

**PROSPECTUS SUPPLEMENT**  
**(To Prospectus Dated February 28, 2024)****\$100,000,000****Common Stock**

We entered into a sales agreement, or the sales agreement, with Cowen and Company, LLC, or TD Cowen, on February 28, 2024 pursuant to which we may issue and sell, from time to time, shares of our common stock, \$0.0001 per share, having an aggregate offering price of up to \$100,000,000.

Our common stock is traded on The Nasdaq Global Select Market under the symbol “MRSN.” On February 27, 2024, the last reported sale price of our common stock was \$4.27 per share.

Sales of our common stock, if any, under this prospectus supplement and the accompanying prospectus will be made in sales deemed to be “at the market offerings” as defined in Rule 415(a)(4) promulgated under the Securities Act of 1933, as amended, or the Securities Act. TD Cowen is not required to sell any specific amount of securities but will act as our sales agent using commercially reasonable efforts consistent with its normal trading and sales practices, on mutually agreed terms between TD Cowen and us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

The compensation to TD Cowen for sales of common stock sold pursuant to the sales agreement will be an amount up to 3.0% of the gross proceeds of any shares of common stock sold under the sales agreement. In connection with the sale of the common stock on our behalf, TD Cowen will be deemed to be an “underwriter” within the meaning of the Securities Act and the compensation of TD Cowen will be deemed to be underwriting commissions or discounts. We have also agreed to provide indemnification and contribution to TD Cowen with respect to certain liabilities, including liabilities under the Securities Act or the Securities Exchange Act of 1934, as amended, or the Exchange Act.

**Our business and an investment in our common stock involve significant risks. These risks are described under the caption “Risk Factors” beginning on page S-5 of this prospectus supplement and in the documents incorporated by reference into this prospectus supplement and the accompanying prospectus.**

**Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the accuracy or adequacy of this prospectus supplement or the accompanying prospectus. Any representation to the contrary is a criminal offense.**

**TD Cowen**February 28, 2024

---

**TABLE OF CONTENTS**  
**PROSPECTUS SUPPLEMENT**

	<u>Page</u>
<a href="#"><u>ABOUT THIS PROSPECTUS SUPPLEMENT</u></a>	<a href="#"><u>S-1</u></a>
<a href="#"><u>FORWARD-LOOKING STATEMENTS</u></a>	<a href="#"><u>S-3</u></a>
<a href="#"><u>PROSPECTUS SUPPLEMENT SUMMARY</u></a>	<a href="#"><u>S-3</u></a>
<a href="#"><u>RISK FACTORS</u></a>	<a href="#"><u>S-5</u></a>
<a href="#"><u>USE OF PROCEEDS</u></a>	<a href="#"><u>S-7</u></a>
<a href="#"><u>DIVIDEND POLICY</u></a>	<a href="#"><u>S-8</u></a>
<a href="#"><u>DILUTION</u></a>	<a href="#"><u>S-9</u></a>
<a href="#"><u>PLAN OF DISTRIBUTION</u></a>	<a href="#"><u>S-10</u></a>
<a href="#"><u>LEGAL MATTERS</u></a>	<a href="#"><u>S-12</u></a>
<a href="#"><u>EXPERTS</u></a>	<a href="#"><u>S-12</u></a>
<a href="#"><u>WHERE YOU CAN FIND MORE INFORMATION</u></a>	<a href="#"><u>S-13</u></a>
<a href="#"><u>INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE</u></a>	<a href="#"><u>S-13</u></a>

**PROSPECTUS**

<a href="#"><u>ABOUT THIS PROSPECTUS</u></a>	<a href="#"><u>1</u></a>
<a href="#"><u>WHERE YOU CAN FIND MORE INFORMATION</u></a>	<a href="#"><u>2</u></a>
<a href="#"><u>INCORPORATION BY REFERENCE</u></a>	<a href="#"><u>2</u></a>
<a href="#"><u>FORWARD-LOOKING STATEMENTS</u></a>	<a href="#"><u>3</u></a>
<a href="#"><u>RISK FACTORS</u></a>	<a href="#"><u>4</u></a>
<a href="#"><u>MERSANA THERAPEUTICS, INC</u></a>	<a href="#"><u>5</u></a>
<a href="#"><u>USE OF PROCEEDS</u></a>	<a href="#"><u>6</u></a>
<a href="#"><u>DESCRIPTION OF CAPITAL STOCK</u></a>	<a href="#"><u>7</u></a>
<a href="#"><u>DESCRIPTION OF WARRANTS</u></a>	<a href="#"><u>11</u></a>
<a href="#"><u>DESCRIPTION OF UNITS</u></a>	<a href="#"><u>13</u></a>
<a href="#"><u>FORMS OF SECURITIES</u></a>	<a href="#"><u>14</u></a>
<a href="#"><u>PLAN OF DISTRIBUTION</u></a>	<a href="#"><u>16</u></a>
<a href="#"><u>LEGAL MATTERS</u></a>	<a href="#"><u>18</u></a>
<a href="#"><u>EXPERTS</u></a>	<a href="#"><u>18</u></a>

## ABOUT THIS PROSPECTUS SUPPLEMENT

This document is in two parts. The first part is the prospectus supplement, which describes the specific terms of the common stock we are offering and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference herein. The second part, the accompanying prospectus, provides more general information. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. Before you invest, you should carefully read this prospectus supplement, the accompanying prospectus, all information incorporated by reference herein and therein, as well as the additional information described under “Where You Can Find More Information” on page [S-2](#) of this prospectus supplement. These documents contain information you should consider when making your investment decision. This prospectus supplement may add, update or change information contained in the accompanying prospectus. To the extent there is a conflict between the information contained in this prospectus supplement, on the one hand, and the information contained in the accompanying prospectus or any document incorporated by reference therein filed prior to the date of this prospectus supplement, on the other hand, you should rely on the information in this prospectus supplement. If any statement in one of these documents is inconsistent with a statement in another document having a later date - for example, a document filed after the date of this prospectus supplement and incorporated by reference in this prospectus supplement and the accompanying prospectus - the statement in the document having the later date modifies or supersedes the earlier statement.

You should rely only on the information contained or incorporated by reference in this prospectus supplement, the accompanying prospectus and in any free writing prospectuses we may provide to you in connection with this offering. We have not, and TD Cowen has not, authorized any other person to provide you with any information that is different. If anyone provides you with different or inconsistent information, you should not rely on it. We are offering to sell, and seeking offers to buy, shares of our common stock only in jurisdictions where offers and sales are permitted. The distribution of this prospectus supplement and the offering of the common stock in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus supplement must inform themselves about, and observe any restrictions relating to, the offering of the common stock and the distribution of this prospectus supplement outside the United States. This prospectus supplement and the accompanying prospectus do not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus supplement by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference in the accompanying prospectus were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

“Mersana Therapeutics,” “Mersana,” the “Company,” “we,” “us,” “our” and similar names refer to Mersana Therapeutics, Inc. and its consolidated subsidiary, unless we state otherwise or the context otherwise requires.

## FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus and the information incorporated by reference herein and therein include forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act. These statements are based on expectations, estimates, forecasts and projections about the industry in which we operate and the beliefs and assumptions of our management.

The words “aim,” “anticipate,” “believe,” “continue,” “could,” “estimate,” “expect,” “goal,” “intend,” “may,” “on track,” “plan,” “possible,” “potential,” “predict,” “project,” “seek,” “should,” “target,” “will,” “would” or the negative of these terms and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. These forward-looking statements include, among other things, statements about:

- the initiation, cost, timing, progress and results of our current and future research and development activities, preclinical studies and clinical trials, including our Phase 1 clinical trials of XMT-1660 and XMT-2056;
- the potential benefits of our existing strategic collaborations and our ability to enter into additional selective strategic collaborations;
- the adequacy of our inventory of XMT-1660 and XMT-2056 to support our ongoing and planned clinical trials, as well as the outcome of planned manufacturing runs;
- the adequacy of our inventory of Dolasynthen and Immunosynthen platform materials needed for the manufacture of our own product candidates and for the product candidates of our collaborators;
- the timing of, and our ability to obtain and maintain, regulatory approvals for our product candidates;
- our ability to quickly and efficiently identify and develop additional product candidates and to innovate with respect to our existing or future antibody drug candidate platforms;
- our ability to advance any product candidate into, and successfully complete, clinical trials;
- unmet needs of patients with cancer indications;
- our intellectual property position, including with respect to our trade secrets;
- our strategic priorities; and
- our estimates regarding expenses, future revenues, capital requirements, the sufficiency of our current and expected cash resources and our need for additional financing.

