UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, DC 20549

SCHEDULE 13D

(Rule 13d-101)

Information to be Included in Statements Filed Pursuant to § 240.13d-1(a) and Amendments Thereto Filed Pursuant to § 240.13d-2(a)

Under the Securities Exchange Act of 1934 (Amendment No. 2)

MERSANA THERAPEUTICS, INC.

(Name of Issuer)

Common Stock, \$0.0001 par value per share (Title of Class of Securities)

> 59045L106 (CUSIP Number)

Bain Capital Life Sciences Investors, LLC
200 Clarendon Street
Boston, MA 02116
617-516-2000
(Name, Address and Telephone Number of Person Authorized to Receive Notices and Communications)

December 29, 2021 (Date of Event Which Requires Filing of This Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this
schedule because of §§ 240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the following box. \square

Note. Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See § 240.13d-7 for other parties to whom copies are to be sent.

The information required on 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, as amended ("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).

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This Amendment No. 2 to Schedule 13D relates to the Common Stock of Mersana Therapeutics, Inc. and amends the initial statement on Schedule 13D filed by Bain Capital Life Sciences Fund II, L.P. and BCIP Life Sciences Associates, LP on April 17, 2020, as amended by Amendment No. 1 filed on January 12, 2021 (the "Initial Statement" and, as further amended by this Amendment No. 2, the "Schedule 13D"). Capitalized terms used but not defined herein shall have the meanings ascribed to them in the Initial Statement.

Item 2. Identity and Background

Item 2 of the Initial Statement is hereby amended and restated as follows:

(a) This Schedule 13D is being filed jointly by Bain Capital Life Sciences Fund II, L.P., a Cayman exempted limited partnership ("BCLS II"), BCIP Life Sciences Associates, LP, a Delaware limited partnership ("BCLS II Investco" and, together with BCLS II and BCIPLS, the "Reporting Persons").

Bain Capital Life Sciences Investors, LLC, a Delaware limited liability company ("BCLSI"), is the manager of Bain Capital Life Sciences Investors II, LLC, a Cayman limited liability company ("BCLSI II"), which is the general partner of BCLS II.

Boylston Coinvestors, LLC, a Delaware limited liability company ("Boylston"), is the general partner of BCIPLS. BCLSI governs the investment strategy and decision-making process with respect to investments held by BCIPLS.

BCLS II Investco (GP), LLC, a Delaware limited liability company ("BCLS II Investco GP" and, together with the Reporting Persons, BCLSI, BCLSI II and Boylston, the "Bain Capital Life Sciences Entities"), whose manager is BCLS II, is the general partner of BCLS II Investco.

As a result, BCLSI may be deemed to share voting and dispositive power with respect to the securities held by the Reporting Persons.

The Reporting Persons have entered into a Joint Filing Agreement, dated January 3, 2022, pursuant to which the Reporting Persons have agreed to file this Schedule 13D jointly in accordance with the provisions of Rule 13d-1(k)(1) promulgated under the Act.

- (b) The principal business address for each of the Bain Capital Life Sciences Entities is 200 Clarendon Street, Boston, MA 02116.
- (c) Each of the Bain Capital Life Sciences Entities is principally engaged in the business of investment in securities.
- (d) During the last five years, none of the Bain Capital Life Sciences Entities have been convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors).
- (e) During the last five years, none of the Bain Capital Life Sciences Entities have been a party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding was or is subject to a judgment, decree or final order enjoining future violation of, or prohibiting or mandating activities subject to, federal or state securities laws or finding any violation with respect to such laws.

(f) BCLS II and BCLSI II are organized under the laws of the Cayman Islands. BCIPLS, BCLS II Investco, BCLSI, Boylston and BCLS II Investco GP are organized under the laws of the State of Delaware.

Item 3. Source and Amount of Funds or Other Consideration

Item 3 of the Initial Statement is hereby amended and supplemented to add the following:

On December 29, 2021, BCLS II Investco purchased 875,000 shares of Common Stock at a purchase price of \$5.75 per share. On December 30, 2021, BCLS II Investco purchased 815,000 shares of Common Stock at a purchase price of \$6.15 per share. The shares of Common Stock were purchased through the Issuer's At-the-Market ("ATM") facility. Cowen and Company, LLC acted as sales agent for the ATM facility. BCLS II Investco used its own working capital to acquire the shares of Common Stock.

