
**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

(State or Other Jurisdiction of
Incorporation or Organization)

85-3681132

(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
3513 Brighton Blvd., Suite 410
Denver, CO 80216
(844) 427-8100**

(Name, Address, Including Zip Code, and Telephone Number, Including Area Code, of Agent for Service)

*It is respectfully requested that the Commission also send copies of all notices, orders and
communications to:*

**Albert Lung, Esq.
Morgan, Lewis & Bockius LLP
1400 Page Mill Road
Palo Alto, California 94304
Tel: (650) 843-4000**

Approximate date of commencement of proposed sale to the public: From time to time after the effective date of this registration statement.

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, please 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 post-effective amendment filed pursuant to Rule 462(d) 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.

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 under the Securities Exchange Act of 1934:

Large, accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
		Emerging growth company	<input checked="" type="checkbox"/>

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 the Registration Statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

The information in this preliminary prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell these securities and is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION — DATED DECEMBER 8, 2023

PRELIMINARY PROSPECTUS



\$100,000,000

**Common Stock
Preferred Stock
Warrants
Debt Securities
Rights
Units**

From time to time, we may offer and sell up to \$100,000,000 in aggregate of the securities described in this prospectus separately or together in any combination, in one or more classes or series, in amounts, at prices and on terms that we will determine at the time of the offering.

This prospectus provides a general description of the securities we may offer. We may provide specific terms of securities to be offered in one or more supplements to this prospectus. We may also provide a specific plan of distribution for any securities to be offered in a prospectus supplement. Prospectus supplements may also add, update or change information in this prospectus. You should carefully read this prospectus and the applicable prospectus supplement, together with any document incorporated by reference herein, before you invest in our securities. The applicable prospectus supplement will contain information, where applicable, as to the listing of any other securities covered by the prospectus supplement other than our common stock, par value \$0.0001 per share (the "Common Stock") on The Nasdaq Capital Market (the "Nasdaq") or any other securities exchange.

Our Common Stock, and publicly traded warrants exercisable for one share of Common Stock for \$11.50 per share (the "Listed Warrants") are traded on Nasdaq under the symbols "ICU" and "ICUCW," respectively. On December 7, 2023, the last reported sale price on Nasdaq of our Common Stock was \$0.48 per share and the closing price of our Listed Warrants was \$0.0342 per warrant. We are a "smaller reporting company" and an "emerging growth company" as defined under the federal securities laws and, as such, have elected to comply with certain reduced reporting requirements for this prospectus and may elect to do so in future filings.

We will sell these securities directly to investors, through agents designated from time to time or to or through underwriters or dealers, on a continuous or delayed basis. For additional information on the methods of sale, you should refer to the section entitled "Plan of

Distribution” in this prospectus. If any agents or underwriters are involved in the sale of any securities with respect to which this prospectus is being delivered, the names of such agents or underwriters and any applicable fees, commissions, discounts or over-allotment options will be set forth in a prospectus supplement. The price to the public of such securities and the net proceeds we expect to receive from such sale will also be set forth in a prospectus supplement.

As of December 7, 2023, our public float, which is equal to the aggregate market value of our outstanding voting and non-voting common stock held by non-affiliates, was approximately \$16.5 million, based on 44.5 million shares of outstanding common stock, of which approximately 34.5 million shares were held by non-affiliates, and a closing sale price of our Common Stock of \$0.48 on that date. Pursuant to General Instruction I.B.6 of Form S-3, in no event will we sell securities in a public primary offering with a value exceeding more than one-third of our public float in any 12-month period so long as our public float remains below \$75.0 million.

Investing in our securities involves a high degree of risk. You should review carefully the risks and uncertainties described under the heading “Risk Factors” on page 4 of this prospectus as well as those contained in the applicable prospectus supplement and any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus.

Neither the Securities 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 December _____, 2023.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 (the “Registration Statement”) that we filed with the Securities and Exchange Commission (the “SEC”) using the “shelf” registration or continuous offering process. Under this shelf registration process, we may, from time to time, sell any combination of the securities described in this prospectus in one or more offerings up to a total aggregate offering price of \$100,000,000.

This prospectus provides a general description of the securities we may offer. We may provide specific terms of securities to be offered in one or more supplements to this prospectus. We may also provide a specific plan of distribution for any securities to be offered in a prospectus supplement. Prospectus supplements may also add, update or change information in this prospectus. If the information varies between this prospectus and the accompanying prospectus supplement, you should rely on the information in the accompanying prospectus supplement.