We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. We have included important factors in the cautionary statements included in this prospectus supplement, particularly in the “Risk Factors” section in this prospectus supplement, and in the sections entitled “Risk Factors” and “Risk Factor Summary” incorporated herein by reference to our most recent Annual Report on Form 10-K, Quarterly Report on Form 10-Q, and our other filings we make from time to time with the Securities and Exchange Commission, or SEC, that are incorporated by reference in this prospectus supplement, that could cause actual results or events to differ materially from the forward-looking statements that we make. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, collaborations, joint ventures or investments that we may make or enter into.

You should read this prospectus supplement, the accompanying prospectus and the information incorporated by reference herein and therein completely and with the understanding that our actual future results may be materially different from what we expect. We do not assume any obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by applicable law.

## PROSPECTUS SUPPLEMENT SUMMARY

*This summary highlights selected information contained elsewhere in this prospectus supplement and the accompanying prospectus and in the documents we incorporate by reference herein and therein. This summary is not complete and does not contain all of the information that you should consider before investing in our common stock. You should read this prospectus supplement and the accompanying prospectus, including the information incorporated by reference and any free writing prospectus we have authorized for use in connection with this offering, in their entirety. Investors should carefully consider the information set forth under “Risk Factors” in this prospectus supplement, along with our financial statements and notes to those financial statements and the other information incorporated by reference in this prospectus supplement and the accompanying prospectus.*

### Overview

We are a clinical-stage biopharmaceutical company focused on developing antibody-drug conjugates, or ADCs, that offer a clinically meaningful benefit for cancer patients with significant unmet need. We have leveraged decades of industry learnings in the ADC field to develop two proprietary and differentiated ADC platforms: Dolasynthen and Immunosynthen. Dolasynthen is our cytotoxic ADC platform that is designed to generate site-specific, homogeneous ADCs. Dolasynthen allows for drug-to-antibody ratios to be optimized for specific targets and utilizes a proprietary auristatin payload that has been shown clinically to avoid dose-limiting severe neutropenia, peripheral neuropathy and ocular toxicity. Immunosynthen is our proprietary STING (stimulator of interferon genes)-agonist platform that is designed to generate systemically administered ADCs that locally activate STING signaling in both antigen-expressing tumor cells and in tumor-resident immune cells to unlock the anti-tumor potential of innate immune stimulation. We are utilizing these platforms to generate ADC product candidates for our company and collaborators that we believe have the potential to improve upon today’s standards of care.

Although currently approved ADCs are providing substantial benefits to certain patient populations and more product candidates are in development, we believe significant platform and payload limitations are preventing this therapeutic class from realizing its full potential. We are focused on developing novel platforms and payloads that can be utilized to create ADCs with meaningfully improved safety and efficacy for patients with a range of cancers.

### Our Corporate Information

We were incorporated in the state of Delaware in February 2002 as Nanopharma Corp., and we changed our name to Mersana Therapeutics, Inc. in November 2005. Our principal executive offices are located at 840 Memorial Drive, Cambridge, Massachusetts 02139, and our telephone number is (617) 498-0020. Our Internet website is [www.mersana.com](http://www.mersana.com). The information contained on, or that can be accessed through, our website is not a part of this prospectus supplement. We have included our website address in this prospectus supplement solely as an inactive textual reference.

<b>THE OFFERING</b>	
Common stock offered by us	Shares of common stock having an aggregate offering price of up to \$100,000,000.
Common stock to be outstanding immediately after this offering	Up to 144,130,948 shares of common stock, assuming the sale of 23,419,203 shares of our common stock in this offering at an offering price of \$4.27 per share, which was the last reported sale price of our common stock on the Nasdaq Global Select Market on February 27, 2024. The actual number of shares issued will vary depending on the sales price under this offering.
Manner of offering	“At the market offering” that may be made from time to time through our agent, TD Cowen. See “Plan of Distribution” on page <a href="#">S-10</a> of this prospectus supplement.
Use of proceeds	We intend to use the net proceeds from this offering primarily for general corporate purposes, which may include, without limitation, research and development expenditures, clinical development of our product candidates, the acquisition or in-licensing of products or product candidates, business or technologies, collaborations, working capital and capital expenditures. See “Use of Proceeds” on page <a href="#">S-7</a> of this prospectus supplement.
Risk factors	See “Risk Factors” beginning on page <a href="#">S-5</a> of this prospectus supplement and in the documents incorporated by reference in this prospectus supplement for a discussion of factors to consider carefully before deciding to invest in shares of our common stock.
Nasdaq Global Select Market symbol	“MRSN”
<p>The number of shares of our common stock that will be outstanding immediately after this offering as shown above is based on 120,711,745 shares of our common stock outstanding as of December 31, 2023. The number of shares outstanding as used throughout this prospectus supplement, unless otherwise indicated, excludes:</p> <ul style="list-style-type: none"> <li>• 10,902,845 shares of our common stock issuable upon the exercise of stock options outstanding as of December 31, 2023 at a weighted-average exercise price of \$7.42 per share;</li> <li>• 3,834,108 shares of our common stock issuable upon the vesting of restricted stock units outstanding as of December 31, 2023; and</li> <li>• 2,043,328, 1,170,752 and 364,283 shares of our common stock available for future issuance, as of December 31, 2023, under our 2017 Stock Incentive Plan, 2022 Inducement Stock Incentive Plan, and 2017 Employee Stock Purchase Plan, respectively, as well as any automatic increases in the number of shares of common stock reserved under our 2017 Stock Incentive Plan and 2017 Employee Stock Purchase Plan.</li> </ul> <p>Unless otherwise indicated, all information in this prospectus supplement assumes no exercise of the outstanding stock options or vesting of the outstanding restricted stock units described above.</p>	

## RISK FACTORS

*Investing in our common stock involves a high degree of risk. Before deciding whether to invest in our common stock, you should consider carefully the risks and uncertainties described below and under the section captioned “Risk Factors” contained in our most recent Annual Report on Form 10-K, Quarterly Report on Form 10-Q and other filings we make with the SEC from time to time, which are incorporated by reference herein in their entirety, together with other information in this prospectus supplement, the accompanying prospectus and the information incorporated by reference herein and therein and in any free writing prospectus that we may authorize for use in connection with this offering. If any of these risks actually occurs, our business, financial condition, results of operations or cash flow could suffer materially. In such event, the trading price of our common stock could decline and you might lose all or part of your investment.*

### **Risks Relating to this Offering**

***The trading price of our common stock is highly volatile, which could result in substantial losses for our stockholders.***

The trading price of our common stock has been, and is likely to continue to be, highly volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control. For example, during the period from February 27, 2021 to February 27, 2024, the closing price of our common stock ranged from a high of \$19.78 per share to a low of \$1.06 per share. The stock market in general and the market for smaller pharmaceutical and biopharmaceutical companies in particular have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. As a result of this volatility, you may not be able to sell your common stock at or above the price you paid for your common stock in this offering.

***The actual number of shares of common stock we will issue under the sales agreement and the gross proceeds resulting from those sales, at any one time or in total, is uncertain.***

Subject to certain limitations in the sales agreement and compliance with applicable law, we have the discretion to request TD Cowen to sell on our behalf shares of common stock at any time throughout the term of the sales agreement, and TD Cowen will use commercially reasonable efforts to sell the shares. The number of shares that are sold by TD Cowen after we request that sales be made will fluctuate based on the market price of our common stock during the sales period and limits we set with TD Cowen. Because the price per share of our common stock sold will fluctuate based on the market price of our common stock during the sales period, it is not possible to predict the number of shares of common stock that will ultimately be issued by us under the sales agreement or the amount of gross proceeds to be raised in connection with those sales. In addition, investors may experience a decline in the value of the shares they purchase in this offering as a result of sales made at prices lower than the prices they paid.

***If you purchase shares of common stock in this offering, you will suffer immediate dilution of your investment.***

The shares sold in this offering, if any, will be sold from time to time at various prices. However, the expected offering price of our common stock will be substantially higher than the net tangible book value per share of our common stock. Therefore, if you purchase shares of our common stock in this offering, you will pay a price per share that substantially exceeds our net tangible book value per share after this offering. Assuming that an aggregate of 23,419,203 shares of our common stock are sold at a price of \$4.27 per share pursuant to this prospectus, which was the last reported sale price of our common stock on the Nasdaq Global Select Market on February 27, 2024, for aggregate gross proceeds of \$100.0 million, after deducting commissions and estimated aggregate offering expenses payable by us, you will experience immediate dilution of \$3.34 per share, representing the difference between our as adjusted net tangible book value per share after giving effect to this offering and the assumed offering price of \$4.27 per share. To the extent options are exercised or outstanding restricted stock units vest, you may incur further dilution. For additional information on the dilution that you will experience immediately after this offering, see the section titled “Dilution.”

***You may experience future dilution as a result of future equity offerings.***

In order to raise additional capital, we may in the future offer additional shares of our common stock or other securities convertible into or exchangeable for our common stock at prices that may not be the same as the price per share in this offering. We may sell shares or other securities in any other offering at a price per share that is less than the price per share paid by investors in this offering, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock, or securities convertible or exchangeable into common stock, in future transactions may be higher or lower than the price per share paid by investors in this offering.

