

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

OMB APPROVAL	
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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>Exter Neil</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 10% Owner Officer (give title below) Other (specify below)		
(Last)	(First)	(Middle)	3. Date of Earliest Transaction (Month/Day/Year) <u>10/10/2017</u>			6. Individual or Joint/Group Filing (Check Applicable Line) <input checked="" type="checkbox"/> Form filed by One Reporting Person Form filed by More than One Reporting Person		
<u>500 BOYLSTON STREET, 11TH FLOOR</u>			4. If Amendment, Date of Original Filed (Month/Day/Year)					
(Street)	<u>BOSTON</u>	<u>MA</u>	<u>02116</u>	(City)				

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	10/10/2017		C		0 ⁽¹⁾	A	(2)	0 ⁽³⁾	I	See Footnotes ⁽³⁾⁽⁴⁾

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					
Series A Convertible Preferred Stock	(2)	10/10/2017		C		0 ⁽⁵⁾		(2)	(2)	Common Stock	0 ⁽⁶⁾	0	I	See Footnotes ⁽⁴⁾⁽⁶⁾
Series A-1 Junior Preferred Stock	(2)	10/10/2017		C		0 ⁽⁵⁾		(2)	(2)	Common Stock	0 ⁽⁶⁾	0	I	See Footnotes ⁽⁴⁾⁽⁶⁾

Explanation of Responses:

- Represents 3,963,810 shares of the Issuer's common stock held by Third Rock Ventures, L.P. (the "Fund") upon conversion of the Issuer's series A convertible preferred stock (the "Series A Preferred") and series A-1 junior preferred stock (the "Series A-1 Preferred") upon closing of the Issuer's initial public offering (the "IPO").
- Each share of the Series A Preferred and Series A-1 Preferred converted into shares of the Issuer's common stock on a 9.17-for-one basis upon the closing of the IPO without payment or consideration. The Series A Preferred and Series A-1 Preferred were convertible at any time at the holder's election and automatically upon the closing of the IPO and had no expiration date.
- Represents (i) 3,963,810 shares of the Issuer's common stock held by the Fund upon conversion of the Series A Preferred and Series A-1 Preferred upon closing of the IPO and (ii) 17,627 shares of the Issuer's common stock held by the Fund prior to the closing of the IPO.
- The Reporting Person is a partner of Third Rock Ventures GP, L.P., which is the general partner of the Fund. The Reporting Person disclaims beneficial ownership over the shares held by the Fund, except to the extent of his pecuniary interest therein, if any, and this report shall not be deemed an admission that he is the beneficial owner of such shares.
- Prior to the conversion, the Fund held 9,479,502 and 26,868,642 shares of the Series A Preferred and Series A-1 Preferred, respectively.
- Prior to the conversion, the Fund held 1,033,751 and 2,930,059 shares of the Series A Preferred and Series A-1 Preferred, respectively, on an as converted to common stock basis.

/s/ Keith Gottesdiener, as attorney-in-fact 10/12/2017

** 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.