

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549

SCHEDULE 13G/A

Under the Securities Exchange Act of 1934
(Amendment No. 1)*

Mersana Therapeutics, Inc.

(Name of Issuer)

Common Stock, par value, \$0.0001 per share

(Title of Class of Securities)

59045L106

(CUSIP Number)

December 31, 2017

(Date of Event Which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

- Rule 13d-1(b)
- Rule 13d-1(c)
- Rule 13d-1(d)

*The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter the disclosures provided in a prior cover page.

The information required in the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

| | | |
|---|--|---------------------------------------|
| 1 | NAME OF REPORTING PERSONS Rock Springs Capital Management LP | |
| 2 | CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="radio"/> (b) <input type="radio"/> | |
| 3 | SEC USE ONLY | |
| 4 | CITIZENSHIP OR PLACE OF ORGANIZATION Delaware | |
| NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH | 5 | SOLE VOTING POWER 0 |
| | 6 | SHARED VOTING POWER 1,326,800 |
| | 7 | SOLE DISPOSITIVE POWER 0 |
| | 8 | SHARED DISPOSITIVE POWER 1,326,800 |
| 9 | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 1,326,800 | |
| 10 | CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="radio"/> | |
| 11 | PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 5.8% | |
| 12 | TYPE OF REPORTING PERSON IA | |

| | | |
|---|--|---------------------------------------|
| 1 | NAME OF REPORTING PERSONS Rock Springs Capital LLC | |
| 2 | CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="radio"/> (b) <input type="radio"/> | |
| 3 | SEC USE ONLY | |
| 4 | CITIZENSHIP OR PLACE OF ORGANIZATION Delaware | |
| NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH | 5 | SOLE VOTING POWER 0 |
| | 6 | SHARED VOTING POWER 1,326,800 |
| | 7 | SOLE DISPOSITIVE POWER 0 |
| | 8 | SHARED DISPOSITIVE POWER 1,326,800 |
| 9 | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 1,326,800 | |
| 10 | CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="radio"/> | |
| 11 | PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 5.8% | |
| 12 | TYPE OF REPORTING PERSON OO | |

| | | |
|---|--|---------------------------------------|
| 1 | NAME OF REPORTING PERSONS Rock Springs Capital Master Fund LP | |
| 2 | CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="radio"/> (b) <input type="radio"/> | |
| 3 | SEC USE ONLY | |
| 4 | CITIZENSHIP OR PLACE OF ORGANIZATION Cayman Islands | |
| NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH | 5 | SOLE VOTING POWER 0 |
| | 6 | SHARED VOTING POWER 1,326,800 |
| | 7 | SOLE DISPOSITIVE POWER 0 |
| | 8 | SHARED DISPOSITIVE POWER 1,326,800 |
| 9 | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 1,326,800 | |
| 10 | CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="radio"/> | |
| 11 | PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 5.8% | |
| 12 | TYPE OF REPORTING PERSON PN | |

Item 1. (a) Name of Issuer

Mersana Therapeutics, Inc. (the "Issuer")

(b) Address of Issuer's Principal Executive Offices

840 Memorial Drive, Cambridge, MA 02139

Item 2. (a) Name of Person Filing

This Statement is filed on behalf of each of the following persons (collectively, the "Reporting Persons"):

- i. Rock Springs Capital Management LP ("RSCM");
- ii. Rock Springs Capital LLC ("RSC"); and
- iii. Rock Springs Capital Master Fund LP ("Master Fund").

This Statement relates to Shares (as defined herein) held directly by the Master Fund, which is a Cayman Island exempted limited partnership, and indirectly held by RSCM, a Delaware limited partnership, and RSC, a Delaware limited liability company. RSCM serves as the investment manager to the Master Fund. RSC is the general partner of RSCM.

(b) Address of Principal Business Office, or, if none, Residence

Rock Springs Capital Management LP and Rock Springs Capital LLC
650 South Exeter, Suite 1070
Baltimore, MD 21202

Rock Springs Capital Master Fund LP
c/o Walkers Corporate Limited
Cayman Corporate Centre
27 Hospital Road
George Town, Grand Cayman, KY1-9008, Cayman Islands

(c) Citizenship

Rock Springs Capital Management LP - Delaware
Rock Springs Capital LLC - Delaware
Rock Springs Capital Master Fund LP - Cayman Islands

(d) Title of Class of Securities

Common Stock, par value, \$0.0001 per share (the "Shares")

(e) CUSIP No.:

59045L106

Item 3. If this statement is filed pursuant to §§240.13d-1(b) or 240.13d-2(b) or (c), check whether the person filing is a:

Not Applicable.