***We have broad discretion in the use of the net proceeds from this offering and may invest or spend the proceeds in ways with which you do not agree and in ways that may not yield a return on your investment.***

Although we currently intend to use the net proceeds from this offering in the manner described in the section titled "Use of Proceeds" in this prospectus supplement, our management will have broad discretion in the application of the net proceeds from this offering and could spend the proceeds in ways that do not improve our results of operations or enhance the value of our common stock. You will not have the opportunity to influence our decisions on how to use our net proceeds from this offering. The failure by our management to apply these funds effectively could result in financial losses that could harm our business, cause the price of our common stock to decline and delay the development of our product candidates. Pending their use, we may invest the net proceeds from this offering in a manner that does not produce income or that loses value.

***The common stock offered hereby will be sold in "at the market offerings," and investors who buy shares at different times will likely pay different prices.***

Investors who purchase shares in this offering at different times will likely pay different prices, and so may experience different outcomes in their investment results. We will have discretion, subject to market demand, to vary the timing, prices, and numbers of shares sold, and there is no minimum or maximum sales price. Investors may experience a decline in the value of their shares as a result of share sales made at prices lower than the prices they paid.



## USE OF PROCEEDS

We may issue and sell shares of our common stock in this offering having an aggregate offering price of up to \$100,000,000 from time to time under this prospectus supplement, before deducting sales agent commissions and expenses. Because there is no minimum offering amount required as a condition to close this offering, the actual total public offering amount, commissions and proceeds to us, if any, are not determinable at this time.

We expect to use the net proceeds, if any, from this offering to fund the clinical development of our product candidates, the acquisition or in-licensing of products or product candidates, business or technologies, or collaboration and for working capital, capital expenditures and other general corporate purposes.

This expected use of the net proceeds from this offering represents our intentions based upon our current plans and business conditions. The amounts and timing of our actual expenditures may vary significantly depending on numerous factors, including the progress of our development efforts, the status of and results from clinical trials, any collaborations that we may enter into with third parties for our product candidates, and any unforeseen cash needs. As a result, our management will retain broad discretion over the allocation of the net proceeds from this offering. We have no current agreements, commitments or understandings for any material acquisitions or licenses of any products, businesses or technologies.

Pending our use of the net proceeds from this offering, we intend to invest the net proceeds in a variety of capital preservation investments, including short-term, investment grade, interest bearing instruments and U.S. government securities.

**DIVIDEND POLICY**

We have never declared or paid any cash dividends on our common stock. We currently intend to retain earnings, if any, to finance the growth and development of our business. We do not intend to pay cash dividends in respect of our common stock in the foreseeable future. In addition, our loan and security agreement with Oxford Finance, LLC, as administrative agent, and the lenders from time to time party thereto, contains restrictive covenants that prohibit us, subject to certain exceptions, from paying dividends on our common stock. Payment of future dividends, if any, will be at the discretion of our board of directors and will depend on our financial condition, results of operations, capital requirements, restrictions contained in current or future financing instruments, provisions of applicable law and other factors the board deems relevant.

## DILUTION

If you invest in our common stock in this offering, your ownership interest will be diluted immediately to the extent of the difference between the price per share you pay in this offering and the net tangible book value per share of our common stock after giving effect to this offering.

Our net tangible book value as of December 31, 2023 was approximately \$36.9 million, or \$0.31 per share of common stock. Net tangible book value per share is calculated by subtracting our total liabilities from our total tangible assets, which is total assets less intangible assets, and dividing this amount by the 120,711,745 shares of common stock outstanding on December 31, 2023.

After giving effect to the assumed sale of our shares of common stock in the aggregate amount of \$100,000,000 at an assumed offering price of \$4.27 per share, the last reported sale price of our common stock on the Nasdaq Global Select Market on February 27, 2024, and after deducting commissions and estimated offering expenses payable by us, our as adjusted net tangible book value as of December 31, 2023 would have been \$133.6 million, or \$0.93 per share of common stock. This represents an immediate increase in the as adjusted net tangible book value of \$0.62 per share to our existing stockholders and an immediate dilution of \$3.34 per share to new investors in this offering. The following table illustrates this calculation on a per share basis.

Assumed offering price per share	\$4.27
Historical net tangible book value per share as of December 31, 2023	\$0.31
Increase in net tangible book value per share attributable to the offering	<u>\$0.62</u>
As adjusted net tangible book value per share after giving effect to the offering	<u>\$0.93</u>
Dilution per share to investors purchasing common stock in the offering	<u><u>\$3.34</u></u>

The as adjusted information is illustrative only and will adjust based on the actual price to the public, the actual number of shares sold and other terms of the offering determined at the times shares of our common stock are sold pursuant to this prospectus supplement and the accompanying prospectus. The as adjusted information assumes that all of our common stock in the aggregate amount of \$100,000,000 is sold at the assumed offering price of \$4.27 per share, the last reported sale price of our common stock on the Nasdaq Global Select Market on February 27, 2024. The shares sold in this offering, if any, will be sold from time to time at various prices.

Unless otherwise indicated, the table and discussion above excludes:

- 10,902,845 shares of our common stock issuable upon the exercise of stock options outstanding as of December 31, 2023 at a weighted-average exercise price of \$7.42 per share;
- 3,834,108 shares of our common stock issuable upon the vesting of restricted stock units outstanding as of December 31, 2023; and
- 2,043,328, 1,170,752 and 364,283 shares of our common stock available for future issuance, as of December 31, 2023, under our 2017 Stock Incentive Plan, 2022 Inducement Stock Incentive Plan, and 2017 Employee Stock Purchase Plan, respectively, as well as any automatic increases in the number of shares of common stock reserved under our 2017 Stock Incentive Plan and 2017 Employee Stock Purchase Plan.

To the extent that stock options are exercised, restricted stock units vest, we issue new awards under our equity incentive plans, or we issue additional shares of common stock in the future, there will be further dilution to investors purchasing shares in this offering.

## PLAN OF DISTRIBUTION

On February 28, 2024, we entered into a sales agreement with TD Cowen under which we may offer and sell our shares of common stock from time to time through TD Cowen acting as agent. In accordance with the terms of the sales agreement, under this prospectus supplement, we may, from time to time, issue and sell shares of our common stock having an aggregate offering price of up to \$100,000,000 through TD Cowen.

Prior to the entry into the sales agreement, we had entered into a sales agreement, or the prior sales agreement, with TD Cowen on November 7, 2022. The prior sales agreement provides for sales of shares of our common stock having an aggregate offering price of up to \$150,000,000 pursuant to a prospectus supplement that we filed on November 7, 2022, or the prior prospectus supplement. As of February 28, 2024, we have issued and sold an aggregate of 14,208,145 shares of common stock pursuant to the prior sales agreement and the prior prospectus supplement, for which we have received gross proceeds of approximately \$94.1 million, and approximately \$55.9 million remains unsold and available for sale under the prior prospectus supplement.

Sales of our common stock, if any, will be made at market prices by any method that is deemed to be an “at the market” offering as defined in Rule 415 under the Securities Act, including sales made directly on the Nasdaq Global Select Market or any other trading market for our common stock. If authorized by us in writing, TD Cowen may purchase shares of our common stock as principal.

TD Cowen will offer our common stock subject to the terms and conditions of the sales agreement on a daily basis or as otherwise agreed upon by us and TD Cowen. We will designate the maximum amount of common stock to be sold through TD Cowen on a daily basis or otherwise determine such maximum amount together with TD Cowen. Subject to the terms and conditions of the sales agreement, TD Cowen will use its commercially reasonable efforts to sell on our behalf all of the shares of common stock requested to be sold by us. We may instruct TD Cowen not to sell common stock if the sales cannot be effected at or above the price designated by us in any such instruction. TD Cowen or we may suspend the offering of our common stock being made through TD Cowen under the sales agreement upon proper notice to the other party. TD Cowen and we each have the right, by giving written notice as specified in the sales agreement, to terminate the sales agreement in each party’s sole discretion at any time.

The aggregate compensation payable to TD Cowen as sales agent will be up to 3.0% of the gross sales price of the shares sold through it pursuant to the sales agreement. We have also agreed to reimburse TD Cowen up to \$75,000 of TD Cowen’s actual outside legal expenses incurred by TD Cowen in connection with this offering. We have also agreed to reimburse TD Cowen for its FINRA counsel fees in an amount up to \$10,000. We estimate that the total expenses of the offering payable by us, excluding commissions payable to TD Cowen under the sales agreement, will be approximately \$200,000.

The remaining sales proceeds, after deducting any expenses payable by us and any transaction fees imposed by any governmental, regulatory, or self-regulatory organization in connection with the sales, will equal our net proceeds for the sale of such common stock.

