As filed with the Securities and Exchange Commission on October 30, 2026

Registration No. 333-

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-3
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

SeaStar Medical Holding Corporation
(Exact Name of Registrant as Specified in Its Charter)

Delaware	**3841**	**85-3681132**
(State or Other Jurisdiction of Incorporation or Organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification No.

3513 Brighton Blvd, Suite 410
Denver, CO 80216
(844) 427-8100
(Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

Eric Schlorff
Chief Executive Officer
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Denver, CO 80216
(Name, Address, Including Zip Code, and Telephone Number, Including Area Code, of Agent for Service)

Copies to:

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Salt Lake City, UT 84111
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Approximate date of commencement of proposed sale to the public: From time to time after the effective date of this registration statement.

If the only securities being registered on this form are being offered pursuant to dividend or interest reinvestment plans, please check the following box. ☐

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box. ☒

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

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

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

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

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

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒	Smaller reporting company	☒
		Emerging growth company	☒

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

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until this registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

The information in this preliminary prospectus is not complete and may be changed. These securities may not be sold until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell nor does it seek an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

PRELIMINARY PROSPECTUS (Subject to Completion) **Dated October 30, 2026**

Up to 1,767,784 Shares of Common Stock

Offered by the Selling Stockholders



SeaStar Medical Holding Corporation

This prospectus covers the offer and resale by the selling stockholders identified in this prospectus (the "Selling Stockholders") (or their respective transferees, donees, pledgees, assignees or other successors in interest) of up to an aggregate of 1,767,784 shares of common stock, par value $0.0001 per share (the "Common Stock"), consisting of: (i) up to 854,002 shares of Common Stock (the "October Series A Warrant Shares") issuable upon exercise of the Series A common stock purchase warrants (the "October Series A Warrants") with an exercise price of $3.616 per share; (ii) up to 854,002 shares of Common Stock (the "October Series B Warrant Shares") issuable upon exercise of the Series B common stock purchase warrants (the "October Series B Warrants") with an exercise price of $3.616 per share; and (iii) up to 59,780 shares of Common Stock (the "October Placement Agent Warrant Shares") issuable upon exercise of the Placement Agent common stock purchase warrants (the "October Placement Agent Warrants") with an exercise price of $4.8325 per share. The October Series A Warrants and October Series B Warrants were issued pursuant to letter agreements, dated October 2, 2026, in reliance on the exemptions provided by Section 4(a)(2) of the Securities Act of the 1933, as amended (the "Securities Act"). The Placement Agent Warrants were issued pursuant to that certain engagement letter, dated September 24, 2026, also in reliance on the exemptions provided by Section 4(a)(2) of the Securities Act. The October Series A Warrants, October Series B Warrants and October Placement Agent Warrants are collectively referred to as the "Warrants". The October Series A Warrant Shares, the October Series B Warrant Shares and the October Placement Agent Warrant Shares are collectively referred to as the "Resale Shares." The October Series A Warrants have a term of exercise equal to five years from the effective date of the registration statement which this prospectus forms part of (the "Resale Registration Statement") and the October Series B Warrants have a term of exercise equal to 18 months from the effective date of this Resale Registration Statement. The October Placement Agent Warrants are immediately exercisable and have a term of five years from the effective date of this Resale Registration Statement.

We are not selling any shares of Common Stock under this prospectus and will not receive any proceeds from the sale by the Selling Stockholders of the Resale Shares.

Sales of the Resale Shares by the Selling Stockholders may occur at fixed prices, at market prices prevailing at the time of sale, at prices related to prevailing market prices or at negotiated prices. The Selling Stockholders may sell the Resale Shares to or through underwriters, broker-dealers or agents, who may receive compensation in the form of discounts, concessions or commissions from the Selling Stockholders, the purchasers of the Resale Shares, or both.

We are paying the cost of registering the Resale Shares as well as various related expenses. The Selling Stockholders are responsible for all selling commissions, transfer taxes and other costs related to the offer and sale of their Resale Shares. See "Plan of Distribution" for more information about how the Selling Stockholders may sell or dispose of their Resale Shares.

We are a "smaller reporting company" under the federal securities laws and, as such, are subject to reduced public company reporting requirements. See "Implications of Being a Smaller Reporting Company."

We are an "emerging growth company" under the federal securities laws and, as such, are subject to reduced public company reporting requirements. See "Implications of Being an Emerging Growth Company."

Our Common Stock and certain warrants exercisable for Common Stock, with 250 warrants exercisable for one share of Common stock at an exercise price of $2,875 per share (the "Listed Warrants"), are traded on The Nasdaq Capital Market ("Nasdaq") under the symbols "ICU" and "ICUCW," respectively. On October 29, 2026, the last sale price of our Common Stock was $2.31 per share, and the last sale price of our Listed Warrants, was $0.0148 per warrant.

Investing in our securities involves a high degree of risk. You should read "Risk Factors" beginning on page 5 of this prospectus, and under similar headings in the documents incorporated by reference in this prospectus, as well as in any amendments or supplements to this prospectus, to read about factors to consider before purchasing our securities.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is , 2026.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission (the "SEC"), using a "shelf" registration process. Under this Resale Registration Statement, the Selling Stockholders may sell, from time to time in one or more offerings, the Common Stock described in this prospectus.

Neither we nor the Selling Stockholders have authorized anyone to provide you with information different from that contained in this prospectus or any accompanying prospectus supplement or free writing prospectus, and neither we nor the Selling Stockholders take any responsibility for any other information that others may give you. We and the Selling Stockholders are offering to sell these securities and seeking offers to buy these securities only in jurisdictions where offers and sales are permitted. This prospectus and any accompanying supplement to this prospectus do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the registered securities to which they relate.

You should not assume that the information contained in this prospectus or any prospectus supplement or free writing prospectus is accurate as of any date other than the date on the front cover of those documents, regardless of the time of delivery of this prospectus or any sale of a security. Our business, financial condition, results of operations and prospects may have changed since those dates.

This prospectus relates to the offering of the Resale Shares. Before buying any of our Common Stock, you should carefully read this prospectus, any supplement to this prospectus, and the additional information under the heading "Where You Can Find More Information." These documents contain important information that you should consider when making your investment decision. Unless the context indicates otherwise, references to the "Company," "we," "us" and "our" refer to the business of SeaStar Medical Holding Corporation, a Delaware corporation, and its consolidated subsidiaries.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act of 1934, as amended (the "Exchange Act"). These statements are based on our management's current beliefs, expectations and assumptions about future events, conditions and results and on information currently available to us. Discussions containing these forward-looking statements may be found, among other places, in the sections titled "Business," "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations."

Any statements in this prospectus about our expectations, beliefs, plans, objectives, assumptions or future events or performance are not historical facts and are forward-looking statements. Within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act, these forward-looking statements may include, but are not limited to, statements regarding:

- our future capital requirements and sources and uses of cash;
- our ability to obtain funding or raise capital for our operations and future growth;
- any delays or challenges in obtaining U.S. Food and Drug Administration (the "FDA") approval of our Selective Cytopheretic Device ("SCD") product candidates;
- economic downturns and the possibility of rapid change in the highly competitive industry in which we operate;
- the ability to develop and commercialize our products or services following regulatory approval of our product candidates;
- the failure of third-party suppliers and manufacturers to fully and timely meet their obligations;
- product liability or regulatory lawsuits or proceedings relating to our products and services;
- inability to secure or protect our intellectual property;
- dispute or deterioration of relationship with our major partners and collaborators;
- the ability to maintain the listing of our Common Stock on Nasdaq; and
- other risks and uncertainties indicated in this prospectus, including those under "Risk Factors" herein, and other filings that have been made or will be made with the SEC.

In some cases, you can identify forward-looking statements by terminology such as "anticipate," "believe," "continue," "could," "estimate," "expects," "intend," "may," "might," "plan," "potential," "predict," "project," "should," "will," "would" or the negative or plural of those terms, and similar expressions intended to identify statements about the future, although not all forward-looking statements contain these words. These statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from the information expressed or implied by these forward-looking statements. In addition, statements that "we believe" and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based upon information available to us as of the date of this prospectus, and while we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain and investors are cautioned not to unduly rely upon these statements.

PROSPECTUS SUMMARY

This summary highlights certain information about us, this offering and selected information contained elsewhere in or incorporated by reference into this prospectus. This summary is not complete and does not contain all of the information that you should consider before making an investment decision. For a more complete understanding of our company, you should read and consider carefully the more detailed information included or incorporated by reference in this prospectus and any applicable prospectus supplement, including the information incorporated by reference from our most recent Annual Report on Form 10-K and any subsequent Quarterly Reports on Form 10-Q or Current Reports on Form 8-K, before making an investment decision.

Business Summary

Company Overview

We are a commercial-stage healthcare company focused on transformational treatments for critically ill patients facing organ failure and potential loss of life. Our SCD is designed as a disease-modifying device that neutralizes over-active immune cells and stops the cytokine storm that yields destructive hyperinflammation and creates a cascade of events that wreak havoc in the patient's body. It has broad potential applications for patients suffering from both acute and chronic kidney disease as well as cardiovascular and other serious inflammatory diseases.

We received FDA approval on February 21, 2024, under a Humanitarian Device Exemption ("HDE"), for our pediatric SCD therapy. It is the only FDA approved product for use in pediatric patients with acute kidney injury ("AKI") due to sepsis or a septic condition requiring kidney replacement therapy. We shipped our first commercial pediatric SCD ("QUELIMMUNE") in July 2024. In addition, we are currently conducting a pivotal clinical trial, also referred to as "NEUTRALIZE-AKI", to assess the safety and efficacy of the SCD therapy in critically ill adult patients with AKI requiring continuous renal replacement therapy ("CRRT"). We are also conducting a feasibility study of the SCD therapy in adult patients with Cardiorenal Syndrome ("CRS") awaiting left ventricular assist device ("LVAD") implantation.

Our SCD therapy has been awarded seven Breakthrough Device Designations ("BDD") by the FDA. These BDDs cover multiple therapeutic indications for the use of our SCD therapy in adult patients with AKI, CRS awaiting LVAD implantation, hepatorenal syndrome, end stage renal disease ("ESRD"), systemic inflammatory response while undergoing cardiac surgery, and sepsis. The BDD enables the potential for a speedier pathway to approval and the ability to have more frequent and flexible meetings with FDA.

The inflammatory response is essential to the healing process of critical organs; however, the overactivation of inflammatory cells, which can be triggered by many different bodily insults such as trauma, surgery or infection, can send the body into shock and cause severe damage to a variety of critical organs such as the heart, lungs and kidneys. Central to inflammation are the cells within blood and lymph circulatory systems, called white blood cells (primarily neutrophils and monocytes). In a normal inflammatory response, neutrophils are the first immune cells to arrive at the site and are key to the entire immune response that kills pathogens and promotes tissue repair. These inflammatory cells release chemicals (cytokines) that trigger the immune system to eliminate foreign pathogens or damaged tissue, enhancing the immune response.

