

INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES

OMB APPROVAL

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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>BARRIS PETER J</u> (Last) (First) (Middle) <u>1954 GREENSPRING DRIVE</u> <u>SUITE 600</u> (Street) <u>TIMONIUM MD 21093</u> (City) (State) (Zip)	2. Date of Event Requiring Statement (Month/Day/Year) <u>10/04/2017</u>	3. Issuer Name and Ticker or Trading Symbol <u>RHYTHM PHARMACEUTICALS, INC. [RYTM]</u> 4. Relationship of Reporting Person(s) to Issuer (Check all applicable) Director <input checked="" type="checkbox"/> 10% Owner Officer (give title below) Other (specify below)	5. If Amendment, Date of Original Filed (Month/Day/Year) 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
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Table I - Non-Derivative Securities Beneficially Owned

1. Title of Security (Instr. 4)	2. Amount of Securities Beneficially Owned (Instr. 4)	3. Ownership Form: Direct (D) or Indirect (I) (Instr. 5)	4. Nature of Indirect Beneficial Ownership (Instr. 5)
<u>Common Stock</u>	<u>29,378⁽¹⁾</u>	<u>I</u>	<u>See Note 2⁽²⁾</u>

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

1. Title of Derivative Security (Instr. 4)	2. Date Exercisable and Expiration Date (Month/Day/Year)		3. Title and Amount of Securities Underlying Derivative Security (Instr. 4)	4. Conversion or Exercise Price of Derivative Security	5. Ownership Form: Direct (D) or Indirect (I) (Instr. 5)	6. Nature of Indirect Beneficial Ownership (Instr. 5)	
	Date Exercisable	Expiration Date					Amount or Number of Shares
<u>Series A Preferred Stock</u>	<u>(3)</u>	<u>(3)</u>	<u>Common Stock</u>	<u>1,402,870</u>	<u>(3)</u>	<u>I</u>	<u>See Note 2⁽²⁾</u>
<u>Series A-1 Junior Preferred Stock</u>	<u>(3)</u>	<u>(3)</u>	<u>Common Stock</u>	<u>2,927,708</u>	<u>(3)</u>	<u>I</u>	<u>See Note 2⁽²⁾</u>

Explanation of Responses:

1. Reflects a 1-for-9.17 reverse split effective as of September 29, 2017.

2. The Reporting Person is a director of NEA 13 GP, LTD, which is the sole general partner of NEA Partners 13, L.P. ("NEA Partners 13"). NEA Partners 13 is the sole general partner of New Enterprise Associates 13, L.P. ("NEA 13"), which is the direct beneficial owner of the securities. The Reporting Person disclaims beneficial ownership, within the meaning of Section 16 of the Securities Exchange Act of 1934, as amended, or otherwise of such portion of the NEA 13 shares in which the Reporting Person has no pecuniary interest.

3. Each share of Series A Convertible Preferred Stock and Series A-1 Junior Preferred Stock is convertible, at any time, at the holder's election, into Common Stock of the Issuer on a 9.17-for-one basis. In addition, effective upon the closing of the Issuer's initial public offering of its Common Stock, each share of preferred stock will automatically convert on a 9.17-for-one basis without payment of consideration. The preferred stock has no expiration date.

Remarks:

/s/ Sasha Keough, attorney-in-
fact 10/04/2017

** 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 5 (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.