address of Reporting Person*<br><u>Smith Hunter C</u><br><br>(Last) (First) (Middle)<br><u>C/O RHYTHM PHARMACEUTICALS, INC.</u><br><u>222 BERKELEY STREET, 12TH FLOOR</u><br><br>(Street)<br><u>BOSTON</u> <u>MA</u> <u>02116</u><br><br>(City) (State) (Zip) | 2. Issuer Name and Ticker or Trading Symbol<br><u>RHYTHM PHARMACEUTICALS, INC. [</u><br><u>RYTM ]</u> | 5. Relationship of Reporting Person(s) to Issuer<br>(Check all applicable)<br><br>Director 10% Owner<br><input checked="" type="checkbox"/> Officer (give title below) Other (specify below)<br><br><u>Chief Financial Officer</u> |
|                                                                                                                                                                                                                                                                           | 3. Date of Earliest Transaction (Month/Day/Year)<br><u>03/02/2026</u>                                 |                                                                                                                                                                                                                                    |
|                                                                                                                                                                                                                                                                           | 4. If Amendment, Date of Original Filed (Month/Day/Year)                                              |                                                                                                                                                                                                                                    |

Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

| 1. Title of Security (Instr. 3) | 2. Transaction Date (Month/Day/Year) | 2A. Deemed Execution Date, if any (Month/Day/Year) | 3. Transaction Code (Instr. 8) |   | 4. Securities Acquired (A) or Disposed Of (D) (Instr. 3, 4 and 5) |            |       | 5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4) | 6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | 7. Nature of Indirect Beneficial Ownership (Instr. 4) |
|---------------------------------|--------------------------------------|----------------------------------------------------|--------------------------------|---|-------------------------------------------------------------------|------------|-------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|
|                                 |                                      |                                                    | Code                           | V | Amount                                                            | (A) or (D) | Price |                                                                                               |                                                          |                                                       |
| Common Stock                    | 03/02/2026                           |                                                    | M                              |   | 6,099                                                             | A          | \$6.8 | 116,611                                                                                       | D                                                        |                                                       |

Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)

| 1. Title of Derivative Security (Instr. 3) | 2. Conversion or Exercise Price of Derivative Security | 3. Transaction Date (Month/Day/Year) | 3A. Deemed Execution Date, if any (Month/Day/Year) | 4. Transaction Code (Instr. 8) |   | 5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5) |       | 6. Date Exercisable and Expiration Date (Month/Day/Year) |                 | 7. Title and Amount of Securities Underlying Derivative Security (Instr. 3 and 4) |                            | 8. Price of Derivative Security (Instr. 5) | 9. Number of derivative Securities Beneficially Owned Following Reported Transaction(s) (Instr. 4) | 10. Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | 11. Nature of Indirect Beneficial Ownership (Instr. 4) |
|--------------------------------------------|--------------------------------------------------------|--------------------------------------|----------------------------------------------------|--------------------------------|---|----------------------------------------------------------------------------------------|-------|----------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------|----------------------------|--------------------------------------------|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------------|
|                                            |                                                        |                                      |                                                    | Code                           | V | (A)                                                                                    | (D)   | Date Exercisable                                         | Expiration Date | Title                                                                             | Amount or Number of Shares |                                            |                                                                                                    |                                                           |                                                        |
| Stock Options (Right to Buy)               | \$6.8                                                  | 03/02/2026                           |                                                    | M                              |   |                                                                                        | 6,099 | (I)                                                      | 02/08/2032      | Common Stock                                                                      | 6,099                      | \$0                                        | 91,401                                                                                             | D                                                         |                                                        |

Explanation of Responses:

1. The options are fully vested.

/s/ Stephen Vander Stoep,  
attorney-in-fact for Hunter C. 03/02/2026  
Smith

\*\* Signature of Reporting Person Date

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

\* If the form is filed by more than one reporting person, see Instruction 4 (b)(v).

\*\* Intentional misstatements or omissions of facts constitute Federal Criminal Violations See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB Number.