If the inflammatory response becomes excessive and dysregulated (referred to as proinflammatory), the inflammatory cells will continue to produce cytokines and other damaging molecules, further enhancing the dysregulated immune response, and altering feedback mechanisms that regulate the immune system. This results in damaging hyperinflammation spreading uncontrollably to other parts of the body, often leading to acute and potentially chronic solid organ dysfunction or failure, including the heart, lung, kidney, liver, and even death. This hyperinflammatory response is also known as the "cytokine storm," referring to the body's reaction to the category of small-secreted proteins released by hyperinflammatory cells that affect communication between cells.

Currently, there are no therapeutic options that specifically neutralize the white blood cells that are primarily responsible for the destructive hyperinflammatory response. Clinicians typically address hyperinflammation with therapies that are either immunosuppressive or that target a specific cytokine, both of which are generally suboptimal in the treatment of hyperinflammation. We believe our technology has the potential to overcome limitations in existing anti-inflammatory treatments and address the challenge of selectively targeting activated neutrophils and monocytes.

Clinical and preclinical studies conducted over the last 15 years have demonstrated that our SCD therapy can modulate the degree of activity of proinflammatory cells to help reduce tissue damage and speed the repair and recovery of organ function. Data from our trials demonstrated that the use of our SCD therapy, as directed, to reverse the cytokine storm in more than 150 pediatric and adult patients with acute kidney injury on CRRT reduced mortality rates by 50%, and of those patients who survived 60 days, none have required dialysis. We believe our SCD therapy has the potential to transform the treatment of acute organ failure in the intensive care unit ("ICU") and to improve organ function in patients with chronic kidney disease, certain cardiovascular diseases, and other serious inflammatory diseases.

Preclinically, we evaluated our SCD therapy in various animal models representing multiple hyperinflammatory indications, including acute myocardial infarction, intracranial hemorrhage, chronic heart failure, sepsis, and acute respiratory distress syndrome. The animal models demonstrated the inflammatory response and how it was modified by our SCD therapy. We will continue to explore the application of our SCD therapy across a broad range of indications where proinflammatory activated neutrophils and monocytes contribute to disease progression or severity in both acute and chronic indications.

We are leveraging our patent protected and scalable SCD therapy platform to develop proprietary treatments that are organ agnostic and target both acute and chronic indications. The SCD therapy is delivered via an extracorporeal synthetic membrane device that easily integrates into existing CRRT systems that are commonly employed for patients with acute organ injury in hospitals, including in ICUs throughout the United States. It also has the potential to be integrated into kidney dialysis systems for chronic kidney disease patients receiving renal replacement therapy at centers throughout the United States. We believe that the ease of use and broad applicability of the therapy across multiple disease states should enable us to capture a sizable market for our SCD therapy with increasingly favorable economics.

There is a substantial clinical need for safe and effective control of hyperinflammation and we believe that our first-in-class SCD therapy can address the large potential market of over one million patients each year that face life-threatening hyperinflammatory conditions, including organ failure and potential loss of life.

Corporate Information

Our principal executive offices are located at 3513 Brighton Boulevard, Suite 410, Denver, Colorado 80216, and our phone number is 844-427-8100.

Recent Developments

On October 2, 2026, we entered into letter agreements with the Selling Stockholders of certain of our issued and outstanding common stock purchase warrants (the "Prior Warrants") to purchase an aggregate of 854,002 shares of Common Stock, pursuant to which the Selling Stockholders exercised their Prior Warrants for cash at a reduced exercise price equal to $3.866 per share. In addition, the Selling Stockholders received (i) new unregistered October Series A Warrants exercisable for up to an aggregate of 854,002 October Series A Warrant Shares and (ii) new unregistered October Series B Warrants exercisable for up to an aggregate of 854,002 October Series B Warrant Shares (collectively, the "New Warrants"). The New Warrants are immediately exercisable and have an exercise price of $3.616 per share.

The gross proceeds from the exercise of the Prior Warrants were approximately $3.3 million prior to deducting placement agent fees and offering expenses.

H.C. Wainwright & Co., LLC ("Wainwright") acted as the exclusive placement agent for the offering pursuant to an engagement agreement between us and Wainwright dated as of September 24, 2026. As compensation for such placement agent services, we agreed to pay Wainwright an aggregate cash fee equal to 7.0% of the gross proceeds received by us from the offering, plus a management fee equal to 1.0% of the gross proceeds received by us from the offering, $75,000 of non-accountable expenses and $15,950 for its clearing fee. We also issued to Wainwright or its designees the October Placement Agent Warrants to purchase up to an aggregate of 59,780 October Placement Agent Warrant Shares.

The Warrants and Resale Shares were sold and issued without registration under the Securities Act, in reliance on the exemptions provided by Section 4(a)(2) of the Securities Act as a transaction not involving a public offering and Rule 506 promulgated under the Securities Act as sales to accredited investors, and in reliance on similar exemptions under applicable state laws.

Implications of Being a Smaller Reporting Company

We are a "smaller reporting company," meaning that the market value of our Common Stock held by non-affiliates is less than $250.0 million measured on the last business day of our most recent second fiscal quarter or our annual revenue was less than $100.0 million during the most recent completed fiscal year and the market value of our Common Stock held by non-affiliates was less than $700.0 million measured on the last business day of our most recent second fiscal quarter. Accordingly, we may provide less public disclosure than larger public companies, including the inclusion of only two years of audited financial statements and only two years of management's discussion and analysis of financial condition and results of operations disclosure. As a result, the information that we provide to our stockholders may be different than what you might receive from other public reporting companies in which you hold equity interests.

Implications of Being an Emerging Growth Company

We are an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012 (the "JOBS Act") and may remain an emerging growth company for up to five years. For so long as we remain an emerging growth company, we are permitted and intend to rely on exemptions from certain disclosure requirements that are applicable to other public companies that are not applicable to emerging growth companies. These exemptions include:

- reduced disclosure about our executive compensation arrangements;
- no non-binding stockholder advisory votes on executive compensation or golden parachute arrangements; and
- exemption from the auditor attestation requirement in the assessment of our internal control over financial reporting.

We have taken advantage of reduced reporting requirements in this prospectus and may continue to do so until such time that we are no longer an emerging growth company. We will remain an "emerging growth company" until the earliest of (a) the last day of the fiscal year in which we have total annual gross revenues of $1.235 billion or more, (b) the last day of our first fiscal year following the fifth anniversary of the closing of the initial public offering of our predecessor, (c) the date on which we have issued more than $1.0 billion in nonconvertible debt during the previous three years or (d) the date on which we are deemed to be a large accelerated filer under the rules of the SEC. Section 107 of the JOBS Act provides that an emerging growth company can take advantage of the extended transition period for complying with new or revised accounting standards.

THE OFFERING

Securities we are offering	Up to 1,767,784 shares of Common Stock
Common Stock outstanding immediately prior to this offering	5,315,967 shares of Common Stock
Common Stock to be outstanding after this offering	7,083,751 shares of Common Stock, assuming all the Warrants are exercised.
Use of proceeds	We will not receive any proceeds from the sale of the shares of the Resale Shares offered by the Selling Stockholders. However, we will receive the proceeds of any cash exercise of the Warrants. See "Use of Proceeds" for additional information.
Risk Factors	Investment in our Common Stock involves a high degree of risk. See "Risk Factors" beginning on page 5 of this prospectus, as well as the other information included in this prospectus, for a discussion of risks you should carefully consider before investing in our Common Stock.
Nasdaq Capital Market symbol	Our Common Stock and Listed Warrants are listed for trading on Nasdaq under the symbols "ICU" and "ICUCW," respectively.

The number of shares of our Common Stock outstanding prior to and after this offering in the table above is based on 5,315,967 shares of our Common Stock outstanding as of October 19, 2026, and excludes (in each case as of October 19, 2026):

- 1,764 shares of Common Stock issuable upon the exercise of stock options, with a weighted-average exercise price of $488.44 per share;
- 184,147 shares of Common Stock issuable upon the settlement of outstanding restricted stock units;
- 3,613,730 shares of Common Stock issuable upon the exercise of outstanding warrants, with a weighted-average exercise price of $62.96 per share; and
- 676,028 additional shares of Common Stock reserved for future issuance under our 2022 Omnibus Equity Incentive Plan.

Except as otherwise indicated, the information in this prospectus does not reflect (i) the exercise of outstanding options and warrants, (ii) the exercise of the Warrants, and (iii) any issuance, exercise, vesting, expiration, or forfeiture of any additional equity awards under our equity incentive plans or stock purchase plans that occurred after October 19, 2026.

RISK FACTORS

Investing in our securities involves risks. Before you make a decision to buy our securities, in addition to the risks and uncertainties discussed above under "Cautionary Note Regarding Forward-Looking Statements," you should carefully consider the specific risks incorporated by reference in this prospectus to our most recent Annual Report on Form 10-K and any subsequent Quarterly Reports on Form 10-Q or Current Reports on Form 8-K, and all other information contained or incorporated by reference into this prospectus, as updated by our subsequent filings under the Exchange Act, and the risk factors and other information contained in any applicable prospectus supplement and any applicable free writing prospectus before acquiring any such securities. If any of these risks actually occur, it may materially harm our business, financial condition, liquidity and results of operations. As a result, the market price of our securities could decline, and you could lose all or part of your investment. Additionally, the risks and uncertainties incorporated by reference in this prospectus or any prospectus supplement are not the only risks and uncertainties that we face. Additional risks and uncertainties not presently known to us or that we currently believe to be immaterial, but that could later become material, may also adversely affect our business.

Risks Related to this Offering

The sale or availability for sale of shares issuable upon exercise of the Warrants may depress the price of our Common Stock and encourage short sales by third parties, which could further depress the price of our Common Stock.

To the extent that the Selling Stockholders sell shares of our Common Stock issued upon exercise of the Warrants, the market price of such shares may decrease due to the additional selling pressure in the market. In addition, the dilution from issuances of such shares may cause stockholders to sell their shares of our Common Stock, which could further contribute to any decline in the price of our Common Stock. Any downward pressure on the price of our Common Stock caused by the sale or potential sale of such shares could encourage short sales by third parties. Such sales could place downward pressure on the price of our Common Stock by increasing the number of shares of our Common Stock being sold, which could further contribute to any decline in the market price of our Common Stock.

Future sales and issuances of our Common Stock or other securities might result in significant dilution and could cause the price of our Common Stock to decline.

To raise capital, we may sell Common Stock, convertible securities or other equity securities in one or more transactions, at prices and in a manner we determine from time to time. 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 cannot predict what effect, if any, sales of shares of our Common Stock in the public market or the availability of shares for sale will have on the market price of our Common Stock. However, future sales of substantial amounts of our Common Stock in the public market, including shares issued upon exercise of outstanding options, or the perception that such sales may occur, could adversely affect the market price of our Common Stock.