Before purchasing any securities, you should carefully read both this prospectus and any prospectus supplement, together with the additional information described under the heading “Incorporation Of Certain Information By Reference.” You should rely only on the information contained or incorporated by reference in this prospectus, any prospectus supplement and any free underwriting prospectus prepared by or on behalf of us or to which we have referred you. Neither we nor any underwriters have authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. You should assume that the information contained in this prospectus, any prospectus supplement or any free writing prospectus is accurate only as of the date on its respective cover, and that any information incorporated by reference is accurate only as of the date of the document incorporated by reference, unless we indicate otherwise. Our business, financial condition, results of operations and prospects may have changed since those dates. This prospectus contains summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. Copies of some of the documents referred to herein have been filed, will be filed or will be incorporated by reference as exhibits to the registration statement of which this prospectus is a part, and you may obtain copies of those documents as described below under the heading “Where You Can Find More Information.”

This prospectus and any applicable prospectus supplement 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. We are not making offers to sell common stock or any other securities described in this prospectus in any jurisdiction in which an offer or solicitation is not authorized or in which we are not qualified to do so or to anyone to whom it is unlawful to make an offer or solicitation.

Unless otherwise expressly indicated or the context otherwise requires, we use the terms “SeaStar Medical Holding Corporation,” “Company,” “we,” “us” and “our” or similar references to refer to SeaStar Medical Holding Corporation.

PROSPECTUS SUMMARY

The following 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 deciding whether to invest in our securities. For a more complete understanding of our company and this offering, you should read and consider carefully the more detailed information included or incorporated by reference in this prospectus, including the factors described under the heading "Risk Factors."

Business Summary

Company Overview

We are a medical technology company focused primarily on developing and commercializing our lead product candidate, the Selective Cytopheretic Device ("SCD"), for pediatric and adult acute kidney injury ("AKI") indications. We submitted an application for a Humanitarian Device Exemption ("HDE") for SCD in June 2022 for the treatment of pediatric patients with AKI on continuous renal replacement therapy ("CRRT"). On September 29, 2023, we received a correspondence from the U.S. Food and Drug Administration ("FDA") indicating that this HDE is approvable for use in children weighing 10 kilograms or more with AKI and sepsis or a septic condition requiring CRRT in the hospital intensive care unit ("ICU"). On October 30, 2023, we announced that we received the approvable letter from the FDA. Following the receipt of this approvable letter, we intend to work diligently and expeditiously to respond to these requests for additional information and address these concerns for approval of our HDE application. We anticipate receiving the HDE approval letter between December 2023 and January 2024. We believe the approval of our HDE will confirm SCD and our technology as an effective tool to treat hyperinflammation related diseases, which will enable us to successfully execute our business and growth strategies.

In addition, we have enrolled the first patient in the pivotal trial of SCD for adult patients with AKI on CRRT based on a previously approved investigative device exemption ("IDE") protocol. The SCD received a Breakthrough Device Designation from the FDA on April 29, 2022, for the proposed use in the treatment of immunomodulatory dysregulation in adult patients who are 18 years and older with AKI. We began enrollment of adult patients in June 2023 and expect to generate interim study results by mid-2024 and topline study results and submission of a Pre-market Approval ("PMA") application by the end of 2024, and we are targeting FDA approval by the end of 2025. There is no guarantee that we will complete the AKI adult trial in a timely manner, or at all, nor will there be any assurance that positive data will be generated from such a trial. Even if we can generate positive results from this trial, the FDA and other regulatory agencies may require us to conduct additional trials to support the study or disagree with the design of the trial and request changes or improvements to such design. To date, we have not obtained regulatory approval to commercialize or sell any of our products candidates.

On September 28, 2023, we received Breakthrough Device Designation for our patented and cell-directed SCD for use with patients in the hospital ICU with acute or chronic systolic heart failure

and worsening renal function due to cardiorenal syndrome or right ventricular dysfunction awaiting implantation of a left ventricular assist device.

On October 18, 2023, we received Breakthrough Device Designation for our patented and cell-directed SCD for use with patients in the hospital ICU with AKI and acute on chronic liver failure. We have been granted three Breakthrough Device Designations from the FDA for the SCD device, each of which is expected to expedite the clinical development and regulatory review of the SCD for use in the designated patient population.