TD Cowen will provide written confirmation to us following the close of trading on the Nasdaq Global Select Market on each day in which common stock is sold through it as sales agent under the sales agreement. Each confirmation will include the number of shares of common stock sold through it as sales agent on that day, the volume weighted-average price of the shares sold, the percentage of the daily trading volume and the net proceeds to us.

We will report at least quarterly the number of shares of common stock sold through TD Cowen under the sales agreement, the net proceeds to us and the compensation paid by us to TD Cowen in connection with the sales of common stock.

Until May 28, 2024, settlement for sales of common stock will occur, unless the parties agree otherwise, on the second business day that is also a trading day following the date on which any sales were made in return for payment of the net proceeds to us. After May 28, 2024, settlement for sales of common stock will occur, unless the parties agree otherwise, on the first business day that is also a trading day following the

date on which any sales were made in return for payment of the net proceeds to us. There is no arrangement for funds to be received in an escrow, trust or similar arrangement.

In connection with the sales of our common stock on our behalf, TD Cowen may be deemed to be an “underwriter” within the meaning of the Securities Act, and the compensation paid to TD Cowen may be deemed to be underwriting commissions or discounts. We have agreed in the sales agreement to provide indemnification and contribution to TD Cowen against certain liabilities, including liabilities under the Securities Act. As sales agent, TD Cowen will not engage in any transactions that stabilizes our common stock.

The sales agreement will be filed as an exhibit to a Current Report on Form 8-K and incorporated by reference into the registration statement of which this prospectus supplement is a part.

Our common stock is listed on the Nasdaq Global Select Market and trades under the symbol “MRSN.” The transfer agent of our common stock is Computershare Trust Company, N.A.

TD Cowen and/or its affiliates have provided, and may in the future provide, various investment banking and other financial services for us for which services they have received and, may in the future receive, customary fees.

**LEGAL MATTERS**

Unless the applicable prospectus indicates otherwise, the validity of the issuance of the securities in respect of which this prospectus is being delivered will be passed upon for us by Wilmer Cutler Pickering Hale and Dorr LLP, Boston, Massachusetts. TD Cowen is being represented in connection with this offering by Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., Boston, Massachusetts.

**EXPERTS**

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on [Form 10K for the year ended December 31, 2023](#), as set forth in their report, which is incorporated by reference in this prospectus and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP's reports, given on their authority as experts in accounting and auditing.

## WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov>. Copies of certain information filed by us with the SEC are also available on our website at <http://www.mersana.com/>. Our website is not a part of this prospectus supplement and is not incorporated by reference in this prospectus supplement.

This prospectus supplement is part of a registration statement that we filed with the SEC. The registration statement contains more information than this prospectus supplement and the accompanying prospectus regarding us and the securities, including certain exhibits and schedules. You can obtain a copy of the registration statement from the SEC at the address listed above or from the SEC's internet site.

## INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to incorporate by reference in this prospectus supplement and the accompanying prospectus much of the information we file with the SEC, which means that we can disclose important information to you by referring you to those publicly available documents. The information that we incorporate by reference in this prospectus supplement and the accompanying prospectus is considered to be part of this prospectus supplement and the accompanying prospectus. Because we are incorporating by reference future filings with the SEC, this prospectus supplement and the accompanying prospectus is continually updated and those future filings may modify or supersede some of the information included or incorporated in this prospectus supplement and the accompanying prospectus. This means that you must look at all of the SEC filings that we incorporate by reference to determine if any of the statements in this prospectus supplement, the accompanying prospectus or in any document previously incorporated by reference have been modified or superseded. This prospectus supplement and the accompanying prospectus incorporate by reference the documents listed below (File No. 001-38129) and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934 (in each case, other than those documents or the portions of those documents not deemed to be filed) until the offering of the securities offered hereby is terminated or completed.

- [Our Annual Report on Form 10-K for the year ended December 31, 2023](#);
- The information included in [our definitive proxy statement on Schedule 14A for the 2023 Annual Meeting of Stockholders, filed on April 28, 2023](#), to the extent incorporated by reference into Part III of the [Annual Report on Form 10-K for the fiscal year ended December 31, 2022](#);
- Our Current Report on Form 8-K filed with the SEC on [January 5, 2024](#) (solely for Item 8.01); and
- The description of our common stock contained in [our Registration Statement on Form 8-A filed on June 23, 2017](#) as the description therein has been updated and superseded by the description of our capital stock contained in [Exhibit 4.3](#) to our Annual Report on Form 10-K for the year ended December 31, 2022, and including any amendments and reports filed for the purpose of updating such description.

You may request a copy of these filings, at no cost, by writing or telephoning us at the following address or telephone number:

Investor Relations  
Mersana Therapeutics, Inc.  
840 Memorial Drive  
Cambridge, Massachusetts 02139  
(617) 498-0020

## PROSPECTUS



**\$300,000,000**  
**of**  
**Common Stock**  
**Preferred Stock**  
**Warrants**  
**Units**

We may offer and sell securities from time to time in one or more offerings of up to \$300,000,000 in aggregate offering price. This prospectus describes the general terms of these securities and the general manner in which these securities will be offered. We will provide the specific terms of these securities in supplements to this prospectus. The prospectus supplements will also describe the specific manner in which these securities will be offered and may also supplement, update or amend information contained or incorporated by reference in this document. You should read this prospectus and any applicable prospectus supplement, as well as the documents incorporated by reference herein or therein carefully before you invest.

We may offer these securities in amounts, at prices and on terms determined at the time of offering. The securities may be sold directly to you, through agents, or through underwriters and dealers. If agents, underwriters or dealers are used to sell the securities, we will name them and describe their compensation in a prospectus supplement.

Our common stock is listed on The Nasdaq Global Select Market under the symbol "MRSN."

---

**Investing in these securities involves significant risks. See the information included under "Risk Factors" on page 4 of this prospectus and in any accompanying prospectus supplement, and under similar headings in the documents incorporated by reference in this prospectus or any prospectus supplement, for a discussion of the factors you should carefully consider before deciding to purchase these securities.**

**We may amend or supplement this prospectus from time to time by filing amendments or supplements as required. We urge you to read the entire prospectus, any amendments or supplements, any free writing prospectuses, and any documents incorporated by reference carefully before you make your investment decision.**

---

**Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.**

The date of this prospectus is February 28, 2024

---



**TABLE OF CONTENTS**

<a href="#"><u>ABOUT THIS PROSPECTUS</u></a>	<a href="#"><u>1</u></a>
<a href="#"><u>WHERE YOU CAN FIND MORE INFORMATION</u></a>	<a href="#"><u>2</u></a>
<a href="#"><u>INCORPORATION BY REFERENCE</u></a>	<a href="#"><u>2</u></a>
<a href="#"><u>FORWARD-LOOKING STATEMENTS</u></a>	<a href="#"><u>2</u></a>
<a href="#"><u>RISK FACTORS</u></a>	<a href="#"><u>4</u></a>
<a href="#"><u>MERSANA THERAPEUTICS, INC</u></a>	<a href="#"><u>5</u></a>
<a href="#"><u>USE OF PROCEEDS</u></a>	<a href="#"><u>6</u></a>
<a href="#"><u>DESCRIPTION OF CAPITAL STOCK</u></a>	<a href="#"><u>7</u></a>
<a href="#"><u>DESCRIPTION OF WARRANTS</u></a>	<a href="#"><u>11</u></a>
<a href="#"><u>DESCRIPTION OF UNITS</u></a>	<a href="#"><u>13</u></a>
<a href="#"><u>FORMS OF SECURITIES</u></a>	<a href="#"><u>14</u></a>
<a href="#"><u>PLAN OF DISTRIBUTION</u></a>	<a href="#"><u>16</u></a>
<a href="#"><u>LEGAL MATTERS</u></a>	<a href="#"><u>18</u></a>
<a href="#"><u>EXPERTS</u></a>	<a href="#"><u>18</u></a>

## ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, which we refer to as the “SEC,” utilizing a “shelf” registration process. Under this shelf registration process, we may from time to time sell any combination of the securities described in this prospectus in one or more offerings for an aggregate offering price of up to \$300,000,000.

This prospectus provides you with a general description of the securities we may offer. Each time we sell securities, we will provide one or more prospectus supplements that will contain specific information about the terms of the offering. We may also authorize one or more free writing prospectuses to be provided to you that may contain additional information relating to an offering. The prospectus supplement and any related free writing prospectus may also add, update or change information contained in this prospectus or in any documents that we have incorporated by reference into this prospectus and, accordingly, to the extent inconsistent, information in this prospectus is superseded by the information in the prospectus supplement or any related free writing prospectus. You should read both this prospectus and the accompanying prospectus supplement together with the additional information described under the heading “Where You Can Find More Information.”