M***anagement will have broad discretion as to the use of the proceeds from the exercise of the Warrants, and uses may not improve our financial condition or market value.***

We will not receive any proceeds from the sale of the Resale Shares by the Selling Stockholders. In the event the Selling Stockholders exercise all of the Series A Warrants, Series B Warrants and Placement Agent Warrants in cash at an exercise price of $3.616 and $4.8325 per share, respectively, we may receive an aggregate of approximately $6.5 million of gross proceeds. Any proceeds that we receive from the exercise of such Warrants will be used for working capital and general corporate purposes.

Because we have not designated the amount of proceeds from the offering to be used for any particular purpose, our management will have broad discretion as to the application of such proceeds and could use them for purposes other than those contemplated hereby. Our management may use the proceeds for corporate purposes that may not improve our financial condition or market value.

USE OF PROCEEDS

We are filing the Resale Registration Statement of which this prospectus forms a part to permit holders of the Resale Shares described in the section titled "Selling Stockholders" to resell such Resale Shares. We will not receive any proceeds from the resale of any shares offered by this prospectus by the Selling Stockholders. However, we will receive the proceeds of any cash exercise of the Warrants. If all of the Warrants were exercised for cash, we would receive aggregate proceeds of approximately $6.5 million. If we do receive any proceeds, we currently intend to use the proceeds for general corporate purposes.

PLAN OF DISTRIBUTION

We are registering the resale of the Resale Shares issuable upon exercise of the Warrants to permit the resale of these Resale Shares by the holder of the Warrants from time to time after the date of this prospectus. We will not receive any of the proceeds from the sale by the Selling Stockholders of the Resale Shares, although we will receive the exercise price of any Warrants not exercised by the Selling Stockholders on a cashless exercise basis. We will bear all fees and expenses incident to our obligation to register the Resale Shares.

The Selling Stockholders or their respective transferees, donees, pledgees, assignees or other successors in interest may sell all or a portion of the Resale Shares held by them and offered hereby from time to time directly or through one or more underwriters, broker-dealers or agents. If the Resale Shares are sold through underwriters or broker-dealers, the Selling Stockholders will be responsible for underwriting discounts or commissions or agent's commissions. The Resale Shares may be sold in one or more transactions at fixed prices, at prevailing market prices at the time of the sale, at varying prices determined at the time of sale or at negotiated prices. These sales may be effected in transactions, which may involve crosses or block transactions, pursuant to one or more of the following methods:

- on any national securities exchange or quotation service on which the securities may be listed or quoted at the time of sale;
- one or more underwritten offerings on a firm commitment or best-efforts basis;
- in the over-the-counter market;
- in transactions otherwise than on these exchanges or systems or in the over-the-counter market;
- through the writing or settlement of options, whether such options are listed on an options exchange or otherwise;
- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- short sales made after the date the Resale Registration Statement is declared effective by the SEC;
- broker-dealers may agree with a selling security holder to sell a specified number of such shares at a stipulated price per share;
- a combination of any such methods of sale; and
- any other method permitted pursuant to applicable law.

The Selling Stockholders may also sell Shares under Rule 144 promulgated under the Securities Act, if available, rather than under this prospectus. In addition, the Selling Stockholders may transfer the Resale Shares by other means not described in this prospectus. If the Selling Stockholders effect such transactions by selling Resale Shares to or through underwriters, broker-dealers or agents, such underwriters, broker-dealers or agents may receive commissions in the form of discounts, concessions or commissions from the Selling Stockholders or commissions from purchasers of the Resale Shares for whom they may act as agent or to whom they may sell as principal (which discounts, concessions or commissions as to particular underwriters, broker-dealers or agents may be in excess of those customary in the types of transactions involved). In connection with sales of the Resale Shares or otherwise, the Selling Stockholders may enter into hedging transactions with broker-dealers, which may in turn engage in short sales of the Shares in the course of hedging in positions they assume. The Selling Stockholders may also sell the Resale Shares short and deliver Resale Shares covered by this prospectus to close out short positions and to return borrowed shares in connection with such short sales. The Selling Stockholders may also loan or pledge Resale Shares to broker-dealers that in turn may sell such shares.

The Selling Stockholders may pledge or grant a security interest in some or all of the Warrants or Resale Shares owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the Shares from time to time pursuant to this prospectus or any amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act amending, if necessary, the list of Selling Stockholders to include the transferees, donees, pledgees, assignees or other successors in interest as a Selling Stockholder under this prospectus. The Selling Stockholders also may transfer and donate the Resale Shares in other circumstances in which case the transferees, donees, pledgees, assignees or other successors in interest will be the selling beneficial owners for purposes of this prospectus.

To the extent required by the Securities Act and the rules and regulations thereunder, the Selling Stockholders and any broker-dealer participating in the distribution of the Shares may be deemed to be "underwriters" within the meaning of the Securities Act, and any commission paid, or any discounts or concessions allowed to, any such broker-dealer may be deemed to be underwriting commissions or discounts under the Securities Act. At the time a particular offering of the Resale Shares is made, a prospectus supplement, if required, will be distributed, which will set forth the aggregate amount of Resale Shares being offered and the terms of the offering, including the name or names of any broker-dealers or agents, any discounts, commissions and other terms constituting compensation from the Selling Stockholders and any discounts, commissions or concessions allowed or re-allowed or paid to broker-dealers.

Brokers, dealers, underwriters or agents participating in the distribution of the shares of our Common Stock offered by this prospectus may receive compensation in the form of commissions, discounts, or concessions from the purchasers, for whom the broker-dealers may act as agent, of the shares sold by the Selling Stockholders through this prospectus. The compensation paid to any such particular broker-dealer by any such purchasers of shares of our Common Stock sold by the Selling Stockholders may be less than or in excess of customary commissions. Neither we nor the Selling Stockholders can presently estimate the amount of compensation that any agent will receive from any purchasers of the Resale Shares sold by the Selling Stockholders.

The Selling Stockholders and any other person participating in such distribution will be subject to applicable provisions of the Securities Exchange Act, and the rules and regulations thereunder, including, without limitation, to the extent applicable, Regulation M of the Exchange Act, which may limit the timing of purchases and sales of any of the Resale Shares by the Selling Stockholders and any other participating person. To the extent applicable, Regulation M may also restrict the ability of any person engaged in the distribution of the Resale Shares to engage in market-making activities with respect to the Resale Shares. All of the foregoing may affect the marketability of the Resale Shares and the ability of any person or entity to engage in market-making activities with respect to the Resale Shares.

We will pay all expenses of the registration of the Resale Shares, estimated to be approximately $29,000 in total, including, without limitation, SEC filing fees and expenses of compliance with state securities or "blue sky" laws; provided, however, the Selling Stockholders will pay all underwriting discounts and selling commissions, if any. We will indemnify the Selling Stockholders against liabilities, including some liabilities under the Securities Act in accordance with the registration rights agreements or the Selling Stockholders will be entitled to contribution. We may be indemnified by the Selling Stockholders against civil liabilities, including liabilities under the Securities Act that may arise from any written information furnished to us by the Selling Stockholders specifically for use in this prospectus, in accordance with the related registration rights agreements or we may be entitled to contribution.

Once sold under the Resale Registration Statement, of which this prospectus forms a part, the Resale Shares will be freely tradable in the hands of persons other than our affiliates.

SELLING STOCKHOLDERS

The Resale Shares being offered by the Selling Stockholders (or their respective transferees, donees, pledgees, assignees or other successors in interest) are those issuable to the Selling Stockholders upon exercise of the Warrants. We are registering the resale of such Resale Shares in order to permit the Selling Stockholders to offer the shares for resale from time to time. Except as described below, the Selling Stockholders have not had any material relationship with us within the past three years.

3i, LP

Between March and December 2023, pursuant to a securities purchase agreement, we entered into a series of agreements with 3i, LP ("3i") for up to $9.8 million in senior unsecured convertible notes and related warrants. Notes were issued in four tranches, each at an 8% discount, bearing 7% annual interest, and convertible into Common Stock at prices ranging from $2.70 to $0.20 per share, with maturity dates from June 2024 to March 2025. Warrants to purchase Common Stock were issued alongside each note. Amendments allowed for additional tranches, adjusted conversion prices, and further warrant issuances.

On June 28, 2024, we entered into a warrant redemption agreement with 3i, redeeming all remaining outstanding warrants issued under the securities purchase agreement for $3.56 per warrant, totaling $449,734.80, payable in two installments with interest on the deferred amount at 7% per annum. All obligations under the securities purchase agreement, notes, and warrants were satisfied and discharged, except for any expressly surviving provisions.

3i was also a purchaser of securities in our best-efforts public offering in June 2025, and registered direct offerings and concurrent private placements in July 2025 and August 2025.

BPY Limited

BPY Limited was a purchaser of securities in our best-efforts public offering in June 2025, and registered direct offerings and concurrent private placements in July 2025 and August 2025.

Nomis Bay Ltd

Nomis Bay Ltd was a purchaser of securities in our best-efforts public offering in June 2025, and registered direct offerings and concurrent private placements in July 2025 and August 2025.

H.C. Wainwright & Co., LLC

Wainwright acted as placement agent in connection with our registered direct offering in July 2024, as financial advisor in connection with our registered direct offering in February 2025, for which it received compensation, as placement agent in connection with our best-efforts public offering in June 2025, and as placement agent in connection with our registered direct offerings and concurrent private placements in July 2025 and August 2025. Wainwright also acts as sales agent for our at-the-market offering program for which it has received, and may in the future receive, compensation.

As used in this prospectus, the term "Selling Stockholders" means the Stockholders identified in the table below.

The table below lists the Selling Stockholders and other information regarding the beneficial ownership (as determined under Section 13(d) of the Exchange Act, and the rules and regulations thereunder) of the shares of Common Stock held by the Selling Stockholders. The second column lists the number of shares of Common Stock beneficially owned by the Selling Stockholders, based on its ownership of shares of Common Stock, as of October 19, 2026 assuming exercise of the Warrants held by the Selling Stockholders on that date.

The third column lists the shares of Common Stock being offered by this prospectus by each Selling Stockholder and does not take into account any limitations on exercise of the Warrants set forth therein.

Under the terms of the Warrants, the Selling Stockholders may not exercise the Warrants to the extent (but only to the extent) such Selling Stockholders or any of its affiliates would beneficially own a number of shares of our Common Stock which would exceed 4.99% or 9.99%, as the case may be, of our outstanding shares (the "Beneficial Ownership Limitation"). The Beneficial Ownership Limitation may be increased or decreased, provided that in no event shall it exceed 9.99%, upon notice to us, provided that any increase in the beneficial ownership limitation shall not be effective until 61 days following the receipt of such notice by us. The Selling Stockholders may sell all, some or none of their shares in this offering. See "Plan of Distribution" below.

The ownership percentage indicated in the following table is based on 5,315,967 total outstanding shares of our Common Stock as of October 19, 2026.

In computing the number of shares of Common Stock beneficially owned by the Selling Stockholders and the percentage ownership, we included outstanding shares of Common Stock issuable upon exercise of the Warrants that are currently exercisable or exercisable within 60 days of October 19, 2026.