We believe that our novel therapeutic device is readily applicable for use in other indications, which will require additional clinical studies and FDA approval. As we continue our work to expand indications, we believe we would have the ability to take advantage of economies of scale to reduce costs of production. We believe our scalable manufacturing process demonstrates a significant competitive advantage in the hyperinflammatory market.

On October 23, 2022, we completed a business combination with LMAO, pursuant to that certain Agreement and Plan of Merger, dated as of April 21, 2022 (the “Merger Agreement”), by and among LMAO, LMF Merger Sub, Inc., a Delaware corporation and direct wholly owned subsidiary of LMAO (“Merger Sub”), and SeaStar Medical, Inc., a Delaware corporation (“SeaStar Medical, Inc.”). As contemplated by the Merger Agreement, SeaStar Medical, Inc. merged with and into Merger Sub, with SeaStar Medical, Inc. continuing as the surviving entity in the merger as a wholly owned subsidiary of LMAO (the “Business Combination”). In connection with the closing of the Business Combination (the “Closing”), LMAO changed its name to “SeaStar Medical Holding Corporation.”

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.

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 second fiscal quarter or our annual revenue is less than \$100.0 million during the most recent completed fiscal year and the market value of our Common Stock held by non-affiliates is less than \$700.0 million measured on the last business day of our 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 you might receive from other public reporting companies in which you hold equity interests.

RISK FACTORS

Investing in our securities involves a high degree of risk. Before deciding whether to invest in our securities, you should carefully consider the risk factors we describe in any prospectus supplement and in any related free writing prospectus for a specific offering of securities, as well as those incorporated by reference into this prospectus and any prospectus supplement, including those risk factors included in our most recent Annual Report on Form 10-K, any subsequent Quarterly Reports on Form 10-Q, Current Reports on Form 8-K or any amendment or update thereto reflected in our subsequent SEC filings, in evaluating an investment in our securities. The risks and uncertainties described in the applicable prospectus supplement and our other filings with the SEC incorporated by reference herein are not the only ones we face. Additional risks and uncertainties not presently known to us for that we currently consider immaterial may also adversely affect us. If any of the described risks occur, our business, financial condition, or results of operations could be materially harmed. In such case, the value of our securities could decline and you may lose all or part of your investment.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, including the documents incorporated by reference herein and therein, contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (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" incorporated by reference from our most recent Annual Report on Form 10-K and our subsequent Quarterly Reports on Form 10-Q filed with the SEC, as well as any amendments thereto reflected in subsequent filings with the SEC.

Any statements in this prospectus or incorporated by reference herein or therein 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:

- the Company's future capital requirements and sources and uses of cash;
- the Company's ability to obtain funding or raise capital for its operations and future growth;
- any delays or challenges in obtaining FDA approval of the Company's SCD product candidates;
- economic downturns and the possibility of rapid change in the highly competitive industry in which the Company operates;
- the ability to develop and commercialize its products or services following regulatory approval of the Company's 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 the Company's products and services;
- inability to secure or protect its intellectual property;
- dispute or deterioration of relationship with the Company's major partners and collaborators;
- the ability to maintain the listing of the Company's Common Stock on Nasdaq;
- the ability to recognize the anticipated benefits of the Business Combination, which may be affected by, among other things, competition, and the ability of the Company to grow and manage growth profitably; 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.

You should refer to the risks and uncertainties described in the sections titled “Risk Factors” in this prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus, for a discussion of important factors that may cause our actual results to differ materially from those expressed or implied by our forward-looking statements. Given these risks, uncertainties and other factors, many of which are beyond our control, we cannot assure you that the forward-looking statements in this prospectus will prove to be accurate, and you should not place undue reliance on these forward-looking statements. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee that the future results, levels of activity, performance or events and circumstances reflected in the forward-looking statements will be achieved or occur. Furthermore, if our forward-looking statements prove to be inaccurate, the inaccuracy may be material. In light of the significant uncertainties in these forward-looking statements, you should not regard these statements as a representation or warranty by us or any other person that we will achieve our objectives and plans in any specified time frame, or at all.

Except as required by law, we assume no obligation to update these forward-looking statements publicly, or to revise any forward-looking statements to reflect events or developments occurring after the date of this prospectus, even if new information becomes available in the future.