Item 5. Interest in Securities of the Issuer

Item 5 of the Initial Statement is hereby amended and restated as follows:

The information set forth in Items 2 and 3 and on the cover pages of this Schedule 13D is incorporated by reference in its entirety into this Item 5.

- (a) (c) As of the date hereof, BCLS II holds 3,294,423 shares of Common Stock, representing approximately 4.5% of the outstanding shares of Common Stock, BCIPLS holds 401,244 shares of Common Stock, representing approximately 0.5% of the outstanding shares of Common Stock, and BCLS II Investco holds 1,690,000 shares of Common Stock, representing approximately 2.3% of the outstanding shares of Common Stock. As a result of the foregoing and the relationships described in Item 2(a) of this Schedule 13D, the Reporting Persons may be deemed to beneficially own in the aggregate 5,385,667 shares of Common Stock, representing approximately 7.3% of the outstanding shares of Common Stock. The percentage of the outstanding shares of Common Stock held by the Reporting Persons is based on (i) 71,911,833 shares of Common Stock outstanding as of November 5, 2021, as reported by the Issuer in its Quarterly Report on Form 10-Q for the quarter ended September 30, 2021 and (ii) the issuance and sale of an aggregate of 1,690,000 shares of Common Stock under the Issuer's ATM facility.
- (d) Except as otherwise described in this Item 5, no one other than the Reporting Persons has the right to receive, or the power to direct the receipt of, dividends from, or the proceeds from the sale of, any of the Common Stock beneficially owned by the Reporting Persons as described in this Item 5.
- (e) Not applicable.

Item 7. Material to be Filed as Exhibits

Item 7 of the Initial Statement is hereby amended and supplemented to add the following:

Exhibit B Joint Filing Agreement, dated January 3, 2022

SIGNATURES

After reasonable inquiry and to the best of its knowledge and belief, the undersigned certifies that the information set forth in this statement is true, complete and correct.

Dated: January 3, 2022

Bain Capital Life Sciences Fund II, L.P.

By: Bain Capital Life Sciences Investors II, LLC, its general partner

By: Bain Capital Life Sciences Investors, LLC, its manager

By: /s/ Andrew Hack

Name: Andrew Hack Title: Managing Director

BCIP Life Sciences Associates, LP

By: Boylston Coinvestors, LLC, its general partner

By: /s/ Andrew Hack

Name: Andrew Hack Title: Authorized Signatory

BCLS II Investco, LP

By: BCLS II Investco (GP), LLC, its general partner

By: Bain Capital Life Sciences Fund II, L.P., its manager

By: Bain Capital Life Sciences Investors II, LLC, its general partner

By: Bain Capital Life Sciences Investors, LLC, its manager

By: /s/ Andrew Hack

Name: Andrew Hack Title: Managing Director

AGREEMENT REGARDING THE JOINT FILING OF SCHEDULE 13D

The undersigned being duly authorized thereunto, hereby execute this agreement as an exhibit to this Schedule 13D to evidence the agreement of the below-named parties in accordance with the rules promulgated pursuant to the Securities Exchange Act of 1934, as amended, to file this Schedule 13D (including amendments thereto) jointly on behalf of each such party.

Dated: January 3, 2022

Bain Capital Life Sciences Fund II, L.P.

By: Bain Capital Life Sciences Investors II, LLC, its general partner

By: Bain Capital Life Sciences Investors, LLC, its manager

By: /s/ Andrew Hack

Name: Andrew Hack Title: Managing Director

BCIP Life Sciences Associates, LP

By: Boylston Coinvestors, LLC, its general partner

By: /s/ Andrew Hack

Name: Andrew Hack Title: Authorized Signatory

BCLS II Investco, LP

By: BCLS II Investco (GP), LLC, its general partner

By: Bain Capital Life Sciences Fund II, L.P., its manager

By: Bain Capital Life Sciences Investors II, LLC, its general partner

By: Bain Capital Life Sciences Investors, LLC, its manager

By: /s/ Andrew Hack

Name: Andrew Hack Title: Managing Director