	Shares of Common Stock				
	Shares Beneficially Owned Prior to the Offering		Maximum Number of Shares Being Registered for Resale	Shares Beneficially Owned After the Offering	
Name	Number of Shares	Percentage	Number of Shares	Number of Shares [1]	Percentage
3i, LP [2]	978,754[3]	16.1%	759,384	219,370	4.1%
BPY Limited [4]	360,476[5]	6.4%	360,476	—	—
Nomis Bay Ltd [6]	588,144[7]	9.7%	588,144	—	—
Noam Rubinstein [8]	64,772[9]	1.2%	18,831	45,941	*
Charles Worthman [8]	2,058[10]	*	598	1,460	*
Augustus Trading LLC [11]	38,333[12]	2.4%	38,333	—	—
Wilson Drive Holdings LLC [13]	6,941[14]	*	2,018	4,923	*

* Represents beneficial ownership of less than 1%.

(1) Assumes the sale of all shares offered pursuant to this prospectus. In accordance with the terms of the Warrants, in no event are we permitted to issue shares of Common Stock to each Selling Stockholder in excess of its Beneficial Ownership Limitation. Beneficial ownership of each Selling Stockholder included in this Selling Stockholders table reflects the total number of shares potentially issuable upon exercise of the Warrants and does not give effect to the Beneficial Ownership Limitation. Accordingly, actual beneficial ownership, as calculated in accordance with Section 13(d) of the Exchange Act and Rule 13d-3 thereunder, may be lower than as reflected in this table.

(2) The business address of 3i, LP is 2 Wooster Street, 2nd Floor, New York, NY 10013. 3i, LP's principal business is that of a private investor. Maier Joshua Tarlow is the manager of 3i Management, LLC, the general partner of 3i, LP, and has sole voting control and investment discretion over securities beneficially owned directly by 3i, LP and indirectly by 3i Management, LLC. We have been advised that none of Mr. Tarlow, 3i Management, LLC or 3i, LP is a member of the Financial Industry Regulatory Authority ("FINRA"), or an independent broker-dealer, or an affiliate or associated person of a FINRA member or independent broker-dealer. The foregoing should not be construed in and of itself as an admission by Mr. Tarlow as to beneficial ownership of the securities beneficially owned directly by 3i, LP and indirectly by 3i Management, LLC.

(3) Includes (i) 219,370 shares of Common Stock and (ii) 759,384 common stock warrants. The warrants are subject to a beneficial ownership limitation of 4.99%, which such limitation restricts 3i, LP from exercising that portion of the warrants that would result in 3i, LP and its affiliates owning, after exercise, a number of shares of Common Stock in excess of the beneficial ownership limitation.

(4) James Keyes has voting control and investment discretion over securities beneficially owned directly or indirectly by BPY Limited. Mr. Keyes disclaims any beneficial ownership of the securities beneficially owned directly or indirectly by BPY Limited. The business address of BPY Limited is c/o Murchinson Ltd., 4th Floor, 145 Adelaide Street West, Toronto, Ontario, M5H 4E5, Canada.

(5) Includes 360,476 common stock warrants. The warrants are subject to a beneficial ownership limitation of 4.99%, which such limitation restricts BPY Limited from exercising that portion of the warrants that would result in BPY Limited and its affiliates owning, after exercise, a number of shares of Common Stock in excess of the beneficial ownership limitation.

(6) The business address of Nomis Bay is c/o Murchinson Ltd., 4th Floor, 145 Adelaide Street West, Toronto, Ontario, M5H 4E5, Canada. Nomis Bay's principal business is that of a private investment fund. We have been advised that Nomis Bay is not a member of FINRA or an independent broker-dealer, and that neither Nomis Bay nor any of its affiliates is an affiliate or an associated person of any FINRA member or independent broker-dealer. James Keyes and Arthur Price are the directors of Nomis Bay and have sole voting control and investment discretion over securities owned by Nomis Bay. The foregoing should not be construed in and of itself as an admission by Messrs. Keyes and Price as to beneficial ownership of the securities owned by Nomis Bay.

(7) Includes 588,144 common stock warrants. The warrants are subject to a beneficial ownership limitation of 4.99%, which such limitation restricts Nomis Bay, Ltd. from exercising that portion of the warrants that would result in Nomis Bay, Ltd. and its affiliates owning, after exercise, a number of shares of Common Stock in excess of the beneficial ownership limitation.

(8) Each of these Selling Stockholders is affiliated with H.C. Wainwright & Co., LLC, the placement agent for our offerings in July 2025 and October 2026. H.C. Wainwright & Co., LLC is a registered broker-dealer having a business address of H.C. Wainwright & Co., LLC, 430 Park Ave, 3rd Floor, New York, NY 10022. The number of shares beneficially owned prior to this offering consist of shares of Common Stock issuable upon exercise of placement agent warrants which were received as compensation in connection with the offerings we consummated in July 2025 and October 2026. Each of these Selling Stockholders has the voting and dispositive power over the securities held, acquired the placement agent warrants in the ordinary course of business and, at the time the placement agent warrants were acquired, each of these Selling Stockholders had no agreement or understanding, directly or indirectly, with any person to distribute such securities.

(9) Includes 64,772 placement agent warrants. The warrants are subject to a beneficial ownership limitation of 4.99%, which such limitation restricts Mr. Rubinstein from exercising that portion of the warrants that would result in Mr. Rubinstein owning, after exercise, a number of shares of Common Stock in excess of the beneficial ownership limitation.

(10) Includes 2,058 placement agent warrants. The warrants are subject to a beneficial ownership limitation of 4.99%, which such limitation restricts Mr. Worthman from exercising that portion of the warrants that would result in Mr. Worthman owning, after exercise, a number of shares of Common Stock in excess of the beneficial ownership limitation.

(11) Orsium Capital LLC, the authorized agent to Augustus Trading LLC, has discretionary authority to vote and dispose of the securities held by Augustus Trading LLC and may be deemed to be the beneficial owner of these securities. Olivier Morali, in his capacity as managing member of Orsium Capital LLC, may also be deemed to have investment discretion and voting power over the shares held by Augustus Trading LLC. Orsium Capital LLC and Mr. Morali each disclaims any beneficial ownership of these securities. The business address of the Selling Stockholder is 430 Park Ave, 3rd Floor, New York NY 10022.

(12) Includes 38,333 placement agent warrants held by Augustus Trading LLC. The warrants are subject to a beneficial ownership limitation of 4.99%, which such limitation restricts Augustus Trading LLC from exercising that portion of the warrants that would result in Augustus Trading LLC owning, after exercise, a number of shares of Common Stock in excess of the beneficial ownership limitation.

(13) Craig Schwabe is the managing member of Wilson Drive Holdings LLC and has the power to vote and dispose the securities held. Neither Wilson Drive Holdings LLC nor Mr. Schwabe is a broker-dealer. Mr. Schwabe is affiliated with the following registered broker-dealers: H.C. Wainwright & Co., LLC, Rodman & Renshaw LLC and Stockblock Securities LLC. The securities were acquired in the ordinary course of business and, at the time the securities were acquired, the Selling Stockholder had no agreement or understanding, directly or indirectly, with any person to distribute such securities. The business address of the Selling Stockholder is 600 Lexington Avenue, 32nd Floor, New York, NY 10022.

(14) Includes (i) 2,018 placement agent warrants held by Wilson Drive Holdings LLC and (ii) 4,923 placement agent warrants held by Craig Schwabe. The warrants are subject to a beneficial ownership limitation of 4.99%, which such limitation restricts Wilson Drive Holdings LLC from exercising that portion of the warrants that would result in Wilson Drive Holdings LLC owning, after exercise, a number of shares of Common Stock in excess of the beneficial ownership limitation.

DESCRIPTION OF SECURITIES

The following summary of the material terms of our securities is not intended to be a complete summary of the rights and preferences of such securities. The descriptions below are qualified by reference to the actual text of the Third Amended and Restated Certificate of Incorporation of SeaStar Medical Holding Corporation, as amended (the "Charter") and our Second Amended and Restated Bylaws (the "Bylaws"). We urge you to read the Charter and the Bylaws in its entirety for a complete description of the rights and preferences of our securities.

Authorized and Outstanding Stock

The Charter authorizes the issuance of 435,000,000 shares, consisting of (a) 425,000,000 shares of Common Stock and (b) 10,000,000 shares of preferred stock (the "Preferred Stock").

Common Stock

The Charter provides the following with respect to the rights, powers, preferences and privileges of our Common Stock:

Holders

On October 19, 2026, there were approximately 86 holders of record of our Common Stock.

Voting Power

Except as otherwise required by law or as otherwise provided in any certificate of designation for any series of preferred stock, the holders of Common Stock possess all voting power for the election of our directors and all other matters requiring stockholder action. Holders of Common Stock are entitled to one vote per share on matters to be voted on by stockholders. The Charter does not provide for cumulative voting rights.

Dividends

Subject to the rights, if any, of the holders of any outstanding shares of Preferred Stock, under the Charter, holders of Common Stock will be entitled to receive such dividends, if any, as may be declared from time to time by the Board in its discretion out of funds legally available therefor.

Liquidation, Dissolution and Winding Up

In the event of our voluntary or involuntary liquidation, dissolution, distribution of assets or winding-up, the holders of our Common Stock will be entitled to receive an equal amount per share of all of our assets of whatever kind available for distribution to stockholders, after the rights of the holders of the Preferred Stock have been satisfied and after payment or provision for payment of our debts.

Preemptive or Other Rights

There are no preemptive rights or sinking fund provisions applicable to the shares of our Common Stock.

Preferred Stock

The Charter provides that shares of Preferred Stock may be issued from time to time in one or more series. Our Board is authorized to fix the voting rights, if any, designations, powers, preferences, the relative, participating, optional, or other special rights and any qualifications, limitations, and restrictions thereof, applicable to the shares of each series. Our Board will be able to, without stockholder approval, issue Preferred Stock with voting and other rights that could adversely affect the voting power and other rights of the holders of our Common Stock and could have anti-takeover effects. The ability of our Board to issue Preferred Stock without stockholder approval could have the effect of delaying, deferring, or preventing a change of control of us or the removal of existing management. We have no Preferred Stock outstanding at the date hereof. Although we do not currently intend to issue any shares of Preferred Stock, we cannot assure you that we will not do so in the future.

While we have no current plans to issue Preferred Stock, circumstances in which we might issue Preferred Stock in the future could include, among others, offerings of Preferred Stock undertaken for capital raising purposes, issuances in connection with acquisitions we might make in the future, or issuances in connection with potential change of control or strategic transactions involving us. Any determination by us to issue shares of Preferred Stock in the future will be dependent on the facts and circumstances at the time.