USE OF PROCEEDS

We will retain broad discretion over the use of the net proceeds from the sale of the securities offered hereby. Unless otherwise specified in any prospectus supplement, we currently intend to use the net proceeds from the sale of our securities offered under this prospectus for working capital and general corporate purposes including, but not limited to, capital expenditures, working capital, repayment of indebtedness and other business opportunities.

DESCRIPTION OF COMMON STOCK

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"). We urge you to read the Charter 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 510,000,000 shares, consisting of (a) 500,000,000 shares of Common Stock and (b) 10,000,000 shares of preferred stock (the "Preferred Stock").

The outstanding shares of Common Stock issued in the Business Combination are duly authorized, validly issued, fully paid and non-assessable. All outstanding shares of LMAO Class B Common Stock following the Business Combination were converted into shares of LMAO Class A Common Stock on a one-to-one basis. Immediately following the conversion of such Class B Common Stock into shares of Class A Common Stock, each share of Class A Common Stock issued and outstanding was reclassified, redesignated and changed into one validly issued, fully paid and non-assessable share of Common Stock.

As of December 7, 2023, there were 44,500,000 shares of Common Stock issued and outstanding and no shares of Preferred Stock issued and outstanding.

Common Stock

The Charter provides the following with respect to the rights, powers, preferences and privileges of the 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 the Company's 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 the Company's voluntary or involuntary liquidation, dissolution, distribution of assets or winding-up, the holders of the Common Stock will be entitled to receive an equal amount per share of all of the Company's 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 the Company's debts.

Preemptive or Other Rights

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

Listing

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

DESCRIPTION OF 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 the 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 (whether before or in connection with our initial business combination or thereafter), 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.

DESCRIPTION OF WARRANTS

The following summarizes the general terms of stock and debt warrants that we may offer. The particular terms of any stock and debt warrants will be described in an accompanying prospectus supplement. The description below and in any accompanying prospectus supplement is not complete. You should read the form of warrant agreement and any warrant certificate that we will file with the SEC.

Warrants to Purchase Capital Stock

If we offer stock warrants, the prospectus supplement will describe the terms of the stock warrants, including:

- The offering price, if any;
- If applicable, the designation and terms of any Preferred Stock purchasable upon exercise of Preferred Stock warrants;
- The number of shares of Common Stock or Preferred Stock purchasable upon exercise of one stock warrant and the initial price at which the shares may be purchased upon exercise;
- The dates on which the right to exercise the stock warrants begins and expires;
- U.S. federal income tax consequences;
- Call provisions, if any;
- The currencies in which the offering price and exercise price are payable; and
- If applicable, the antidilution provisions of the stock warrants.

The shares of Common Stock or Preferred Stock we issue upon exercise of the stock warrants will, when issued in accordance with the stock warrant agreement, be validly issued, fully paid and nonassessable.

Exercise of Warrants to Purchase Capital Stock

You may exercise stock warrants by surrendering to the stock warrant agent the stock warrant certificate, which indicates your election to exercise all or a portion of the stock warrants evidenced by the certificate. Surrendered stock warrant certificates must be accompanied by payment of the exercise price in the form of cash or check. The stock warrant agent will deliver certificates evidencing duly exercised stock warrants to the transfer agent. Upon receipt of the certificates, the transfer agent will deliver a certificate representing the number of shares of Common Stock or Preferred Stock purchased. If you exercise fewer than all the stock warrants evidenced by any certificate, the stock warrant agent will deliver a new stock warrant certificate representing the unexercised stock warrants.

No Rights as Stockholders

Holders of stock warrants are not entitled to vote, to consent, to receive dividends or to receive notice as stockholders with respect to any meeting of stockholders or to exercise any rights whatsoever as our stockholders.

Warrants to Purchase Debt Securities

If we offer debt warrants, the accompanying prospectus supplement will describe the terms of the warrants, including:

- The offering price, if any;
- The designation, aggregate principal amount and terms of the debt securities purchasable upon exercise of the warrants and the terms of the indenture under which the debt securities will be issued;
- If applicable, the designation and terms of the debt securities with which the debt warrants are issued and the number of debt warrants issued with each debt security;

- If applicable, the date on and after which the debt warrants and the related securities will be separately transferable;
- The principal amount of debt securities purchasable upon exercise of one debt warrant, and the price at which the principal amount of debt securities may be purchased upon exercise;
- The dates on which the right to exercise the debt warrants begins and expires;
- U.S. federal income tax consequences;
- Whether the warrants represented by the debt warrant certificates will be issued in registered or bearer form;
- The currencies in which the offering price and exercise price are payable; and
- If applicable, any antidilution provisions.