You should rely only on the information contained in or incorporated by reference in this prospectus, any accompanying prospectus supplement or in any related free writing prospectus filed by us with the SEC. We have not authorized anyone to provide you with different information. This prospectus and any accompanying prospectus supplement do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the securities described in this prospectus or such accompanying prospectus supplement or an offer to sell or the solicitation of an offer to buy such securities in any circumstances in which such offer or solicitation is unlawful. You should assume that the information appearing in this prospectus, any prospectus supplement, the documents incorporated by reference and any related free writing prospectus is accurate only as of their respective dates. Our business, financial condition, results of operations and prospects may have changed materially since those dates.

Unless the context otherwise indicates, references in this prospectus to the “Company,” “we,” “our” and “us” refer, collectively, to Mersana Therapeutics, Inc., a Delaware corporation, and its consolidated subsidiaries.

## WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at [www.sec.gov](http://www.sec.gov). Copies of certain information filed by us with the SEC are also available on our website at [www.mersana.com](http://www.mersana.com). Our website is not a part of this prospectus and information contained on, or accessible through, our website is not incorporated by reference in this prospectus.

This prospectus is part of a registration statement we filed with the SEC. This prospectus omits some information contained in the registration statement in accordance with SEC rules and regulations. You should review the information and exhibits in the registration statement for further information about us and our consolidated subsidiaries and the securities we are offering. Statements in this prospectus concerning any document we filed as an exhibit to the registration statement or that we otherwise filed with the SEC are not intended to be comprehensive and are qualified by reference to these filings and the exhibits attached thereto. You should review the complete document to evaluate these statements.

## INCORPORATION BY REFERENCE

The SEC allows us to incorporate by reference much of the information we file with the SEC, which means that we can disclose important information to you by referring you to those publicly available documents. The information that we incorporate by reference in this prospectus is considered to be part of this prospectus. Because we are incorporating by reference future filings with the SEC, this prospectus is continually updated and those future filings may modify or supersede some of the information included or incorporated in this prospectus. This means that you must look at all of the SEC filings that we incorporate by reference to determine if any of the statements in this prospectus or in any document previously incorporated by reference have been modified or superseded. This prospectus incorporates by reference the documents listed below (File No. 001-38129) and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act (in each case, other than those documents or the portions of those documents not deemed to be filed) until the offering of the securities under the registration statement is terminated or completed:

- [Annual Report on Form 10-K for the fiscal year ended December 31, 2022, as filed with the SEC on February 28, 2023](#), including the information specifically incorporated by reference into the Annual Report on Form 10-K from [our definitive proxy statement on Schedule 14A for the 2023 Annual Meeting of Stockholders, as filed with the SEC on April 28, 2023](#);
- Quarterly Reports on Form 10-Q for the fiscal quarters ended March 31, 2023, June 30, 2023 and September 30, 2023, as filed with the SEC on [May 9, 2023](#), [August 8, 2023](#) and [November 7, 2023](#), respectively;
- Current Reports on Form 8-K as filed with the SEC on [January 6, 2023](#) (solely for Item 8.01), [January 25, 2023](#) (solely for Item 8.01), [February 1, 2023](#) (solely for Item 8.01), [March 13, 2023](#) (solely for Item 8.01), [March 24, 2023](#), [March 31, 2023](#), [June 9, 2023](#), [June 15, 2023](#), [July 27, 2023](#) (solely for Items 2.05 and 8.01), [August 8, 2023](#) (solely for Item 8.01), [September 6, 2023](#), [October 31, 2023](#), [December 21, 2023](#) and [January 5, 2024](#) (solely for Item 8.01); and
- The description of our common stock contained in our [Registration Statement on Form 8-A as filed with the SEC on June 23, 2017](#), as the description therein has been updated and superseded by the description of our capital stock contained in [Exhibit 4.3](#) to our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, as filed with the SEC on February 28, 2023, and including any amendments and reports filed for the purpose of updating such description.

You may request a copy of these filings, at no cost, by writing or calling us at the following address or telephone number:

Investor Relations  
Mersana Therapeutics, Inc.  
840 Memorial Drive  
Cambridge, Massachusetts 02139  
(617) 498-0020

## FORWARD-LOOKING STATEMENTS

This prospectus and the information incorporated by reference in this prospectus contain certain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Exchange Act. Forward-looking statements are neither historical facts nor assurances of future performance. Instead, they are based on our current beliefs, expectations and assumptions regarding the future of our business, future plans and strategies, our clinical results and other future conditions. The words “aim,” “anticipate,” “believe,” “contemplate,” “continue,” “could,” “estimate,” “expect,” “goal,” “intend,” “may,” “on track,” “plan,” “possible,” “potential,” “predict,” “project,” “seek,” “should,” “target,” “will,” “would” or the negative of these terms or other similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words.

These forward-looking statements include, among other things, statements about:

- the initiation, cost, timing, progress and results of our current and future research and development activities, preclinical studies and clinical trials, including our Phase 1 clinical trials of XMT-1660 and XMT-2056;
- the potential benefits of our existing strategic collaborations and our ability to enter into additional selective strategic collaborations;
- the adequacy of our inventory of XMT-1660 and XMT-2056 to support our ongoing and planned clinical trials, as well as the outcome of planned manufacturing runs;
- the adequacy of our inventory of Dolasynthen and Immunosynthen platform materials needed for the manufacture of our own product candidates and for the product candidates of our collaborators;
- the timing of, and our ability to obtain and maintain, regulatory approvals for our product candidates;
- our ability to quickly and efficiently identify and develop additional product candidates and to innovate with respect to our existing or future antibody drug candidate platforms;
- our ability to advance any product candidate into, and successfully complete, clinical trials;
- unmet needs of patients with cancer indications;
- our intellectual property position, including with respect to our trade secrets;
- our strategic priorities; and
- our estimates regarding expenses, future revenues, capital requirements, the sufficiency of our current and expected cash resources and our need for additional financing.

We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. We have included important factors in the cautionary statements included in this prospectus, particularly in the “Risk Factors” section and in the risk factors detailed in Item 1A, “Risk Factors” of our most recent annual report, our quarterly report and our SEC reports filed after this prospectus, that we believe could cause actual results or events to differ materially from the forward-looking statements that we make. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, collaborations, joint ventures or investments we may make.

The forward-looking statements contained herein represent our views as of the date of this prospectus and we do not assume any obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law. We anticipate that subsequent events and developments will cause our views to change. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this prospectus.

**RISK FACTORS**

Investing in our securities involves a high degree of risk. You should carefully review the risks and uncertainties described under the heading “Risk Factors” contained in the applicable prospectus supplement and any related free writing prospectus, and under similar headings in our most recent Annual Report on Form 10-K, our most recent Quarterly Report on Form 10-Q and other filings we make with the SEC from time to time that are incorporated by reference into this prospectus, before deciding whether to purchase any of the securities being registered pursuant to the registration statement of which this prospectus is a part. Each of the risk factors could adversely affect our business, results of operations, financial condition and cash flows, as well as adversely affect the value of an investment in our securities, and the occurrence of any of these risks might cause you to lose all or part of your investment. Additional risks not presently known to us or that we currently believe are immaterial may also adversely affect us in the future.

**MERSANA THERAPEUTICS, INC.****Overview**

We are a clinical-stage biopharmaceutical company focused on developing antibody-drug conjugates, or ADCs, that offer a clinically meaningful benefit for cancer patients with significant unmet need. We have leveraged decades of industry learnings in the ADC field to develop two proprietary and differentiated ADC platforms: Dolasynthen and Immunosynthen. Dolasynthen is our cytotoxic ADC platform that is designed to generate site-specific, homogeneous ADCs. Dolasynthen allows for drug-to-antibody ratios to be optimized for specific targets and utilizes a proprietary auristatin payload that has been shown clinically to avoid dose-limiting severe neutropenia, peripheral neuropathy and ocular toxicity. Immunosynthen is our proprietary STING (stimulator of interferon genes)-agonist platform that is designed to generate systemically administered ADCs that locally activate STING signaling in both antigen-expressing tumor cells and in tumor-resident immune cells to unlock the anti-tumor potential of innate immune stimulation. We are utilizing these platforms to generate ADC product candidates for our company and collaborators that we believe have the potential to improve upon today's standards of care.

Although currently approved ADCs are providing substantial benefits to certain patient populations and more product candidates are in development, we believe significant platform and payload limitations are preventing this therapeutic class from realizing its full potential. We are focused on developing novel platforms and payloads that can be utilized to create ADCs with meaningfully improved safety and efficacy for patients with a range of cancers.

**Corporate Information**

We were incorporated in the state of Delaware in February 2002 as Nanopharma Corp., and we changed our name to Mersana Therapeutics, Inc. in November 2005. Our principal executive offices are located at 840 Memorial Drive, Cambridge, Massachusetts 02139, and our telephone number is (617) 498-0020. Our website address is [www.mersana.com](http://www.mersana.com). The information contained on, or that can be accessed through, our website is not a part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference.