Anti-Takeover Effects of Provisions of our Charter, our Bylaws and Delaware Law

Some provisions of Delaware law and our Charter and Bylaws contain provisions that could make the following transactions more difficult: acquisition of us by means of a tender offer; acquisition of us by means of a proxy contest or otherwise; or removal of our incumbent officers and directors. It is possible that these provisions could make it more difficult to accomplish or could deter transactions that stockholders may otherwise consider to be in their best interest or in our best interests, including transactions that might result in a premium over the market price for our shares.

These provisions, summarized below, are expected to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with the Board. We believe that the benefits of increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure us outweigh the disadvantages of discouraging these proposals because negotiation of these proposals could result in an improvement of their terms.

Delaware Anti-takeover Statute

We are subject to Section 203 of the Delaware General Corporation Law, which prohibits persons deemed "interested stockholders" from engaging in a "business combination" with a publicly held Delaware corporation for three years following the date these persons become interested stockholders unless the business combination is, or the transaction in which the person became an interested stockholder was, approved in a prescribed manner or another prescribed exception applies. Generally, an "interested stockholder" is a person who, together with affiliates and associates, beneficially owns, or within three years prior to the determination of interested stockholder status did own, 15% or more of a corporation's voting stock. Generally, a "business combination" includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. The existence of this provision may have an anti-takeover effect with respect to transactions not approved in advance by Board, such as discouraging takeover attempts that might result in a premium over the market price of our Common Stock.

Undesignated Preferred Stock

The ability to authorize undesignated preferred stock makes it possible for the Board to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to institute a change of control of our company. These and other provisions may have the effect of deterring hostile takeovers or delaying changes in control or management of our company.

Special Stockholder Meetings

Our Charter provides that a special meeting of stockholders may only be called by the Board.

Requirements for Advance Notification of Stockholder Nominations and Proposals

Our Bylaws establish advance notice procedures with respect to stockholder proposals and the nomination of candidates for election as directors, other than nominations made by or at the direction of the Board or a committee of the Board.

Elimination of Stockholder Action by Written Consent

Our Bylaws eliminate the right of stockholders to take action by written consent any action required to be taken at any annual or special meeting of our stockholders.

Classified Board; Election and Removal of Directors; Filling Vacancies

The Board is divided into three classes. The directors in each class serve for a three-year term, one class being elected each year by our stockholders. Only one class of directors is elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms. Because our stockholders do not have cumulative voting rights, our stockholders holding a majority of the shares of Common Stock outstanding will be able to elect all of our directors. Our Charter provides for the removal of any of our directors only for cause and requires a stockholder vote by the holders of at least a 66-2/3% of the outstanding shares of our capital stock entitled to vote in the election of directors or class of directors, voting together as a single class, at a meeting of the stockholders called for that purpose. Furthermore any new directorships or vacancies in the Board, including new directorships resulting from any increase in the number of directors to serve on the whole board and/or any unfilled vacancies by reason of death, resignation, disqualification, removal for cause, failure to elect or otherwise with respect to any director, may be filled by only the vote of a majority of the remaining directors then in office, although less than a quorum, or by the sole remaining director. This system of electing and removing directors and filling vacancies may tend to discourage a third party from making a tender offer or otherwise attempting to obtain control of us, because it generally makes it more difficult for stockholders to replace a majority of our directors.

Choice of Forum

Our Charter provides that, unless a majority of the Board, acting on our behalf, consents in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware (or, if the Court of Chancery does not have jurisdiction, another state court located within the State of Delaware or, if no court located within the State of Delaware has jurisdiction, the federal district court for the District of Delaware) shall be the sole and exclusive forum for any derivative action or proceeding brought on our behalf; any action asserting a breach of fiduciary duty; any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our Charter, our Bylaws or as to which the Delaware General Corporation Law confers jurisdiction to the Court of Chancery of the State of Delaware; or any action asserting a claim against us that is governed by the internal affairs doctrine. Our Charter also provides that the federal district courts of the United States of America are the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act.

We believe these provisions may benefit us by providing increased consistency in the application of Delaware law and federal securities laws by chancellors and judges, as applicable, particularly experienced in resolving corporate disputes, efficient administration of cases on a more expedited schedule relative to other forums and protection against the burdens of multi-forum litigation. However, these provisions may have the effect of discouraging lawsuits against our directors and officers. The exclusive forum provision would not apply to suits brought to enforce any liability or duty created by the Exchange Act.

Our exclusive forum provision does not relieve us of our duties to comply with the federal securities laws and the rules and regulations thereunder, and our stockholders are not deemed to have waived our compliance with these laws, rules and regulations.

Although our Charter contains the choice of forum provisions described above, it is possible that a court could find that such a provision is inapplicable for a particular claim or action or that such provision is unenforceable.

Amendment of Charter Provisions

Our Charter grants us the right to amend, alter, change or repeal any provision in our Charter in the manner prescribed by the Delaware General Corporation Law (the "DGCL") provided that, except as otherwise required by law, holders of Common Stock shall not be entitled to vote on any amendment to our charter that alters or changes the powers, preferences, rights or other terms of one or more outstanding series of Preferred Stock if the holders of such affected series of Preferred Stock are entitled to vote, either separately or together with the holders of one or more other such series, on such amendment, or pursuant to the DGCL.

Amendment of Bylaw Provisions

Our Bylaws grant the Board the authority to amend, alter, repeal, or adopt new Bylaws in accordance with the procedures outlined in the Bylaws themselves. The Board can make such changes by a majority vote of all Board members at any regular or special meeting. Additionally, stockholders have the right to amend, alter, repeal, or adopt new bylaws by an affirmative vote of at least 50% of the outstanding shares of capital stock entitled to vote in the election of directors.

The provisions of the Delaware General Corporation Law, our Charter and our Bylaws could have the effect of discouraging others from attempting hostile takeovers and, as a consequence, they may also inhibit temporary fluctuations in the market price of our Common Stock that often result from actual or rumored hostile takeover attempts. These provisions may also have the effect of preventing changes in our management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders may otherwise deem to be in their best interests.

Warrants

Listed Warrants

Exercising a total of 250 Listed Warrants entitles the holder thereof to purchase one share of Common Stock at an aggregate price of $2,875.00 per share, subject to adjustment as discussed below, at any time after November 27, 2022. The Listed Warrants will expire on October 28, 2027, or earlier upon redemption or liquidation.

We will use our best efforts to maintain a current prospectus relating to those shares of Common Stock until the Listed Warrants expire, as specified in the warrant agreement. Notwithstanding the above, if our Common Stock is at the time of any exercise of a warrant not listed on a national securities exchange such that it satisfies the definition of a "covered security" under Section 18(b)(1) of the Securities Act, we may, at our option, require holders of Listed Warrants who exercise their Listed Warrants to do so on a "cashless basis" in accordance with Section 3(a)(9) of the Securities Act and, in the event we so elect, we will not be required to file or maintain in effect a registration statement, but we will be required to use our reasonable best efforts to register or qualify the shares under applicable blue sky laws to the extent an exemption is not available.

We may call the Listed Warrants for redemption:

- in whole and not in part;
- at a price of $0.01 per warrant;
- upon not less than 30 days' prior written notice of redemption (the "30-day redemption period") to each warrant holder; and
- if, and only if, the reported last sale price of the Common Stock equals or exceeds $4,500.00 per share (as adjusted for stock splits, stock dividends, reorganizations, recapitalizations and the like) for any 20 trading days within a 30-trading day period ending 3 business days before we send the notice of redemption to the warrant holders.

If and when the Listed Warrants become redeemable by us, we may exercise our redemption right even if we are unable to register or qualify the underlying securities for sale under all applicable state securities laws.

We have established the last of the redemption criterion discussed above to prevent a redemption call unless there is at the time of the call a significant premium to the warrant exercise price. If the foregoing conditions are satisfied and we issue a notice of redemption of the Listed Warrants, each warrant holder will be entitled to exercise its warrant prior to the scheduled redemption date. However, the price of the Common Stock may fall below the $4,500.00 redemption trigger price (as adjusted for stock splits, stock dividends, reorganizations, recapitalizations, and the like) as well as the $2,875.00 warrant exercise price after the redemption notice is issued.

If we call the Listed Warrants for redemption as described above, our management will have the option to require any holder that wishes to exercise its warrant to do so on a "cashless basis." In determining whether to require all holders to exercise their Listed Warrants on a "cashless basis," our management will consider, among other factors, our cash position, the number of Listed Warrants that are outstanding and the dilutive effect on our stockholders of issuing the maximum number of shares of Common Stock issuable upon the exercise of our Listed Warrants. If our management takes advantage of this option, all holders of Listed Warrants would pay the exercise price by surrendering their Listed Warrants for that number of shares of Common Stock equal to the quotient obtained by dividing: (x) the product of the number of shares of Common Stock underlying the Listed Warrants, multiplied by the difference between the exercise price of the Listed Warrants and the "fair market value" (defined below); by (y) the fair market value. The "fair market value" shall mean the average reported last sale price of the Common Stock for the 10 trading days ending on the third trading day prior to the date on which the notice of redemption is sent to the holders of Listed Warrants. If our management takes advantage of this option, the notice of redemption will contain the information necessary to calculate the number of shares of Common Stock to be received upon exercise of the Listed Warrants, including the "fair market value" in such case. Requiring a cashless exercise in this manner will reduce the number of shares to be issued and thereby lessen the dilutive effect of a warrant redemption.

A holder of a warrant may notify us in writing in the event it elects to be subject to a requirement that such holder will not have the right to exercise such warrant, to the extent that after giving effect to such exercise, such person (together with such person's affiliates), to the warrant agent's actual knowledge, would beneficially own in excess of 4.9% or 9.8% (or such other amount as a holder may specify) of the shares of Common Stock outstanding immediately after giving effect to such exercise.

If the number of outstanding shares of Common Stock is increased by a stock dividend payable in shares of Common Stock, or by a split-up of shares of Common Stock or other similar event, then, on the effective date of such stock dividend, split-up or similar event, the number of shares of Common Stock issuable on exercise of each warrant will be increased in proportion to such increase in the outstanding shares of Common Stock. A rights offering to holders of Common Stock entitling holders to purchase shares of Common Stock at a price less than the fair market value will be deemed a stock dividend of a number of shares of Common Stock equal to the product of: (i) the number of shares of Common Stock actually sold in such rights offering (or issuable under any other equity securities sold in such rights offering that are convertible into or exercisable for Common Stock); and (ii) one (1) minus the quotient of: (x) the price per share of Common Stock paid in such rights offering, divided by (y) the fair market value. For these purposes: (i) if the rights offering is for securities convertible into or exercisable for Common Stock, in determining the price payable for Common Stock, there will be taken into account any consideration received for such rights, as well as any additional amount payable upon exercise or conversion; and (ii) fair market value means the volume weighted average price of Common Stock as reported during the ten (10) trading day period ending on the trading day prior to the first date on which the shares of Common Stock trade on the applicable exchange or in the applicable market, regular way, without the right to receive such rights.