You may exchange debt warrant certificates for new debt warrant certificates of different denominations and may present debt warrant certificates for registration of transfer at the corporate trust office of the debt warrant agent, which will be listed in an accompanying prospectus supplement.

Exercise of Warrants to Purchase Debt Securities

You may exercise debt warrants by surrendering the debt warrant certificate at the corporate trust office of the debt warrant agent, with payment in full of the exercise price. Upon the exercise of debt warrants, the debt warrant agent will, as soon as practicable, deliver the debt securities in authorized denominations in accordance with your instructions and at your sole cost and risk. If less than all the debt warrants evidenced by the debt warrant certificate are exercised, the agent will issue a new debt warrant certificate for the remaining amount of debt warrants.

No Rights as Holders of Debt Securities

Warrant holders do not have any of the rights of holders of debt securities, except to the extent that the consent of warrant holders may be required for certain modifications of the terms of an indenture or form of the debt security, as the case may be, and the series of debt securities issuable upon exercise of the debt warrants. In addition, warrant holders are not entitled to payments of principal of and interest, if any, on the debt securities.

DESCRIPTION OF DEBT SECURITIES

General

We may issue debt securities either separately, or together with, or upon the conversion or exercise of or in exchange for, other securities described in this prospectus. Debt securities may be our senior, senior subordinated or subordinated obligations and may be issued in one or more series. Unless otherwise expressly stated in an accompanying prospectus supplement, the debt securities will represent our general, unsecured obligations and will rank equally with all of our other unsecured indebtedness.

Any debt securities that we issue will be issued under an indenture that will be entered into between us and a bank or trust company, or other trustee that is qualified to act under the Trust Indenture Act of 1939 (the "TIA"), which we select to act as trustee. A copy of the indenture (the "Indenture") will be filed as an exhibit to a prospectus supplement to the registration statement of which this prospectus forms a part. The Indenture may be modified by one or more supplemental indentures, which we will incorporate by reference as an exhibit to the registration statement of which this prospectus is a part. Any debt securities that we issue will include those stated in the Indenture (including any supplemental indentures that specify the terms of a particular series of debt securities) as well as those made part of the Indenture by reference to the TIA, as in effect on the date of the Indenture. The Indenture will be subject to and governed by the terms of the TIA.

The following description and any description in an accompanying prospectus supplement is a summary only and is subject to, and qualified in its entirety by reference to the terms and provisions of the indentures and any supplemental indentures that we file with the SEC in connection with an issuance of any series of debt securities. You should read all of the provisions of the Indentures, including the definitions of certain terms, as well as any supplemental indentures that we file with the SEC in connection with the issuance of any series of debt securities. These summaries set forth certain general terms and provisions of the securities to which any accompanying prospectus supplement may relate. The specific terms and provisions of a series of debt securities and the extent to which the general terms and provisions may also apply to a particular series of debt securities will be described in the accompanying prospectus supplement. Copies of the Indenture may be obtained from us or the Trustee.

Please read the accompanying prospectus supplement relating to the series of debt securities being offered for specific terms including, when applicable:

- the title of the debt securities of the series;
- the price or prices (expressed as a percentage of the principal amount thereof) at which debt securities of the series will be issued;
- any limit on the aggregate principal amount of that series of debt securities;
- whether such securities rank as senior debt securities, senior subordinated debt securities or subordinated debt securities;
- the terms and conditions, if any, upon which the debt securities of the series shall be exchanged for or converted into other of our securities or securities of another person;
- if the debt securities of there will be secured by any collateral and, if so, a general description of the collateral and the terms and provisions of such collateral security, pledge or other agreements;
- the date or dates on which we will pay the principal of the debt securities of the series;
- the rate or rates, which may be fixed or variable, at which debt securities of the series will bear interest, if any, or the method or methods, if applicable, used to determine those

rates, the date or dates, if any, from which interest on the debt securities of the series will begin to accrue, or the method or methods, if any, used to determine those dates, the dates on which the interest, if any, on the debt securities of the series will be payable and the record dates for the payment of interest;

