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June 1, 2017

VIA EDGAR

U.S. Securities and Exchange Commission
Division of Corporation Finance
Office of Healthcare and Insurance
100 F Street, N.E.
Washington, D.C. 20549

Attention: Mary Beth Breslin — Legal
Keira Nakada/ Sharon Blume — Accounting

Re: Mersana Therapeutics, Inc.
Amendment No. 2 to Draft Registration Statement on Form S-1
Submitted May 12, 2017
CIK No. 0001442836

Ladies and Gentlemen:

On behalf of Mersana Therapeutics, Inc. (the “Company”), and pursuant to the applicable provisions of the Securities Act of 1933, as amended (the “Securities Act”), and the rules and regulations promulgated thereunder, we are filing with the Securities and Exchange Commission (the “Commission”), via EDGAR, a complete copy (including exhibits) of a Registration Statement on Form S-1 (the “Registration Statement”). The Registration Statement reflects revisions to the Company’s draft Registration Statement (the “Draft Registration Statement”) confidentially submitted to the Commission on March 17, 2017, and amended on April 21, 2017 and May 12, 2017, made in response to the comment letter to Anna Protopapas of the Company dated May 25, 2017 from the staff of the Commission (the “Staff”), as well as certain other updated information. The Company confirms that as of the date of this letter it continues to be an “emerging growth company,” as defined in Section 2(a)(19) of the Securities Act.

For your convenience, the Company is supplementally providing to the Staff three (3) copies of the Registration Statement, which have been marked to indicate the changes from the Draft Registration Statement, as confidentially submitted with the Commission on May 12, 2017.

For reference purposes, the comment contained in the Staff’s letter dated May 25, 2017 is reproduced below in italics and the corresponding response is shown below the comment. The reference to a page number in the Company’s response is to the page number in the Registration Statement.

Prospectus Summary
Overview, page 1

1. *We note your response to prior comment 1. We do not object to the inclusion of the undisclosed product candidate programs in the graphic in the Business section or the narrative discussion following the graphic in the Summary; however, we continue to believe that including these programs in the prominent graphic on page 1, in the forepart of the prospectus, is not appropriate given that these candidates are undisclosed, remain in the discovery phase, and may never reach the preclinical development stage or any of the clinical stages. The graphic suggests that these undisclosed, discovery-phase programs will eventually progress through the stages of development that are reflected in the graphic. Please revise to remove these from the graphic on page 1. See Item 503(a) of Regulation S-K and Securities Act Rule 421(d)(3). Alternatively, to the extent you continue to believe that including these programs in the graphic is appropriate given their materiality to your business, you should identify and describe each of these candidates in the appropriate section of your prospectus.*

Response to Comment 1:

In response to the Staff’s comment, the Company has revised the graphic on page 1 of the Registration Statement.

* * *

We hope that the foregoing has been responsive to the Staff’s comment. If you have any questions about this letter or require any further information, please call the undersigned at (617) 951-7826 or William J. Michener of our offices at (617) 951-7247.

Very truly yours,

/s/ Marc A. Rubenstein

Marc A. Rubenstein

cc: Eva M. Jack (Mersana Therapeutics, Inc.)
William J. Michener (Ropes & Gray LLP)