UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM S-3

REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

MERSANA THERAPEUTICS, INC.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of incorporation or organization)

04-3562403 (I.R.S. Employer Identification Number)

840 Memorial Drive Cambridge, MA 02139 (617) 498-0020

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Anna Protopapas President and Chief Executive Officer Mersana Therapeutics, Inc. 840 Memorial Drive Cambridge, MA 02139 (617) 498-0020

(Name, address, including zip code, and telephone number, including area code, of agent for service)

With copies to:

Marc Rubenstein, Esq.

Ropes & Gray LLP Prudential Tower 800 Boylston Street Boston, MA 02199 (617) 951-7000

Approximate date of commencement of proposed sale to the public: As soon as practicable after this Registration Statement becomes effective.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box: o

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box: x

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. x 333-238140

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. o

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box. o

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box. o

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "scelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer o Non-accelerated filer o Accelerated filer x Smaller reporting company x Emerging growth company x

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided to Section 7(a)(2)(B) of the Securities Act. x

CALCULATION OF REGISTRATION FEE

(1) Based on the public offering price. The registrant previously registered securities at an aggregate offering price not to exceed \$25,000,000 on a Registration Statement on Form S-3 (File No. 333-238140), which was declared effective on May 15, 2020. In accordance with Rule 462(b) promulgated under the Securities Act, an additional amount of securities having a proposed maximum aggregate offering price of \$24,800,000 is hereby registered.

The Registration Statement shall become effective upon filing in accordance with Rule 462(b) promulgated under the Securities Act of 1933, as amended.

EXPLANATORY NOTE

This Registration Statement is being filed by Mersana Therapeutics, Inc., a Delaware corporation (the "Registrant"), pursuant to Rule 462(b) under the Securities Act of 1933, as amended (the "Securities Act"), and General Instruction IV.A. to Form S-3. The contents of the Registration Statement on Form S-3 (File No. 333-238140) filed by the Registrant with the Securities and Exchange Commission (the "Commission") pursuant to the Securities Act, which was declared effective by the Commission on May 15, 2020, are incorporated by reference into this Registration Statement.

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 16. Exhibits and Financial Statements Schedules.

(a) *Exhibits*. All exhibits filed with or incorporated by reference in the Registration Statement on Form S-3 (File No. 333-238140) are incorporated by reference into, and shall be deemed a part of, this Registration Statement, and the following additional exhibits are filed herewith, as part of this Registration Statement:

Exhibit Number	Description of Exhibit		
5.1	Opinion of Ropes & Gray LLP		
23.1	Consent of Ernst & Young LLP		
23.2	Consent of Ropes & Gray LLP (included in Exhibit 5.1)		
24.1*	Power of Attorney		

^{*} Previously filed on the signature page to the Registrant's Registration Statement on Form S-3, as amended (File No. 333-238140), originally filed with the Securities and Exchange Commission on May 8, 2020 and incorporated by reference herein.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Cambridge, Commonwealth of Massachusetts on May 8, 2020

MERSANA THERAPEUTICS, INC.

By: /s/ Brian DeSchuytner

Brian DeSchuytner

Senior Vice President, Finance & Product Strategy

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement on Form S-3 has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date	
*	President and Chief Executive Officer and Director		
Anna Protopapas	(Principal Executive Officer)	May 28, 2020	
/s/ Brian DeSchuytner	Senior Vice President, Finance & Product Strategy		
Brian DeSchuytner	(Principal Financial Officer)	May 28, 2020	
*	Vice President, Controller (Principal Accounting Officer)		
Ashish Mandelia	-	May 28, 2020	
*			
David Mott	Director	May 28, 2020	
*			
Lawrence Alleva	Director	May 28, 2020	
*			
Willard H. Dere, M.D.	Director	May 28, 2020	
*			
Andrew A. F. Hack, M.D., Ph.D.	Director	May 28, 2020	
*			
Kristen Hege, M.D.	Director	May 28, 2020	
*	_		
Martin Huber, M.D.	Director	May 28, 2020	
*By: /s/ Brian DeSchuytner			
Brian DeSchuytner Attorney-in-Fact			
Attorney-in-Pact			
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ROPES & GRAY LLP PRUDENTIAL TOWER 800 BOYLSTON STREET BOSTON, MA 02199-3400 WWW.ROPESGRAY.COM

May 28, 2020

Mersana Therapeutics, Inc. 840 Memorial Drive Cambridge, MA 02139

Re: Registration of Securities by Mersana Therapeutics, Inc.