- the manner in which the amounts of payment of principal of or interest, if any, of the debt securities of the series will be determined, if such amounts may be determined by reference to an index based on a currency or currencies or by reference to a currency exchange rate, commodity, commodity index, stock exchange index or financial index;
- if other than the corporate trust office of the Trustee, the place or places where amounts due on the debt securities of the series will be payable and where the debt securities of the series may be surrendered for registration of transfer and exchange and where notices and demands to or upon us in respect of the debt securities of the series may be served, and the method of such payment, if by wire transfer, mail or other means;
- if applicable, the period or periods within which, and the terms and conditions upon which, we may, at our option, redeem debt securities of the series;
- the terms and conditions, if applicable, upon which the holders of debt securities may require us to repurchase or redeem debt securities of the series at the option of the holders of debt securities of the series;
- the provisions, terms and conditions, if any, with respect to any sinking fund or analogous provision;
- the authorized denominations in which the debt securities of the series will be issued, if other than denominations of \$1,000 and any integral multiples of \$1,000 in excess thereof;
- whether the debt securities of the series are to be issuable, in whole or in part, in bearer form;
- whether any fully regulated debt securities of the series will be issued in temporary or permanent global form ("global debt securities") and, if so, the identity of the depository for the global debt securities if other than The Depository Trust Company;
- any depositories, interest rate calculation agents, exchange rate calculation agents or other agents;
- the trustee for the debt securities;
- the portion of the principal amount of the debt securities of the series which will be payable upon acceleration of maturity, if other than the full principal amount;
- any addition to, or modification or deletion of, any covenant described in this prospectus or in the Indenture;

- any events of default, if not otherwise described below under “—Events of Default” and any change to the right of the holders to declare the principal of any debt securities due and payable;
- if other than U.S. dollars, the currency, currencies or currency units of denomination of the debt securities of the series, which may be any foreign currency, and if such currency denomination is a composite currency, the agency or organization, if any, responsible for overseeing such composite currency;
- if other than U.S. dollars, the currency, currencies or currency units in which the purchase price for the debt securities of the series will be payable, in which payments of principal and, if applicable, premium or interest on the debt securities of the series will be payable, and, if necessary, the manner in which the exchange rate with respect to such payments will be determined;
- any listing of the debt securities on any securities exchange;
- any additions or deletions to the defeasance or the satisfaction and discharge provisions set forth herein;
- if and under what circumstances we will pay additional amounts (“Additional Amounts”) on the debt securities of the series in respect of specified taxes, assessments or other governmental charges and, if so, whether we will have the option to redeem the debt securities of the series rather than pay the Additional Amounts;
- the priority and kind of any lien securing the debt securities and a brief identification of the principal properties subject to such lien;
- additions or deletions to or changes in the provisions relating to modification of any Indenture; and
- any other terms of the debt securities of the series (whether or not such other terms are consistent or inconsistent with any other terms of the Indenture).

As used in this prospectus and any accompanying prospectus supplement relating to the offering of debt securities of any series, references to the principal of and premium, if any, and interest, if any, on the debt securities of the series include the payment of Additional Amounts, if any, required by the debt securities of the series to be paid in that context.

Debt securities may be issued as original issue discount securities to be sold at a substantial discount below their principal amount. In the event of an acceleration of the maturity of any original issue discount security, the amount payable to the holder upon acceleration will be determined in the manner described in the accompanying prospectus supplement. Certain U.S. federal income tax considerations applicable to original issue discount securities will be described in any accompanying prospectus supplement.

If the purchase price of any debt securities is payable in a foreign currency or if the principal of, or premium, if any, or interest, if any, on any debt securities is payable in a foreign currency, the specific terms of those debt securities and the applicable foreign currency will be specified in the accompanying prospectus supplement relating to those debt securities.

The terms of the debt securities of any series may differ from the terms of the debt securities of any other series, and the terms of particular debt securities within any series may differ from each other. Unless otherwise expressly provided in the accompanying prospectus supplement relating to any series of debt securities, we may, without the consent of the holders of the debt securities of any series, reopen an existing series of debt securities and issue additional debt securities of that series.

Unless otherwise described in an accompanying prospectus supplement relating to any series of debt securities and except to the limited extent set forth below under “—Merger, Consolidation and Transfer of Assets,” there will be no limitation upon our ability to incur indebtedness or other liabilities or that would afford holders of debt securities protection in the event of a business combination, takeover, recapitalization or highly leveraged or similar transaction involving us. Accordingly, we may in the future enter into transactions that could increase the amount of our consolidated indebtedness and other liabilities or otherwise adversely affect our capital structure or credit rating without the consent of the holders of the debt securities of any series.