## **USE OF PROCEEDS**

We intend to use the net proceeds from the sale of any securities offered under this prospectus for general corporate purposes unless otherwise indicated in the applicable prospectus supplement. General corporate purposes may include the acquisition of companies or businesses, repayment and refinancing of debt, working capital and capital expenditures. We have not determined the amount of net proceeds to be used specifically for such purposes. As a result, management will retain broad discretion over the allocation of the net proceeds of any offering.

## DESCRIPTION OF CAPITAL STOCK

The following description of our capital stock is intended as a summary only and therefore is not a complete description of our capital stock. This description is based upon, and is qualified by reference to, our fifth amended and restated certificate of incorporation, as amended, and our second amended and restated bylaws, each as amended from time to time, and by applicable provisions of Delaware corporate law. You should read our fifth amended and restated certificate of incorporation, as amended, and second amended and restated bylaws, which are filed as exhibits to the registration statement of which this prospectus forms a part, for the provisions that are important to you.

Our authorized capital stock consists of 350,000,000 shares of common stock and 25,000,000 shares of preferred stock. As of February 23, 2024, 121,303,007 shares of common stock were outstanding, and no shares of preferred stock were outstanding.

### **Common Stock**

Holders of our common stock are entitled to one vote for each share held on all matters submitted to a vote of stockholders and do not have cumulative voting rights. A contested election of directors by our stockholders shall be determined by a plurality of the votes cast by the stockholders entitled to vote on the election; otherwise, a nominee is elected if the votes properly cast for such nominee exceed the votes properly cast against such nominee. Holders of our common stock are entitled to receive any dividends as may be declared by our board of directors, subject to any preferential dividend rights of outstanding preferred stock.

In the event of our liquidation, dissolution or winding up, whether voluntary or involuntary, the holders of common stock are entitled to receive proportionately ratably in proportion to the number of shares held by each such stockholder all assets available for distribution to stockholders after the payment of or provision for all debts and other liabilities and subject to the prior rights of any outstanding preferred stock. Holders of our common stock have no preemptive, subscription, redemption or conversion rights. The rights, preferences and privileges of holders of our common stock are subject to and may be adversely affected by the rights of the holders of shares of any series of preferred stock that we may designate and issue in the future.

#### *Transfer Agent and Registrar*

The transfer agent and registrar for our common stock is Computershare Trust Company, N.A. The transfer agent and registrar's address is 150 Royall Street, Canton, Massachusetts 02021.

#### *Listing*

Our common stock is listed on The Nasdaq Global Select Market under the symbol "MRSN."

### **Preferred Stock**

Our board of directors has the discretion to determine the rights, preferences, privileges and restrictions, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences, of each series of preferred stock. It is not possible to state the actual effect of the issuance of any shares of preferred stock upon the rights of the holders of our common stock until the board of directors determines the specific rights of the holders of preferred stock. However, effects of the issuance of preferred stock could include restricting dividends on common stock, diluting the voting power of common stock, impairing the liquidation rights of common stock, and making it more difficult for a third party to acquire us, which could have the effect of discouraging a third party from acquiring, or deterring a third party from paying a premium to acquire, a majority of our outstanding voting stock.

If we offer a specific class or series of preferred stock under this prospectus, we will describe the terms of the preferred stock in the prospectus supplement for such offering and will file a copy of the certificate establishing the terms of the preferred stock with the SEC. To the extent required, this description will include:

- the title and stated value per share;



- the number of shares offered, the liquidation preference per share and the purchase price;
- the dividend rate(s), period(s) and/or payment date(s), or method(s) of calculation for such dividends;
- whether dividends will be cumulative or non-cumulative and, if cumulative, the date from which dividends will accumulate;
- the procedures for any auction and remarketing, if any;
- the provisions for a sinking fund, if any;
- the provisions for redemption, if applicable;
- any listing of the preferred stock on any securities exchange or market;
- whether the preferred stock will be convertible into our common stock, and, if applicable, the conversion price (or how it will be calculated) and conversion period;
- voting rights, if any, of the preferred stock;
- a discussion of any material U.S. federal income tax considerations applicable to the preferred stock;
- the relative ranking and preferences of the preferred stock as to dividend rights and rights upon liquidation, dissolution or winding up of our affairs; and
- any material limitations on issuance of any class or series of preferred stock ranking senior to or on a parity with the series of preferred stock as to dividend rights and rights upon our liquidation, dissolution or winding up.

The preferred stock offered by this prospectus, when issued, will not have, or be subject to, any preemptive or similar rights.

*Transfer Agent and Registrar.* The transfer agent and registrar for the preferred stock will be set forth in the applicable prospectus supplement.

#### **Provisions of Our Certificate of Incorporation and Bylaws and Delaware Law That May Have Anti-Takeover Effects**

##### *Section 203 of the Delaware General Corporation Law*

We are subject to the provisions of Section 203 of the Delaware General Corporation Law, or the DGCL. In general, Section 203 prohibits a Delaware corporation from engaging in a “business combination” with an “interested stockholder” for a three-year period following the time that this stockholder becomes an interested stockholder, unless the business combination is approved in a prescribed manner. A “business combination” includes, among other things, a merger, asset or stock sale or other transaction resulting in a financial benefit to the interested stockholder. An “interested stockholder” is a person who, together with affiliates and associates, owns, or did own within three years prior to the determination of interested stockholder status, 15% or more of the corporation’s voting stock.

Under Section 203, a business combination between a corporation and an interested stockholder is prohibited unless it satisfies one of the following conditions: before the stockholder became interested, the board of directors approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder; upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding, shares owned by persons who are directors and also officers, and employee stock plans, in some instances; or at or after the time the stockholder became interested, the business combination was approved by the board of directors of the corporation and authorized at an annual or special meeting of the stockholders by the affirmative vote of at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

A Delaware corporation may “opt out” of these provisions with an express provision in its original certificate of incorporation or an express provision in its certificate of incorporation or bylaws resulting

from a stockholders' amendment approved by at least a majority of the outstanding voting shares. We have not opted out of these provisions. As a result, mergers or other takeover or change in control attempts of us may be discouraged or prevented.

*Anti-Takeover Effects of Our Fifth Amended and Restated Certificate of Incorporation, as Amended, and Our Second Amended and Restated Bylaws*

Our fifth amended and restated certificate of incorporation, as amended, and second amended and restated bylaws contain certain provisions that are intended to enhance the likelihood of continuity and stability in the composition of the board of directors and which may have the effect of delaying, deferring or preventing a future takeover or change in control of the Company unless such takeover or change in control is approved by the board of directors.

These provisions include:

**Classified Board.** Our fifth amended and restated certificate of incorporation, as amended, provides that our board of directors is divided into three classes of directors, with the classes as nearly equal in number as possible. As a result, approximately one-third of our board of directors will be elected each year. The classification of directors has the effect of making it more difficult for stockholders to change the composition of our board. Our fifth amended and restated certificate of incorporation, as amended, also provides that, subject to any rights of holders of preferred stock to elect additional directors under specified circumstances, the number of directors will be fixed exclusively pursuant to a resolution adopted by our board of directors. Our board of directors currently consists of eight members.

**Action by Written Consent; Special Meetings of Stockholders.** Our fifth amended and restated certificate of incorporation, as amended, provides that stockholder action can be taken only at an annual or special meeting of stockholders and cannot be taken by written consent in lieu of a meeting. Our fifth amended and restated certificate of incorporation, as amended, and second amended and restated bylaws also provide that, except as otherwise required by law, subject to the rights of the holders of any series of preferred stock, special meetings of the stockholders can only be called pursuant to a resolution adopted by a majority of the total number of directors which we would have if there were no vacancies. Except as described above, stockholders are not permitted to call a special meeting or to require the board of directors to call a special meeting.

**Removal of Directors.** Our fifth amended and restated certificate of incorporation, as amended, provides that, subject to the rights of the holders of any series of preferred stock, our directors may be removed only for cause by the affirmative vote of at least 75% of the voting power of our outstanding shares of capital stock, voting together as a single class. This requirement of a supermajority vote to remove directors could enable a minority of our stockholders to prevent a change in the composition of our board.

**Advance Notice Procedures.** Our second amended and restated bylaws establish an advance notice procedure for stockholder proposals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to the board of directors. Stockholders at an annual meeting are only able to consider proposals or nominations specified in the notice of meeting or brought before the meeting by or at the direction of the board of directors (or any committee thereof) or by a stockholder who was a stockholder of record on the record date for the meeting, who is entitled to vote at the meeting and who has given our Secretary timely written notice, in proper form, of the stockholder's intention to bring that business before the meeting. Although the second amended and restated bylaws do not give the board of directors the power to approve or disapprove stockholder nominations of candidates or proposals regarding other business to be conducted at a special or annual meeting, the second amended and restated bylaws may have the effect of precluding the conduct of certain business at a meeting if the proper procedures are not followed or may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect its own slate of directors or otherwise attempting to obtain control of the Company.