Ladies and Gentlemen:

We have acted as counsel to Mersana Therapeutics, Inc., a Delaware corporation (the "<u>Company</u>"), in connection with the registration statement on Form S-3 (the "<u>Registration Statement</u>") filed on the date hereof by the Company with the Securities and Exchange Commission (the "<u>Commission</u>") pursuant to Rule 462(b) under the Securities Act of 1933, as amended (the "<u>Securities Act</u>"), relating to the proposed issuance and sale from time to time pursuant to Rule 415 under the Securities Act of shares of the Company's common stock, \$0.0001 par value per share (the "<u>Common Stock</u>"). The Registration Statement incorporates by reference the contents of the Company's registration statement on Form S-3 (File No. 333-238140), which was declared effective by the Commission on May 15, 2020, including the base prospectus dated May 15, 2020.

In connection with this opinion letter, we have examined such certificates, documents and records and have made such investigation of fact and such examination of law as we have deemed appropriate in order to enable us to render the opinions set forth herein. In conducting such investigation, we have relied, without independent verification, upon certificates of officers of the Company, public officials and other appropriate persons.

The opinions expressed below are limited to the Delaware General Corporation Law.

Based upon and subject to the foregoing, and the assumptions, qualifications and limitations set forth below, we are of the opinion that when (i) the issuance and sale of any shares of Common Stock have been duly authorized by all necessary corporate action of the Company and (ii) such shares have been issued and delivered against payment of the purchase price therefor (in an amount in excess of the par value thereof) in accordance with the applicable purchase, underwriting or other agreement, and as contemplated by the Registration Statement, such shares of Common Stock will be validly issued, fully paid and nonassessable.

In rendering the opinions set forth above, we have assumed that (i) the Registration Statement will have become effective under the Securities Act, a prospectus supplement will have been prepared and filed with the Commission describing the Common Stock offered thereby and such shares of Common Stock will have been issued and sold in accordance with the terms of such prospectus supplement; (ii) a definitive purchase, underwriting, or similar agreement pursuant to which such shares of Common Stock may be issued, will have been duly authorized, executed and delivered by the Company and the other parties thereto; (iii) at the time of the issuance of any shares

of Common Stock, the Company will be a validly existing corporation under the law of its jurisdiction of incorporation; (iv) the number of shares of Common Stock sold pursuant to the Registration Statement, together with the number of shares outstanding or reserved at the time of issuance, will not exceed the respective number of shares authorized by the Company's certificate of incorporation in effect at the time of such issuance; and (v) all the foregoing actions to be taken by the Company will have been taken so as not to violate any applicable law and so as to comply with all requirements and restrictions imposed by any court or governmental or regulatory body having jurisdiction over the Company or any of its property.

Our opinions set forth above are subject to (i) bankruptcy, insolvency, reorganization, moratorium, fraudulent conveyance and similar laws affecting the rights and remedies of creditors generally and (ii) general principles of equity.

We hereby consent to the filing of this opinion letter as an exhibit to the Registration Statement and to the use of our name therein and in the related prospectus under the caption "Legal Matters." In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission thereunder.

Very truly yours,

/s/ Ropes & Gray LLP

Ropes & Gray LLP

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statement on Form S-3 filed pursuant to Rule 462(b) of the Securities Act of 1933: (a) of the reference to our firm under the caption "Experts" and (b) to the incorporation by reference of our report dated February 28, 2020, with respect to the consolidated financial statements of Mersana Therapeutics, Inc. included and incorporated by reference, respectively, in the Registration Statement (Form S-3 No. 333-238140) and related Prospectus and Prospectus Supplement of Mersana Therapeutics, Inc. for the registration of its common stock, preferred stock, warrants, or units.

/s/ Ernst & Young LLP

Boston, Massachusetts May 28, 2020