Registration, Transfer and Payment

Unless otherwise indicated in the applicable prospectus supplement, each series of debt securities will be issued in registered form only, without coupons.

Unless otherwise indicated in the applicable prospectus supplement, debt securities will be issued in denominations of \$1,000 or any integral multiples of \$1,000 in excess thereof.

Unless otherwise indicated in the accompanying prospectus supplement, the debt securities will be payable and may be surrendered for registration of transfer or exchange and, if applicable, for conversion into or exchange for other securities or property, at an office or agency maintained by us in the United States. However, we may, at our option, make payments of interest on any registered debt security by check mailed to the address of the person entitled to receive that payment or by wire transfer to an account maintained by the payee with a bank located in the United States. Unless otherwise indicated in the accompanying prospectus supplement, no service charge shall be made for any registration of transfer or exchange, redemption or repayment of debt securities, or for any conversion or exchange of debt securities for other securities or property, but we may require payment of a sum sufficient to cover any tax or other governmental charge that may be imposed in connection with that transaction.

Unless otherwise indicated in the applicable prospectus supplement, we will not be required to:

- issue, register the transfer of or exchange debt securities of any series during a period beginning at the opening of business 15 days before any mailing of a notice of a redemption for the debt securities of that series selected for redemption and ending at the close of business on the day of such mailing; or

- register the transfer of or exchange any debt security, or portion of any debt security, selected for redemption, except the unredeemed portion of any registered debt security being redeemed in part.

Book-Entry Debt Securities

We may issue the debt securities in whole or in part in the form of one or more global certificates or notes, which we refer to as global securities, that we will deposit with a depository or its nominee that we identify in the applicable prospectus supplement.

We will describe the specific terms of the depository arrangement covering the debt securities in the prospectus supplement relating to that series. We anticipate that the following provisions will apply to all depository arrangements.

Upon the issuance of the debt securities in the form of one or more global securities, the depository or its custodian will credit, on its book-entry registration and transfer system, the number of shares or principal amount of securities of the individual beneficial interests represented by these global securities to the respective accounts of persons who have accounts with the depository. Ownership of beneficial interests in the global securities will be shown on, and the transfer of this ownership will be effected only through, records maintained by the depository or its nominee with respect to interests of participants and the records of participants with respect to interests of persons other than participants. These accounts initially will be designated by or on behalf of the underwriters, initial purchasers or agents, or by us if we offer and sell the debt securities directly, and ownership of beneficial interests in the global securities will be limited to participants or persons who hold interests through participants. Qualified institutional buyers may hold their interests in the global securities directly through the depository if they are participants in this system, or indirectly through organizations which are participants in this system. The laws of some states of the U.S. may require that some purchasers of securities take physical delivery of the debt securities in definitive registered form. These limits and the laws may impair your ability to own, transfer or pledge interests in the global securities.

So long as the depository, or its nominee, is the registered owner or holder of the debt securities, the depository or its nominee, as the case may be, will be considered the sole owner or holder of the debt securities represented by the global securities for all purposes. No beneficial owner of an interest in the global securities will be able to transfer that interest except in accordance with the depository's procedures.

We will make dividend payments on, or payments of the principal of, and premium, if any, and interest on, the global securities to the depository or its nominee, as the case may be, as the registered owner of the global securities. We will not have any responsibility or liability for any aspect of the records relating to or payments made on account of beneficial ownership interests in the global securities or for maintaining, supervising or reviewing any records relating to the beneficial ownership interest.

We expect that the depository or its nominee, upon receipt of any dividend payment on, or payment of the principal of, and premium, if any, and interest on, the global securities, will credit

participants' accounts with payments in amounts proportionate to their respective beneficial interests in the debt securities as shown on the records of the depository or its nominee. We also expect that payments by participants to owners of beneficial interests in the global securities held through the participants will be governed by standing instructions and customary practice, as is now the case with securities held for the accounts of customers registered in the names of nominees for their customers. These payments will be the responsibility of the participants. Transfers between participants in the depository will be effected in the ordinary way through the depository's settlement system in accordance with the depository rules and will be settled in same day funds.

