

**INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES**

OMB APPROVAL	
OMB Number:	3235-0104
Estimated average burden hours per response:	0.5

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>MPM BIOVENTURES V, L.P.</u>  (Last) (First) (Middle) <u>C/O MPM ASSET MANAGEMENT</u> <u>450 KENDALL STREET</u>  (Street) <u>CAMBRIDGE MA 02142</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) Form filed by One Reporting Person <input checked="" type="checkbox"/> Form filed by More than One Reporting Person

**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)
Common Stock	29,378 <sup>(1)</sup>	I	See Footnote <sup>(2)</sup>

**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					
Series A Preferred Stock	(3)	(3)	Common Stock	834,441	(3)	I	See Footnote <sup>(4)</sup>
Series A-1 Junior Preferred Stock	(3)	(3)	Common Stock	1,732,573	(3)	I	See Footnote <sup>(5)</sup>

1. Name and Address of Reporting Person* <u>MPM BIOVENTURES V, L.P.</u>  (Last) (First) (Middle) <u>C/O MPM ASSET MANAGEMENT</u> <u>450 KENDALL STREET</u>  (Street) <u>CAMBRIDGE MA 02142</u>  (City) (State) (Zip)
--

1. Name and Address of Reporting Person* <u>EVNIN LUKE</u>  (Last) (First) (Middle) <u>C/O MPM ASSET MANAGEMENT</u> <u>450 KENDALL STREET</u>  (Street) <u>CAMBRIDGE MA 02142</u>  (City) (State) (Zip)
---

1. Name and Address of Reporting Person* <u>GADICKE ANSBERT</u>  (Last) (First) (Middle) <u>C/O MPM ASSET MANAGEMENT</u> <u>450 KENDALL STREET</u>  (Street)
---

(Street)  
 CAMBRIDGE MA 02142

---

(City) (State) (Zip)

1. Name and Address of Reporting Person\*  
[MPM ASSET MANAGEMENT INVESTORS BV5 LLC](#)

---

(Last) (First) (Middle)  
 C/O MPM ASSET MANAGMENT  
 450 KENDALL STREET

---

(Street)  
 CAMBRIDGE MA 02142

---

(City) (State) (Zip)

1. Name and Address of Reporting Person\*  
[MPM BIOVENTURES V GP LLC](#)

---

(Last) (First) (Middle)  
 C/O MPM ASSET MANAGEMENT  
 450 KENDALL STREET

---

(Street)  
 CAMBRIDGE MA 02142

---

(City) (State) (Zip)

1. Name and Address of Reporting Person\*  
[MPM BIOVENTURES V LLC](#)

---

(Last) (First) (Middle)  
 C/O MPM ASSET MANAGEMENT  
 450 KENDALL STREET

---

(Street)  
 CAMBRIDGE MA 02142

---

(City) (State) (Zip)

**Explanation of Responses:**

1. Reflects a 1-for-9.17 reverse split effective as of September 29, 2017.
2. The shares are held as follows: 28,280 by MPM BioVentures V, L.P. ("BV V") and 1,098 by MPM Asset Management Investors BV5 LLC ("AM BV5"). MPM BioVentures V GP LLC and MPM BioVentures V LLC ("BV LLC") are the direct and indirect general partners of BV V and BV LLC is the manager of AM BV5. Ansbert Gadicke, Luke Evnin and Todd Foley are the members of BV LLC. Mr. Foley is a director of the Issuer and has separately filed a Form 3. Each Reporting Person disclaims beneficial ownership of the securities except to the extent of his or its respective pecuniary interest therein.
3. Each share of Series A Preferred Stock and Series A-1 Junior Preferred Stock is convertible into 0.10905125 of a share of Common Stock without payment of further consideration and will automatically convert into 0.10905125 of a share of Common Stock upon the closing of the Issuer's initial public offering without payment of further consideration. The shares have no expiration date.
4. The shares are held as follows: 803,237 by BV V and 31,204 by AM BV5. Each Reporting Person disclaims beneficial ownership of the securities except to the extent of his or its respective pecuniary interest therein.
5. The shares are held as follows: 1,667,782 by BV V and 64,791 by AM BV5. Each Reporting Person disclaims beneficial ownership of the securities except to the extent of his or its respective pecuniary interest therein.

**Remarks:**

[By Luke Evnin, member of MPM BioVentures V LLC, the managing member of MPM BioVentures V GP LLC, the general partner of MPM BioVentures V, L.P. /s/ Luke Evnin](#) 10/04/2017

[/s/ Luke Evnin](#) 10/04/2017

[/s/ Ansbert Gadicke](#) 10/04/2017

[By Luke Evnin, member of MPM BioVentures V LLC, the manager of MPM Asset Management Investors BV5 LLC /s/ Luke Evnin](#) 10/04/2017

[By Luke Evnin, member of MPM BioVentures V LLC, the managing member of MPM BioVentures V GP LLC /s/ Luke Evnin](#) 10/04/2017

By Luke Evin, member of 10/04/2017

MPM BioVentures V LLC /s/

Luke Evin

\*\* 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.**