- (a) Broker or dealer registered under section 15 of the Act (15 U.S.C. 78o);
- (b) Bank as defined in section 3(a)(6) of the Act (15 U.S.C. 78c);
- (c) Insurance company as defined in section 3(a)(19) of the Act (15 U.S.C. 78c);
- (d) Investment company registered under section 8 of the Investment Company Act of 1940 (15 U.S.C. 80a-8);
- (e) An investment adviser in accordance with §240.13d-1(b)(1)(ii)(E);
- (f) An employee benefit plan or endowment fund in accordance with §240.13d-1(b)(1)(ii)(F);
- (g) A parent holding company or control person in accordance with §240.13d-1(b)(1)(ii)(G);
- (h) A savings associations as defined in Section 3(b) of the Federal Deposit Insurance Act (12 U.S.C. 1813);
- (i) A church plan that is excluded from the definition of an investment company under section 3(c)(14) of the Investment Company Act of 1940 (15 U.S.C. 80a-3);
- (j) A non-U.S. institution in accordance with §240.13d-1(b)(1)(ii)(J);
- (k) A group, in accordance with §240.13d-1(b)(1)(ii)(K). If filing as a non-U.S. institution in accordance with §240.13d-1(b)(1)(ii)(J), please specify the type of institution: _____

Item 4. Ownership

Provide the following information regarding the aggregate number and percentage of the class of securities of the issuer identified in Item 1.

(a) Amount beneficially owned:

Rock Springs Capital Management LP: 1,326,800
Rock Springs Capital LLC: 1,326,800
Rock Springs Capital Master Fund LP: 1,326,800

(b) Percent of class:

Rock Springs Capital Management LP: 5.8%
Rock Springs Capital LLC: 5.8%
Rock Springs Capital Master Fund LP: 5.8%

(c) Number of shares as to which the person has:**(i) Sole power to vote or to direct the vote:**

Rock Springs Capital Management LP: 0
Rock Springs Capital LLC: 0
Rock Springs Capital Master Fund LP: 0

(ii) Shared power to vote or to direct the vote:

Rock Springs Capital Management LP: 1,326,800
Rock Springs Capital LLC: 1,326,800
Rock Springs Capital Master Fund LP: 1,326,800

(iii) Sole power to dispose or to direct the disposition of:

Rock Springs Capital Management LP: 0
Rock Springs Capital LLC: 0
Rock Springs Capital Master Fund LP: 0

(iv) Shared power to dispose or to direct the disposition of:

Rock Springs Capital Management LP: 1,326,800
Rock Springs Capital LLC: 1,326,800
Rock Springs Capital Master Fund LP: 1,326,800

Item 5. Ownership of Five Percent or Less of a Class

Not Applicable.

If this statement is being filed to report the fact that as of the date hereof the reporting person has ceased to be the beneficial owner of more than five percent of the class of securities, check the following o

Item 6. Ownership of More Than Five Percent on Behalf of Another Person

Not Applicable.

Item 7. Identification and Classification of the Subsidiary which Acquired the Security Being Reported on by the Parent Holding Company or Control Person

Not Applicable. Please see response to Item 2.

Item 8. Identification and Classification of Members of the Group

Not Applicable.

Item 9. Notice of Dissolution of Group

Not Applicable.

Item 10. Certification

By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect.

SIGNATURE

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Date: February 14, 2018

Rock Springs Capital Management LP

By: Graham McPhail

Name: Graham McPhail

Title: Managing Member

Rock Springs Capital LLC

By: Rock Springs Capital Management LP

By: Graham McPhail

Name: Graham McPhail

Title: Managing Member

Rock Springs Capital Master Fund LP

By: Rock Springs Capital Management LP

By: Graham McPhail

Name: Graham McPhail

Title: Managing Member

JOINT FILING AGREEMENT

The undersigned acknowledge and agree that the foregoing statement on Schedule 13G/A is filed on behalf of each of the undersigned and that all subsequent amendments to this statement on Schedule 13G/A shall be filed on behalf of each of the undersigned without the necessity of filing additional joint filing agreements. The undersigned acknowledge that each shall be responsible for the timely filing of such amendments, and for the completeness and accuracy of the information concerning him or it contained herein and therein, but shall not be responsible for the completeness and accuracy of the information concerning the others, except to the extent that he or it knows or has reason to believe that such information is inaccurate.

Date: February 14, 2018

Rock Springs Capital Management LP

By: Graham McPhail

Name: Graham McPhail

Title: Managing Member

Rock Springs Capital LLC

By: Rock Springs Capital Management LP

By: Graham McPhail

Name: Graham McPhail

Title: Managing Member

Rock Springs Capital Master Fund LP

By: Rock Springs Capital Management LP

By: Graham McPhail

Name: Graham McPhail

Title: Managing Member