

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

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

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

1. Name and Address of Reporting Person* <u>Smith Hunter C</u>		2. Issuer Name and Ticker or Trading Symbol <u>RHYTHM PHARMACEUTICALS, INC. [RYTM]</u>		5. Relationship of Reporting Person(s) to Issuer (Check all applicable) <input checked="" type="checkbox"/> Director <input checked="" type="checkbox"/> Officer (give title below) <u>10% Owner</u> <u>Chief Financial Officer</u>	
(Last) (First) (Middle) <u>C/O RHYTHM PHARMACEUTICALS, INC.</u> <u>222 BERKELEY STREET, 12TH FLOOR</u>		3. Date of Earliest Transaction (Month/Day/Year) <u>02/09/2024</u>		6. Individual or Joint/Group Filing (Check Applicable Line) <input checked="" type="checkbox"/> Form filed by One Reporting Person <input type="checkbox"/> Form filed by More than One Reporting Person	
(Street) <u>BOSTON MA 02116</u>		4. If Amendment, Date of Original Filed (Month/Day/Year)			
(City) (State) (Zip)		Rule 10b5-1(c) Transaction Indication <input type="checkbox"/> Check this box to indicate that a transaction was made pursuant to a contract, instruction or written plan that is intended to satisfy the affirmative defense conditions of Rule 10b5-1(c). See Instruction 10.			

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			
<u>Common Stock</u>	<u>02/09/2024</u>		<u>M</u>		<u>4,063</u>	<u>A</u>	<u>(1)</u>	<u>79,278</u>	<u>D</u>	
<u>Common Stock</u>	<u>02/11/2024</u>		<u>M</u>		<u>2,344</u>	<u>A</u>	<u>(1)</u>	<u>81,622</u>	<u>D</u>	
<u>Common Stock</u>	<u>02/12/2024</u>		<u>S</u>	<u>(2)</u>	<u>1,209</u>	<u>D</u>	<u>\$51.38</u>	<u>80,413</u>	<u>D</u>	
<u>Common Stock</u>	<u>02/13/2024</u>		<u>S</u>	<u>(2)</u>	<u>709</u>	<u>D</u>	<u>\$49.82</u>	<u>79,704</u>	<u>D</u>	

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
<u>Restricted Stock Units</u>	<u>(1)</u>	<u>02/09/2024</u>		<u>M</u>			<u>4,063</u>	<u>(3)</u>	<u>(3)</u>	<u>Common Stock</u>	<u>4,063</u>	<u>\$0</u>	<u>8,124</u>	<u>D</u>	
<u>Restricted Stock Units</u>	<u>(1)</u>	<u>02/11/2024</u>		<u>M</u>			<u>2,344</u>	<u>(4)</u>	<u>(4)</u>	<u>Common Stock</u>	<u>2,344</u>	<u>\$0</u>	<u>2,343</u>	<u>D</u>	

Explanation of Responses:

- Each restricted stock unit represents a contingent right to receive one share of Issuer common stock.
- The sale reported in the Form 4 was effected pursuant to a Rule 10b5-1 instruction solely with the intent to cover withholding taxes in connection with the vesting of certain previously reported restricted stock units.
- The restricted stock units vest or have vested as to 25% of the total shares on each of February 9, 2023, February 9, 2024, February 9, 2025 and February 9, 2026. The restricted stock units have no expiration date.
- The restricted stock units vest or have vested as to 25% of the total shares on each of February 11, 2022, February 11, 2023, February 11, 2024 and February 11, 2025. The restricted stock units have no expiration date.

/s/ Hunter C. Smith

02/13/2024

** 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.