**Supermajority Approval Requirements.** The DGCL generally provides that the affirmative vote of a majority of the shares entitled to vote on any matter is required to amend a corporation's certificate of incorporation or bylaws, unless either a corporation's certificate of incorporation or bylaws requires a greater percentage. Our fifth amended and restated certificate of incorporation, as amended, provides that

(i) the affirmative vote of holders of at least 75% of the total votes eligible to be cast in the election of directors is required to amend, alter, change or repeal specified provisions of our fifth amended and restated certificate of incorporation, as amended, and (ii) the affirmative vote of at least 75% of the voting power of the outstanding shares of capital stock of the Company entitled to vote with respect thereto, voting together as a single class, is required to amend, alter, change or repeal our second amended and restated bylaws, with respect to the powers of stockholders entitled to vote with respect thereto. This requirement of a supermajority vote to approve amendments to our fifth amended and restated certificate of incorporation, as amended, and second amended and restated bylaws could enable a minority of our stockholders to exercise veto power over any such amendments.

***Authorized but Unissued Shares.*** Our authorized but unissued shares of common stock and preferred stock are available for future issuance without stockholder approval. These additional shares may be utilized for a variety of corporate purposes, including future public or private offerings to raise additional capital, corporate acquisitions and employee benefit plans. The existence of authorized but unissued shares of common stock and preferred stock could render more difficult or discourage an attempt to obtain control of a majority of our common stock by means of a proxy contest, tender offer, merger or otherwise.

***Exclusive Forum.*** Our fifth amended and restated certificate of incorporation, as amended, requires, to the fullest extent permitted by law, that derivative actions brought in the name of the Company, actions against directors, officers and employees for breach of a fiduciary duty and other similar actions may be brought only in specified courts in the State of Delaware. Although we believe this provision benefits us by providing increased consistency in the application of Delaware law in the types of lawsuits to which it applies, the provision may have the effect of discouraging lawsuits against our directors and officers.

## DESCRIPTION OF WARRANTS

We may issue warrants to purchase common stock or preferred stock. We may offer warrants separately or together with one or more additional warrants, common stock, preferred stock, or any combination of those securities in the form of units, as described in the applicable prospectus supplement. If we issue warrants as part of a unit, the accompanying prospectus supplement will specify whether those warrants may be separated from the other securities in the unit prior to the expiration date of the warrants. The applicable prospectus supplement will also describe the following terms of any warrants:

- the specific designation and aggregate number of, and the offering price at which we will issue, the warrants;
- the currency or currency units in which the offering price, if any, and the exercise price are payable;
- the date on which the right to exercise the warrants will begin and the date on which that right will expire or, if you may not continuously exercise the warrants throughout that period, the specific date or dates on which you may exercise the warrants;
- whether the warrants are to be sold separately or with other securities as parts of units;
- whether the warrants will be issued in definitive or global form or in any combination of these forms, although, in any case, the form of a warrant included in a unit will correspond to the form of the unit and of any security included in that unit;
- any applicable material U.S. federal income tax consequences;
- the identity of the warrant agent for the warrants and of any other depositaries, execution or paying agents, transfer agents, registrars or other agents;
- the proposed listing, if any, of the warrants or any securities purchasable upon exercise of the warrants on any securities exchange;
- the designation and terms of any equity securities purchasable upon exercise of the warrants;
- if applicable, the designation and terms of the preferred stock with which the warrants are issued and the number of warrants issued with each security;
- if applicable, the date from and after which any warrants issued as part of a unit and the related preferred stock or common stock will be separately transferable;
- the number of shares of common stock or preferred stock purchasable upon exercise of a warrant and the price at which those shares may be purchased;
- if applicable, the minimum or maximum amount of the warrants that may be exercised at any one time;
- information with respect to book-entry procedures, if any;
- the anti-dilution provisions of, and other provisions for changes to or adjustment in the exercise price of, the warrants, if any;
- any redemption or call provisions; and
- any additional terms of the warrants, including terms, procedures and limitations relating to the exchange or exercise of the warrants.

### **Pre-Funded Warrants**

We may also issue pre-funded warrants to purchase common stock. A pre-funded warrant is a type of warrant that allows the holder to purchase a specified number of shares of common stock at a nominal exercise price, generally equal to the par value of the underlying common stock. The pre-funded warrants may be issued as individual warrant agreements to the holders. In addition to the terms described in the bullets above, the applicable prospectus supplement will describe the following terms of any pre-funded warrants:

- the date on which the right to exercise the pre-funded warrants will begin, generally on the date of issuance, and the date on which that right will expire, generally when the pre-funded warrant is exercised in full;

- whether the warrant may only be exercised pursuant to a cashless exercise procedure;
- certain beneficial ownership limitations, such that a holder will not be entitled to exercise any portion of any pre-funded warrant that, upon giving effect to (or immediately prior to) such exercise, would cause the holder's beneficial ownership to exceed a specified threshold, typically 4.99% or 9.99%, of the number of shares of our outstanding common stock or the combined voting power of all of our securities, which threshold may be subject to increase or decrease at the option of the holder, subject to a maximum ownership threshold, typically 9.99% or 19.99%, and compliance with a notice period;
- in the event of a fundamental transaction (generally including any reorganization, recapitalization or reclassification of our common stock, the sale, transfer or other disposition of all or substantially all of our assets, our consolidation or merger with or into another person in which we are not the surviving entity, the acquisition of more than 50% of our outstanding shares, or any person or group becoming the beneficial owner of more than 50% of the voting power of our outstanding shares), the right of the holder to receive, upon exercise of the pre-funded warrants, the same kind and amount of securities, cash or other property that such holder would have received had they exercised the pre-funded warrants immediately prior to such fundamental transaction, without regard to any limitations on exercise contained in the pre-funded warrants; and
- any additional terms of the warrants, including terms, procedures and limitations relating to the exchange or exercise of the pre-funded warrants.

**DESCRIPTION OF UNITS**

We may issue units consisting of one or more of the other securities described in this prospectus in any combination, as described in the applicable prospectus supplement. We may issue units in one or more series, which will be described in the applicable prospectus supplement. The applicable prospectus supplement will also describe the following terms of any units:

- the designation and the terms of the units and of the securities constituting the units, including whether and under what circumstances the securities comprising the units may be traded separately;
- the identity of any unit agent for the units, if applicable, and of any other depositaries, execution or paying agents, transfer agents, registrars or other agents;
- any additional terms of the governing unit agreement, if applicable;
- any additional provisions for the issuance, payment, settlement, transfer or exchange of the units or of the common stock, preferred stock, or warrants constituting the units; and
- any applicable material U.S. federal income tax consequences.

## FORMS OF SECURITIES

Each unit and warrant will be represented either by a certificate issued in definitive form to a particular investor or by one or more global securities representing the entire issuance of securities. Unless the applicable prospectus supplement provides otherwise, certificated securities will be issued in definitive form and global securities will be issued in registered form. Definitive securities name you or your nominee as the owner of the security, and in order to transfer or exchange these securities or to receive payments other than interest or other interim payments, you or your nominee must physically deliver the securities to the registrar, paying agent or other agent, as applicable. Global securities name a depository or its nominee as the owner of the units or warrants represented by these global securities. The depository maintains a computerized system that will reflect each investor's beneficial ownership of the securities through an account maintained by the investor with its broker/dealer, bank, trust company or other representative, as we explain more fully below.

### Global Securities

We may issue the units and warrants in the form of one or more fully registered global securities that will be deposited with a depository or its nominee identified in the applicable prospectus supplement and registered in the name of that depository or nominee. In those cases, one or more global securities will be issued in a denomination or aggregate denominations equal to the portion of the aggregate principal or face amount of the securities to be represented by global securities. Unless and until it is exchanged in whole for securities in definitive registered form, a global security may not be transferred except as a whole by and among the depository for the global security, the nominees of the depository or any successors of the depository or those nominees.

If not described below, any specific terms of the depository arrangement with respect to any securities to be represented by a global security will be described in the prospectus supplement relating to those securities. We anticipate that the following provisions will apply to all depository arrangements.

Ownership of beneficial interests in a global security will be limited to persons, called participants, that have accounts with the depository or persons that may hold interests through participants. Upon the issuance of a global security, the depository will credit, on its book-entry registration and transfer system, the participants' accounts with the respective principal or face amounts of the securities beneficially owned by the participants. Any dealers, underwriters or agents participating in the distribution of the securities will designate the accounts to be credited. Ownership of beneficial interests in a global security will be shown on, and the transfer of ownership interests will be effected only through, records maintained by the depository, with respect to interests of participants, and on the records of participants, with respect to interests of persons holding through participants. The laws of some states may require that some purchasers of securities take physical delivery of these securities in definitive form. These laws may impair your ability to own, transfer or pledge beneficial interests in global securities.