In addition, if we, at any time while the Listed Warrants are outstanding and unexpired, pay a dividend or make a distribution in cash, securities or other assets to the holders of Common Stock on account of such shares of Common Stock (or other shares of our capital stock into which the Listed Warrants are convertible), other than: (a) as described above; or (b) certain ordinary cash dividends, then the warrant exercise price will be decreased, effective immediately after the effective date of such event, by the amount of cash and/or the fair market value of any securities or other assets paid on each share of Common Stock in respect of such event.

If the number of outstanding shares of our Common Stock is decreased by a consolidation, combination, reverse stock split or reclassification of shares of Common Stock or other similar event, then, on the effective date of such consolidation, combination, reverse stock split, reclassification or similar event, the number of shares of Common Stock issuable on exercise of each warrant will be decreased in proportion to such decrease in outstanding shares of Common Stock.

Whenever the number of shares of Common Stock purchasable upon the exercise of the Listed Warrants is adjusted, as described above, the warrant exercise price will be adjusted (to the nearest cent) by multiplying the warrant exercise price immediately prior to such adjustment by a fraction (x) the numerator of which will be the number of shares of Common Stock purchasable upon the exercise of the Listed Warrants immediately prior to such adjustment, and (y) the denominator of which will be the number of shares of Common Stock so purchasable immediately thereafter.

In case of any reclassification or reorganization of the outstanding shares of Common Stock (other than those described above or that solely affects the par value of such shares of Common Stock), or in the case of any merger or consolidation of us with or into another corporation (other than a consolidation or merger in which we are the continuing corporation and that does not result in any reclassification or reorganization of our outstanding shares of Common Stock), or in the case of any sale or conveyance to another corporation or entity of the assets or other property of us as an entirety or substantially as an entirety in connection with which we are dissolved, the holders of the Listed Warrants will thereafter have the right to purchase and receive, upon the basis and upon the terms and conditions specified in the Listed Warrants and in lieu of the shares of our Common Stock immediately theretofore purchasable and receivable upon the exercise of the rights represented thereby, the kind and amount of shares of stock or other securities or property (including cash) receivable upon such reclassification, reorganization, merger or consolidation, or upon a dissolution following any such sale or transfer, that the holder of the Listed Warrants would have received if such holder had exercised their Listed Warrants immediately prior to such event. If less than 70% of the consideration receivable by the holders of Common Stock in such a transaction is payable in the form of Common Stock in the successor entity that is listed for trading on a national securities exchange or is quoted in an established over-the-counter market, or is to be so listed for trading or quoted immediately following such event, and if the registered holder of the warrant properly exercises the warrant within thirty days following public disclosure of such transaction, the warrant exercise price will be reduced as specified in the warrant agreement based on the Black-Scholes value (as defined in the warrant agreement) of the warrant. The purpose of such exercise price reduction is to provide additional value to holders of the Listed Warrants when an extraordinary transaction occurs during the exercise period of the Listed Warrants pursuant to which the holders of the Listed Warrants otherwise do not receive the full potential value of the Listed Warrants.

The Listed Warrants were issued in registered form under a warrant agreement between Continental, as warrant agent, and us. The description of the Listed Warrants set forth herein is a summary and does not purport to be complete. The warrant agreement provides that the terms of the Listed Warrants may be amended without the consent of any holder to cure any ambiguity or correct any defective provision, but requires the approval by the holders of at least 50% of the then outstanding Listed Warrants to make any change that adversely affects the interests of the registered holders of Listed Warrants.

The Listed Warrants may be exercised upon surrender of the warrant certificate on or prior to the expiration date at the offices of the warrant agent, with the exercise form on the reverse side of the warrant certificate completed and executed as indicated, accompanied by full payment of the exercise price (or on a cashless basis, if applicable), by certified or official bank check payable to us, for the number of Listed Warrants being exercised. The warrant holders do not have the rights or privileges of holders of Common Stock and any voting rights until they exercise their Listed Warrants and receive shares of Common Stock. After the issuance of shares of Common Stock upon exercise of the Listed Warrants, each holder will be entitled to one (1) vote for each share held of record on all matters to be voted on by stockholders.

We have agreed that, subject to applicable law, any action, proceeding or claim against us arising out of or relating in any way to the warrant agreement will be brought and enforced in the courts of the City of New York, County of New York, State of New York or the United States District Court for the Southern District of New York, and we irrevocably submit to such jurisdiction, which jurisdiction will be the exclusive forum for any such action, proceeding or claim. This provision applies to claims under the Securities Act but does not apply to claims under the Exchange Act or any claim for which the federal district courts of the United States of America are the sole and exclusive forum.

October Series A Warrants

Duration and Exercise Price. Each October Series A Warrant has an initial exercise price per share equal to $3.616 per share. The October Series A Warrants are immediately exercisable and will expire at 5:00 p.m. (New York City time) five years following the date on which this Resale Registration Statement becomes effective. The exercise price and number of shares of our Common Stock issuable upon exercise is subject to appropriate adjustment in the event of stock dividends, stock splits, recapitalization, reorganizations or similar events affecting our Common Stock and the exercise price.

Exercisability. The October Series A Warrants are exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of our Common Stock purchased upon such exercise (except in the case of a cashless exercise as discussed below). A holder (together with its affiliates) may not exercise any portion of the October Series A Warrants to the extent that the holder would own more than 4.99% (or, upon election of the holder, 9.99%) of the outstanding Common Stock immediately after exercise, except that upon at least 61 days' prior notice from the holder to us, the holder may increase the amount of ownership of outstanding stock after exercising the holder's October Series A Warrants up to 9.99% of the number of shares of our Common Stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the October Series A Warrants. No fractional shares of our Common Stock will be issued in connection with the exercise of an October Series A Warrant. In lieu of fractional shares, we will round to the next whole share.

Cashless Exercise. If at the time of exercise of a October Series A Warrant there is no effective registration statement registering, or the prospectus contained therein is not available for the issuance of the shares to be issued upon exercise of the October Series A Warrant, then, in lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise the net number of shares of our Common Stock determined according to a formula set forth in the October Series A Warrants.

Transferability. Subject to applicable laws, an October Series A Warrant may be transferred upon notice to us in writing and surrender of the October Series A Warrant to us together with the appropriate instruments of transfer.

Exchange Listing. There is no established public trading market for the October Series A Warrants, and we do not expect a market to develop. In addition, we do not intend to list the October Series A Warrants on any securities exchange or nationally recognized trading system. Without an active trading market, the liquidity of the October Series A Warrants will be limited.

Right as a Stockholder. Except as otherwise provided in the October Series A Warrants or by virtue of such holder's ownership of shares of our Common Stock, the holders of the October Series A Warrants do not have the rights or privileges of holders of our Common Stock, including any voting rights, until they exercise their October Series A Warrants.

Fundamental Transaction. In the event of a fundamental transaction, as described in the form of October Series A Warrant, and generally including any reorganization, recapitalization or reclassification of our Common Stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person, the acquisition of greater than 50% of our outstanding Common Stock, or any person or group becoming the beneficial owner of greater than 50% of the voting power represented by our outstanding Common Stock, the holders of the October Series A Warrants will be entitled to receive upon exercise of the October Series A Warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the October Series A Warrants immediately prior to such fundamental transaction. Notwithstanding the foregoing, within 30 days after the consummation of a fundamental transaction, the holder of the October Series A Warrants may require us to repurchase any October Series A Warrants from the holder of such warrant pursuant to the terms and conditions described in the form of October Series A Warrant by paying to the holder an amount equal to the Black Scholes Value (as defined in each October Series A Warrant) of the remaining unexercised portion of the October Series A Warrant on the date of the fundamental transaction.

October Series B Warrants

Duration and Exercise Price. Each October Series B Warrant has an initial exercise price per share equal to $3.616 per share. The October Series B Warrants are immediately exercisable and will expire at 5:00 p.m. (New York City time) 18 months following the date on which this Resale Registration Statement becomes effective. The exercise price and number of shares of our Common Stock issuable upon exercise is subject to appropriate adjustment in the event of stock dividends, stock splits, recapitalization, reorganizations or similar events affecting our Common Stock and the exercise price.

Exercisability. The October Series B Warrants are exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of our Common Stock purchased upon such exercise (except in the case of a cashless exercise as discussed below). A holder (together with its affiliates) may not exercise any portion of the October Series B Warrants to the extent that the holder would own more than 4.99% (or, upon election of the holder, 9.99%) of the outstanding Common Stock immediately after exercise, except that upon at least 61 days' prior notice from the holder to us, the holder may increase the amount of ownership of outstanding stock after exercising the holder's October Series B Warrants up to 9.99% of the number of shares of our Common Stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the October Series B Warrants. No fractional shares of our Common Stock will be issued in connection with the exercise of an October Series B Warrant. In lieu of fractional shares, we will round to the next whole share.

Cashless Exercise. If at the time of exercise of a October Series B Warrant there is no effective registration statement registering, or the prospectus contained therein is not available for the issuance of the shares to be issued upon exercise of the October Series B Warrant, then, in lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise the net number of shares of our Common Stock determined according to a formula set forth in the October Series B Warrants.

Transferability. Subject to applicable laws, an October Series B Warrant may be transferred upon notice to us in writing and surrender of the October Series B Warrant to us together with the appropriate instruments of transfer.

Exchange Listing. There is no established public trading market for the October Series B Warrants, and we do not expect a market to develop. In addition, we do not intend to list the October Series B Warrants on any securities exchange or nationally recognized trading system. Without an active trading market, the liquidity of the October Series B Warrants will be limited.

Right as a Stockholder. Except as otherwise provided in the October Series B Warrants or by virtue of such holder's ownership of shares of our Common Stock, the holders of the October Series B Warrants do not have the rights or privileges of holders of our Common Stock, including any voting rights, until they exercise their October Series B Warrants.

Fundamental Transaction. In the event of a fundamental transaction, as described in the form of October Series B Warrant, and generally including any reorganization, recapitalization or reclassification of our Common Stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person, the acquisition of greater than 50% of our outstanding Common Stock, or any person or group becoming the beneficial owner of greater than 50% of the voting power represented by our outstanding Common Stock, the holders of the October Series B Warrants will be entitled to receive upon exercise of the October Series B Warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the October Series B Warrants immediately prior to such fundamental transaction. Notwithstanding the foregoing, within 30 days after the consummation of a fundamental transaction, the holder of the October Series B Warrants may require us to repurchase any October Series B Warrants from the holder of such warrant pursuant to the terms and conditions described in the form of October Series B Warrant by paying to the holder an amount equal to the Black Scholes Value (as defined in each October Series B Warrant) of the remaining unexercised portion of the October Series B Warrant on the date of the fundamental transaction.