So long as the depository, or its nominee, is the registered owner of a global security, that depository or its nominee, as the case may be, will be considered the sole owner or holder of the securities represented by the global security for all purposes under the applicable warrant agreement or unit agreement. Except as described below, owners of beneficial interests in a global security will not be entitled to have the securities represented by the global security registered in their names, will not receive or be entitled to receive physical delivery of the securities in definitive form and will not be considered the owners or holders of the securities under the applicable unit agreement or warrant agreement. Accordingly, each person owning a beneficial interest in a global security must rely on the procedures of the depository for that global security and, if that person is not a participant, on the procedures of the participant through which the person owns its interest, to exercise any rights of a holder under the applicable unit agreement or warrant agreement. We understand that under existing industry practices, if we request any action of holders or if an owner of a beneficial interest in a global security desires to give or take any action that a holder is entitled to give or take under the applicable unit agreement or warrant agreement, the depository for the global security would authorize the participants holding the relevant beneficial interests to give or take that action, and the participants would authorize beneficial owners owning through them to give or take that action or would otherwise act upon the instructions of beneficial owners holding through them.

Any payments to holders with respect to warrants or units, represented by a global security registered in the name of a depository or its nominee will be made to the depository or its nominee, as the case may be, as the registered owner of the global security. None of us, or any warrant agent, unit agent or other agent of ours, or any agent of any warrant agent or unit agent will have any responsibility or liability for any aspect of the records relating to payments made on account of beneficial ownership interests in the global security or for maintaining, supervising or reviewing any records relating to those beneficial ownership interests.

We expect that the depository for any of the securities represented by a global security, upon receipt of any payment to holders of any distribution of underlying securities or other property on that registered global security, will immediately credit participants' accounts in amounts proportionate to their respective beneficial interests in that global security as shown on the records of the depository. We also expect that payments by participants to owners of beneficial interests in a global security held through participants will be governed by standing customer instructions and customary practices, as is now the case with the securities held for the accounts of customers or registered in "street name," and will be the responsibility of those participants.

If the depository for any of the securities represented by a global security is at any time unwilling or unable to continue as depository or ceases to be a clearing agency registered under the Exchange Act, and a successor depository registered as a clearing agency under the Exchange Act is not appointed by us within 90 days, we will issue securities in definitive form in exchange for the global security that had been held by the depository. Any securities issued in definitive form in exchange for a global security will be registered in the name or names that the depository gives to the relevant warrant agent, unit agent or other relevant agent of ours or theirs. It is expected that the depository's instructions will be based upon directions received by the depository from participants with respect to ownership of beneficial interests in the global security that had been held by the depository.



## PLAN OF DISTRIBUTION

We may sell securities:

- to or through underwriters;
- to or through dealers;
- through agents;
- directly to one or more purchasers;
- through a block trade in which the broker or dealer engaged to handle the block trade will attempt to sell the securities as agent, but may position and resell a portion of the block as principal to facilitate the transaction; or
- through a combination of any of these methods of sale.

In addition, we may issue the securities as a dividend or distribution to our existing security holders. This prospectus may be used in connection with any offering of our securities through any of these methods or other methods described in the applicable prospectus supplement.

We may directly solicit offers to purchase securities, or agents may be designated to solicit such offers. We will, in the prospectus supplement relating to such offering, name any agent that could be viewed as an underwriter under the Securities Act, and describe any commissions that we must pay. Any such agent will be acting on a best efforts basis for the period of its appointment or, if indicated in the applicable prospectus supplement, on a firm commitment basis.

The distribution of the securities may be effected from time to time in one or more transactions:

- at a fixed price, or prices, which may be changed from time to time;
- at market prices prevailing at the time of sale;
- at prices related to such prevailing market prices; or
- at negotiated prices.

Each prospectus supplement will describe the method of distribution of the securities and any applicable restrictions.

The prospectus supplement with respect to the securities of a particular series will describe the terms of the offering of the securities, including the following:

- the name of the agent or any underwriters;
- the public offering or purchase price and the proceeds we will receive from the sale of the securities;
- any discounts and commissions to be allowed or re-allowed or paid to the agent or underwriters;
- all other items constituting underwriting compensation;
- any discounts and commissions to be allowed or re-allowed or paid to dealers; and
- any exchanges on which the securities will be listed.

If any underwriters or agents are utilized in the sale of the securities in respect of which this prospectus is delivered, we will enter into an underwriting agreement or other agreement with them at the time of sale to them, and we will set forth in the prospectus supplement relating to such offering the names of the underwriters or agents and the terms of the related agreement with them.

If a dealer is utilized in the sale of the securities in respect of which this prospectus is delivered, we will sell such securities to the dealer, as principal. The dealer may then resell such securities to the public at varying prices to be determined by such dealer at the time of resale.

Remarketing firms, agents, underwriters, dealers and other persons may be entitled under agreements which they may enter into with us to indemnification by us against certain civil liabilities, including liabilities

under the Securities Act, and may be customers of, engage in transactions with or perform services for us in the ordinary course of business.

If so indicated in the applicable prospectus supplement, we will authorize underwriters or other persons acting as our agents to solicit offers by certain institutions to purchase securities from us pursuant to delayed delivery contracts providing for payment and delivery on the date stated in the prospectus supplement. Each contract will be for an amount not less than, and the aggregate amount of securities sold pursuant to such contracts shall not be less nor more than, the respective amounts stated in the prospectus supplement. Institutions with whom the contracts, when authorized, may be made include commercial and savings banks, insurance companies, pension funds, investment companies, educational and charitable institutions and other institutions, but shall in all cases be subject to our approval. Delayed delivery contracts will not be subject to any conditions except that:

- the purchase by an institution of the securities covered under that contract shall not at the time of delivery be prohibited under the laws of the jurisdiction to which that institution is subject; and
- if the securities are also being sold to underwriters acting as principals for their own account, the underwriters shall have purchased such securities not sold for delayed delivery. The underwriters and other persons acting as our agents will not have any responsibility in respect of the validity or performance of delayed delivery contracts.

Certain agents, underwriters and dealers, and their associates and affiliates may be customers of, have borrowing relationships with, engage in other transactions with, and/or perform services, including investment banking services, for us or one or more of our respective affiliates in the ordinary course of business.

In order to facilitate the offering of the securities, any underwriters may engage in transactions that stabilize, maintain or otherwise affect the price of the securities or any other securities the prices of which may be used to determine payments on such securities. Specifically, any underwriters may overallocate in connection with the offering, creating a short position for their own accounts. In addition, to cover overallocations or to stabilize the price of the securities or of any such other securities, the underwriters may bid for, and purchase, the securities or any such other securities in the open market. Finally, in any offering of the securities through a syndicate of underwriters, the underwriting syndicate may reclaim selling concessions allowed to an underwriter or a dealer for distributing the securities in the offering if the syndicate repurchases previously distributed securities in transactions to cover syndicate short positions, in stabilization transactions or otherwise. Any of these activities may stabilize or maintain the market price of the securities above independent market levels. Any such underwriters are not required to engage in these activities and may end any of these activities at any time.

As of the date of this prospectus, under Rule 15c6-1 of the Exchange Act, trades in the secondary market generally are required to settle in two business days, unless the parties to any such trade expressly agree otherwise. The applicable prospectus supplement may provide that the original issue date for your securities may be more than two scheduled business days after the trade date for your securities. Accordingly, in such a case, if you wish to trade securities on any date prior to the second business day before the original issue date for your securities, you will be required, by virtue of the fact that your securities initially are expected to settle in more than two scheduled business days after the trade date for your securities, to make alternative settlement arrangements to prevent a failed settlement. In February 2023, Rule 15c6-1 of the Exchange Act was amended to require, effective May 28, 2024, trades in the secondary market to settle in one business day, unless the parties to any such trade expressly agree otherwise or unless an exception applies. Therefore, for any securities offered under this prospectus on or after May 28, 2024, the same process described in this paragraph will apply, except that settlement may occur on the first business day that is also a trading day following the trade date for such securities.

The securities may be new issues of securities and may have no established trading market. The securities may or may not be listed on a national securities exchange. We can make no assurance as to the liquidity of or the existence of trading markets for any of the securities.

## LEGAL MATTERS

Unless the applicable prospectus supplement indicates otherwise, the validity of the securities in respect of which this prospectus is being delivered will be passed upon by Wilmer Cutler Pickering Hale and Dorr LLP.

## EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements included in our [Annual Report on Form 10-K for the year ended December 31, 2022](#), as set forth in their report, which is incorporated by reference in this prospectus and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

**\$100,000,000**



**Common Stock**

---

**PROSPECTUS SUPPLEMENT**

---

**TD Cowen**

February 28, 2024

---

---

---