Placement Agent Warrants

We have also issued to Wainwright or its designees the October Placement Agent Warrants to purchase up to 59,780 shares of Common Stock. The October Placement Agent Warrants have substantially the same terms as the October Series A Warrants and October Series B Warrants issued in the private placement described above, except that the October Placement Agent Warrants will have an exercise price of $4.8325 per share (representing 125% of the exercise price of the October Series A Warrants and October Series B Warrants). The October Placement Agent Warrants are immediately exercisable and will expire at 5:00 p.m. (New York City time) five years following the date on which this Resale Registration Statement becomes effective. The exercise price and number of shares of our Common Stock issuable upon exercise is subject to appropriate adjustment in the event of stock dividends, stock splits, recapitalization, reorganizations or similar events affecting our Common Stock and the exercise price.

Listing

Our Common Stock and Listed Warrants are traded on the Nasdaq Capital Market under the symbols "ICU" and "ICUCW," respectively.

LEGAL MATTERS

The validity of the securities offered by this prospectus has been passed upon for us by Dorsey & Whitney LLP, Salt Lake City, Utah.

EXPERTS

The consolidated financial statements as of December 31, 2025 and 2024 and for the years then ended included in this prospectus have been so included in reliance on the report of WithumSmith+Brown, PC, an independent registered public accounting firm, which report includes an explanatory paragraph about the existence of substantial doubt concerning the Company's ability to continue as a going concern, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a Resale Registration Statement on Form S-3 under the Securities Act with respect to the securities offered by this prospectus. This prospectus, which forms a part of such Resale Registration Statement, does not contain all of the information included in the Resale Registration Statement. For further information pertaining to us and our securities, you should refer to the Resale Registration Statement and to its exhibits. The Resale Registration Statement has been filed electronically and may be obtained in any manner listed below. Whenever we make reference in this prospectus to any of our contracts, agreements or other documents, the references are not necessarily complete. If a contract or document has been filed as an exhibit to the Resale Registration Statement or a report we file under the Exchange Act, you should refer to the copy of the contract or document that has been filed. Each statement in this prospectus relating to a contract or document filed as an exhibit to a Resale Registration Statement or report is qualified in all respects by the filed exhibit.

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 and on our website, free of charge, at https://seastarmedical.com/. The information found on, or that can be accessed from or that is hyperlinked to, our website is not part of this prospectus. You may inspect a copy of the Resale Registration Statement through the SEC's website, as provided herein.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to "incorporate by reference" into this prospectus supplement and the accompanying prospectus the information we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus supplement and the accompanying prospectus. Any statement contained herein or in a document incorporated or deemed to be incorporated by reference into this document will be deemed to be modified or superseded for purposes of the document to the extent that a statement contained in this document or any other subsequently filed document that is deemed to be incorporated by reference into this document modifies or supersedes the statement. We incorporate by reference into this prospectus supplement and the accompanying prospectus the following information (other than, in each case, documents or information deemed to have been furnished and not filed in accordance with SEC rules):

- Our Annual Report on Form 10-K for the year ended December 31, 2025, filed with the SEC on March 25, 2026;
- Our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2026 and June 30, 2026, filed with the SEC on May 13, 2026 and August 12, 2026, respectively;
- Our Current Reports on Form 8-K filed with the SEC on January 20, 2026, April 28, 2026, June 17, 2026, June 23, 2026, July 1, 2026 and October 5, 2026; and
- The description of our Common Stock set forth in our registration statement on Form 8-A/A filed with the SEC on October 31, 2022, as updated by Exhibit 4.3 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2024, filed with the SEC on March 27, 2025, and any amendment or report filed with the SEC for the purposes of updating such description.

We also incorporate by reference into this prospectus supplement all documents (other than Current Reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items) that are filed by us with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, including those made after the date of the initial filing of the Resale Registration Statement of which this prospectus supplement is a part and prior to effectiveness of such Resale Registration Statement, as well as after the date of this prospectus supplement until we file a post-effective amendment that indicates the termination of the offering of the shares of our Common Stock made by this prospectus supplement and will become a part of this prospectus supplement from the date that such documents are filed with the SEC. These documents include periodic reports, such as Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K, as well as proxy statements.

We will provide to each person, including any beneficial owner, to whom a prospectus supplement is delivered, without charge upon written or oral request, a copy of any or all of the documents that are incorporated by reference into this prospectus supplement but not delivered with this prospectus supplement, including exhibits which are specifically incorporated by reference into such documents. You should direct any requests for documents to SeaStar Medical Holding Corporation, 3513 Brighton Blvd., Suite 410, Denver, CO 80216; telephone: (844) 427-8100.

Any statement contained herein or in a document incorporated or deemed to be incorporated by reference into this document will be deemed to be modified or superseded for purposes of the document to the extent that a statement contained in this document or any other subsequently filed document that is deemed to be incorporated by reference into this document modifies or supersedes the statement.



Up to 1,767,784 Shares of Common Stock

Offered by the Selling Stockholders

PROSPECTUS

, 2026

You should rely only on the information contained. We have not authorized anyone to provide you with different information. You should not assume that the information contained is accurate as of any date other than the date of this prospectus. We are not making an offer of these securities in any state where the offer is not permitted.

PART II - INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution

The following table sets forth the costs and expenses payable by us in connection with the registration and sale of the securities being registered. All expenses incurred with respect to the registration of the Common Stock will be borne by us. All amounts are estimated except the Securities and Exchange Commission registration fee.

SEC registration fee	$	413.64
Accounting fees and expenses	$	12,500.00
Printing and miscellaneous expenses	$	900.00
Legal fees and expenses	$	15,000.00
Total	$	28,813.64

Item 15. Indemnification of Directors and Officers

We are incorporated under the laws of the State of Delaware. Under Delaware law, a corporation may indemnify any person who was or is a party or is threatened to be made a party to an action (other than an action by or in the right of the corporation) by reason of his or her service as a director or officer of the corporation, or his or her service, at the corporation's request, as a director, officer, employee or agent of another corporation or other enterprise, against expenses (including attorneys' fees) that are actually and reasonably incurred by him or her ("Expenses"), and judgments, fines and amounts paid in settlement that are actually and reasonably incurred by him or her, in connection with the defense or settlement of such action, provided that such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the corporation's best interests, and, with respect to any criminal action or proceeding, had no reasonable cause to believe that his or her conduct was unlawful. Although Delaware law permits a corporation to indemnify any person referred to above against Expenses in connection with the defense or settlement of an action by or in the right of the corporation, provided that such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the corporation's best interests, if such person has been judged liable to the corporation, indemnification is only permitted to the extent that the Court of Chancery (or the court in which the action was brought) determines that, despite the adjudication of liability, such person is entitled to indemnity for such Expenses as the court deems proper. The DGCL also provides for mandatory indemnification of any director, officer, employee or agent against Expenses to the extent such person has been successful in any proceeding covered by the statute. In addition, the DGCL provides the general authorization of advancement of a director's or officer's litigation expenses in lieu of requiring the authorization of such advancement by the board of directors in specific cases, and that indemnification and advancement of expenses provided by the statute shall not be deemed exclusive of any other rights to which those seeking indemnification or advancement of expenses may be entitled under any bylaw, agreement or otherwise.

Our bylaws and certificate of incorporation provide for indemnification of our directors and officers and for advancement of litigation expenses to the fullest extent permitted by current Delaware law.

We maintain a policy of directors and officers liability insurance which reimburses us for expenses which we may incur in connection with the foregoing indemnity provisions and which may provide direct indemnification to directors and officers where we are unable to do so.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers and controlling persons pursuant to the above, we have been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable.

Item 16. Exhibits.

Exhibit No.	Description
2.1†	Agreement and Plan of Merger, dated as of April 21, 2022, by and among LMF Acquisition Opportunities, Inc. ("LMAO"), LMF Merger Sub, Inc. and SeaStar Medical, Inc. (incorporated by reference to Exhibit 2.1 to Form 8-K filed by the registrant on April 26, 2022).
3.1	Third Amended and Restated Certificate of Incorporation of SeaStar Medical Holding Corporation, filed with the Secretary of State of Delaware on October 28, 2022 (incorporated by reference to Exhibit 3.1 to Form 8-K filed by the registrant on November 4, 2022).
3.2	Certificate of Amendment to the Third Amended and Restated Certificate of Incorporation of SeaStar Medical Holding Corporation (incorporated by reference to Exhibit 3.1 to Form 8-K filed September 20, 2023).
3.3	Second Certificate of Amendment of Third Amended and Restated Certificate of Incorporation of SeaStar Medical Holding Corporation (incorporated by reference to Exhibit 3.1 to Form 8-K filed by the registrant on June 7, 2024).
3.4	Third Certificate of Amendment to the Third Amended and Restated Certificate of Incorporation of SeaStar Medical Holding Corporation (incorporated by reference to Exhibit 3.4 to Form 10-K filed by registrant on March 27, 2025).
3.5	Fourth Certificate of Amendment to the Third Amended and Restated Certificate of Incorporation of SeaStar Medical Holding Corporation (incorporated by reference to Exhibit 3.5 to Form S-1 filed by the registrant on April 28, 2026).
3.6	Second Amended and Restated Bylaws of SeaStar Medical Holding Corporation (incorporated by reference to Exhibit 3.1 of Form 8-K filed by the registrant on April 18, 2024).
4.1	Specimen Common Stock Certificate (incorporated by reference to Exhibit 4.1 to Form 8-K filed by the registrant on November 4, 2022).
4.2	Specimen Warrant Certificate (incorporated by reference to Exhibit 4.1 to Form 8-K filed by the registrant on January 28, 2021).
4.3	Warrant Agreement, dated January 25, 2021, between LMAO and Continental Stock Transfer & Trust Company (previously filed as Exhibit 4.1 to Form 8-K filed by LMAO with the SEC on January 28, 2021).
4.4	Form of Series A Common Stock Purchase Warrant to Purchase Common Stock (incorporated by reference to Exhibit 4.2 of Form 8-K dated January 30, 2024).
4.5	Form of Series B Common Stock Purchase Warrant to Purchase Common Stock (incorporated by reference to Exhibit 4.3 of Form 8-K dated January 30, 2024).
4.6	Form of Common Stock Purchase Warrant (incorporated by reference to Exhibit 4.1 of Form 8-K filed by the registrant on July 11, 2024).
4.7	Form of Placement Agent Warrant (incorporated by reference to Exhibit 4.2 of Form 8-K filed by the registrant on July 11, 2024).
4.8	Form of Pre-Funded Warrant to Purchase Common Stock (incorporated by reference to Exhibit 4.1 of Form 8-K dated February 3, 2025).
4.9	Form of Common Stock Purchase Warrant (incorporated by reference to Exhibit 4.2 of Form 8-K filed by the registrant on February 3, 2025).
4.10	Form of Placement Agent Warrant (incorporated by reference to Exhibit 4.3 of Form 8-K filed by the registrant on February 3, 2025).

4.11	Form of Pre-Funded Warrant to Purchase Common Stock dated June 20, 2025 (incorporated by reference to Exhibit 4.1 to Form 10-Q filed on August 13, 2025).
4.12	Form of Series A Common Stock Purchase Warrant to Purchase Common Stock dated June 20, 2025 (incorporated by reference to Exhibit 4.2 to Form 10-Q filed on August 13, 2025).
4.13	Form of Series B Common Stock Purchase Warrant to Purchase Common Stock dated June 20, 2025 (incorporated by reference to Exhibit 4.3 to Form 10-Q filed on August 13, 2025).
4.14	Form of Placement Agent Warrant to Purchase Common Stock dated June 20, 2025 (incorporated by reference to Exhibit 4.4 to Form 10-Q filed on August 13, 2025).
4.15	Form of Pre-Funded Warrants to Purchase Common Stock (incorporated by reference to Exhibit 4.1 of Form 8-K filed on July 14, 2025).
4.16	Form of Common Stock Purchase Warrant to Purchase Common Stock (incorporated by reference to Exhibit 4.2 of Form 8-K filed on July 14, 2025).
4.17	Form of Placement Agent Warrant to Purchase Common Stock (incorporated by reference to Exhibit 4.3 of Form 8-K filed on July 14, 2025).
4.18	Form of Common Stock Purchase Warrant to Purchase Common Stock (incorporated by reference to Exhibit 4.1 to Form 8-K filed on August 1, 2025).
4.19	Form of Placement Agent Warrant to Purchase Common Stock (incorporated by reference to Exhibit 4.2 to Form 8-K filed on August 1, 2025).
4.20	Form of Series A Warrant to Purchase Common Stock (incorporated by reference to Exhibit 4.1 to Form 8-K filed on October 5, 2026).
4.21	Form of Series B Warrant to Purchase Common Stock (incorporated by reference to Exhibit 4.2 to Form 8-K filed on October 5, 2026).
4.22	Form of Placement Agent Warrant to Purchase Common Stock (incorporated by reference to Exhibbit 4.3 to Form 8-K filed on October 5, 2026).
5.1*	Opinion of Dorsey & Whitney LLP.
10.1+	SeaStar Medical Holding Corporation 2022 Employee Stock Purchase Plan (incorporated by reference to Annex E to Form S-4 filed by the registrant on May 16, 2022).
10.2+	Employment Agreement, dated January 10, 2024, by and between SeaStar Medical Holding Corporation and David Green (incorporated by reference to Exhibit 10.1 to Form 8-K dated January 11, 2024).
10.3	At The Market Offering Agreement, dated August 20, 2024, by and between SeaStar Medical Holding Corporation, and H.C. Wainwright & Co., LLC (incorporated by reference to Exhibit 10.1 of Form 8-K filed by the registrant on August 21, 2024).
10.4+	Employment Agreement, dated May 18, 2022, by and between SeaStar Medical Holding Corporation and Kevin Chung (incorporated by reference to Exhibit 10.27 to Form S-4/A filed by the registrant on August 24, 2022).

10.8+	Form of Amended and Restated Employment Agreement, by and between SeaStar Medical Holding Corporation and Eric Schlorff (incorporated by reference to Exhibit 10.32 to Form S-4/A filed by the registrant on August 24, 2022).
10.9	Purchase Agreement, dated April 25, 2025, by and between SeaStar Medical Holding Corporation and Lincoln Park Capital Fund, LLC (incorporated by reference to Exhibit 10.1 of Form 8-K filed by the registrant on April 25, 2025).
10.10	Registration Rights Agreement, dated April 25, 2025, by and between SeaStar Medical Holding Corporation and Lincoln Park Capital Fund, LLC (incorporated by reference to Exhibit 10.2 of Form 8-K filed by the registrant on April 25, 2025).
10.11	Form of Confidential Bonus Agreement (incorporated by reference to Exhibit 10.1 of Form 8-K filed by the registrant on June 11, 2025).
10.17+	Consulting Agreement dated October 31, 2025, by and between the Company and Michael Messinger. (incorporated by reference to Exhibit 10.1 of Form 8-K filed on November 17, 2025).
10.18+	Amended and Restated SeaStar Medical Holding Corporation 2022 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.1 to our current report on Form 8-K filed on June 17, 2026)
10.19+	2026 Retention Bonus Program Agreement between the Company and Eric Schlorff, dated June 29, 2026 (incorporated by reference to Exhibit 10.1 to Form 8-K filed by the registrant on July 1, 2026).
10.20+	2026 Retention Bonus Program Agreement between the Company and Kevin Chung, dated June 29, 2026 (incorporated by reference to Exhibit 10.2 to Form 8-K filed by the registrant on July 1, 2026).
10.21	Form of Letter Agreement, between the Company and the holders signatory thereto (incorporated by reference to Exhibit 10.1 to Form 8-K filed by the registrant on October 5, 2026)
21.1	List of Subsidiaries (incorporated by reference to Exhibit 21.1 to Form 8-K filed by the registrant on November 4, 2022).
23.1*	Consent of WithumSmith+Brown, PC, independent registered public accounting firm.
23.2*	Consent of Dorsey & Whitney LLP (included in Exhibit 5.1).
24.1*	Power of Attorney (included on the signature page hereto).
107*	Filing Fee Table

+ Indicates management contract or compensatory plan or arrangement.

† Schedules and exhibits to this agreement have been omitted pursuant to Item 601(b)(2) of Regulation S-K. A copy of any omitted schedule and/or exhibit will be furnished to the SEC upon request.

* Filed herewith.

Item 17. Undertakings.

The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by section 10(a)(3) of the Securities Act;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the SEC pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement.

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

(2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for the purpose of determining liability under the Securities Act to any purchaser, each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use.

(5) That, for the purpose of determining liability of the registrant under the Securities Act to any purchaser in the initial distribution of the securities, that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

(i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;

(ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;

(iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and

(iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

(6) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the city of Denver, state of Colorado, on October 30, 2026.

SEASTAR MEDICAL HOLDING CORPORATION

By: /s/ Eric Schlorff
Name: Eric Schlorff
Title: Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that each of the undersigned constitutes and appoints Eric Schlorff his or her true and lawful attorney-in-fact and agent, with full power of substitution and revocation, for him or her and in his or her name, place and stead, in any and all capacities, to execute any or all amendments to this registration statement on Form S-3, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this registration statement on Form S-3 has been signed below by the following persons in the capacities and on the dates indicated.

Name	Title	Date
/s/ Eric Schlorff Eric Schlorff	Chief Executive Officer and Director (Principal Executive Officer)	October 30, 2026
/s/ Michael Messinger Michael Messinger	Chief Financial Officer (Principal Financial Officer)	October 30, 2026
/s/ Bradford K. Towne Bradford K. Towne	Controller (Principal Accounting Officer)	October 30, 2026
/s/ Kenneth Van Heel Kenneth Van Heel	Director	October 30, 2026
/s/ Jennifer A. Baird Jennifer A. Baird	Director	October 30, 2026
/s/ John Neuman John Neuman	Director	October 30, 2026
/s/ Bernadette N. Vincent Bernadette N. Vincent	Director	October 30, 2026

Exhibit 5.1

DORSEY
DORSEY+WHITNEY LLP

October 30, 2026

SeaStar Medical Holding Corporation
3513 Brighton Blvd, Suite 410
Denver, Colorado 80216

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

We have acted as counsel to SeaStar Medical Holding Corporation, a Delaware corporation (the "Company"), in connection with the filing by the Company with the Securities and Exchange Commission (the "Commission") of a Registration Statement on Form S-3 filed by the Company with the Commission under the Securities Act of 1933, as amended (the "Securities Act"), relating to the offer and resale by certain selling stockholders of up to 1,767,784 shares (the "Warrant Shares") of common stock, par value $0.0001 per share (the "Common Stock"), issuable upon the exercise of certain new warrants to purchase shares of the Company's Common Stock (the "New Warrants") issued pursuant to those certain Inducement Letters, each dated October 2, 2026, by and between the Company and the holders named therein.

We have examined such documents and have reviewed such questions of law as we have considered necessary or appropriate for the purposes of our opinions set forth below. In rendering our opinions set forth below, we have assumed the authenticity of all documents submitted to us as originals, the genuineness of all signatures and the conformity to authentic originals of all documents submitted to us as copies. We have also assumed the legal capacity for all purposes relevant hereto of all natural persons. As to questions of fact material to our opinions, we have relied upon certificates or comparable documents of officers and other representatives of the Company and of public officials.

With respect to the Warrant Shares, we express no opinion to the extent that future issuances of securities of the Company, adjustments to outstanding securities of the Company or other matters cause the New Warrants to be exercisable for more shares of Common Stock than the number available for issuance by the Company, or that the consideration paid upon exercise of the New Warrants is below the par value per share of the Common Stock.

Based on the foregoing, we are of the opinion that upon due exercise of the New Warrants and payment to the Company of the applicable aggregate exercise price in accordance with the terms of the New Warrants, the Warrant Shares issuable upon such exercise will be duly and validly issued, fully paid and non-assessable shares of Common Stock.

Our opinions expressed above are limited to the Delaware General Corporation Law.

We hereby consent to the filing of this opinion as an exhibit to the Registration Statement, and to the reference to our firm under the heading "Legal Matters" in the prospectus constituting part of the Registration Statement. In giving this consent, we do not admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission thereunder.

Very truly yours,

/s/ Dorsey & Whitney LLP

JBE/DPL

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in this Registration Statement on Form S-3 of our report dated March 25, 2026, which includes an explanatory paragraph relating to SeaStar Medical Holding Corporation's ability to continue as a going concern, relating to the consolidated financial statements of SeaStar Medical Holding Corporation as of and for the years ended December 31, 2025 and 2024, which appears in SeaStar Medical Holding Corporation's Annual Report on Form 10-K for the year ended December 31, 2025.

/s/ WithumSmith+Brown, PC

East Brunswick, New Jersey
October 30, 2026

CALCULATION OF FILING FEE TABLES

S-3

SeaStar Medical Holding Corporation

Table 1: Newly Registered and Carry Forward Securities

Line Item Type	Security Type	Security Class Title	Notes	Fee Calculation Rule	Amount Registered	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
				Newly Registered Securities					
Fees to be Paid	Equity	Common Stock, par value $0.0001 per share	(1)	Other	1,767,784	$ 2.6895	$ 4,754,455.07	0.000087	$ 413.64
						Total Offering Amounts:	$ 4,754,455.07		413.64
						Total Fees Previously Paid:			0.00
						Total Fee Offsets:			0.00
						Net Fee Due:			$ 413.64

Offering Note(s)

(1) Shares of common stock will be offered for resale by the selling stockholders pursuant to the prospectus contained in the registration statement to which this exhibit is attached. The registration statement registers the resale of an aggregate of 1,767,784 shares of the registrant's common stock. Pursuant to Rule 416 under the Securities Act of 1933, as amended (the "Securities Act"), the shares of common stock being registered hereunder include an indeterminable number of additional shares of common stock that may be issuable as a result of stock splits, stock dividends or similar transactions.

Estimated solely for the purpose of calculating the amount of the registration fee pursuant to Rule 457(c) of the Securities Act, on the basis of the high and low prices for a share of the registrant's common stock reported on October 23, 2026, which date is a date within five business days prior to the filing of this registration statement.