We will issue securities in certificated form in exchange for global securities (subject, in the case of the third bullet point, to the procedures of the depository) if:

- the depository notifies us that it is unwilling or unable to continue as a depository for the global securities or ceases to be a "clearing agency" registered under the Exchange Act of 1934, and a successor depository is not appointed by us within 90 days of the notice;
- an event of default under the instrument governing the debt securities has occurred and is continuing; or
- we determine that the debt securities will no longer be represented by the global securities.

DESCRIPTION OF RIGHTS

As specified in the applicable prospectus supplement, we may issue rights to purchase the securities offered in this prospectus to our existing stockholders, and such rights may or may not be issued for consideration. The applicable prospectus supplement will describe the terms of any such rights. The description in the prospectus supplement will not purport to be complete and will be qualified in its entirety by reference to the documents pursuant to which such rights will be issued.

DESCRIPTION OF UNITS

As may be specified in an accompanying prospectus supplement, we may issue units consisting of one or more of our securities registered hereby. An accompanying prospectus supplement will describe:

- the terms of the units and of the securities comprising the units, including whether and under what circumstances the securities comprising the units may be traded separately;
- a description of the terms of any unit agreement governing the units; and
- a description of the provisions for the payment, settlement, transfer or exchange of the units.

PLAN OF DISTRIBUTION

We may sell the securities from time to time, by a variety of methods, including the following:

- on any national securities exchange or quotation service on which the securities may be listed or quoted at the time of sale;
- 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 Registration Statement is declared effective by the SEC;
- broker-dealers may agree with a us 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 securities may be distributed from time to time in one or more transactions:

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

Offers to purchase the securities being offered by this prospectus may be solicited directly. Agents

may also be designated to solicit offers to purchase the securities from time to time. Any agent involved in the offer or sale of our securities will be identified in a prospectus supplement.

If a dealer is utilized in the sale of the securities being offered by this prospectus, the securities will be sold to the dealer as principal. The dealer may then resell the securities to the public at varying prices to be determined by the dealer at the time of resale.

If an underwriter is utilized in the sale of the securities being offered by this prospectus, an underwriting agreement will be executed with the underwriter at the time of sale and the name of any underwriter will be provided in the prospectus supplement that the underwriter will use to make resales of the securities to the public. In connection with the sale of the securities, we, or the purchasers of securities for whom the underwriter may act as agent, may compensate the underwriter in the form of underwriting discounts or commissions. The underwriter may sell the securities to or through dealers, and those dealers may receive compensation in the form of discounts, concessions or commissions from the underwriters and/or commissions from the purchasers for which they may act as agent. Unless otherwise indicated in a prospectus supplement, an agent will be acting on a best efforts basis and a dealer will purchase securities as a principal, and may then resell the securities at varying prices to be determined by the dealer.

Any compensation paid to underwriters, dealers or agents in connection with the offering of the securities, and any discounts, concessions or commissions allowed by underwriters to participating dealers will be provided in the applicable prospectus supplement. Underwriters, dealers and agents participating in the distribution of the securities may be deemed to be underwriters within the meaning of the Securities Act, and any discounts and commissions received by them and any profit realized by them on resale of the securities may be deemed to be underwriting discounts and commissions. In compliance with the guidelines of the Financial Industry Regulatory Authority, Inc., or FINRA, the maximum amount of underwriting compensation, including underwriting discounts and commissions, to be paid in connection with any offering of securities pursuant to this prospectus may not exceed 8% of the aggregate principal amount of securities offered. We may enter into agreements to indemnify underwriters, dealers and agents against civil liabilities, including liabilities under the Securities Act, or to contribute to payments they may be required to make in respect thereof and to reimburse those persons for certain expenses. The securities may or may not be listed on a national securities exchange. To facilitate the offering of securities, certain persons participating in the offering may engage in transactions that stabilize, maintain or otherwise affect the price of the securities. This may include over-allotments or short sales of the securities, which involve the sale by persons participating in the offering of more securities than were sold to them. In these circumstances, these persons would cover such over-allotments or short positions by making purchases in the open market or by exercising their over-allotment option, if any. In addition, these persons may stabilize or maintain the price of the securities by bidding for or purchasing securities in the open market or by imposing penalty bids, whereby selling concessions allowed to dealers participating in the offering may be reclaimed if securities sold by them are repurchased in connection with stabilization transactions. The effect of these transactions may be to stabilize or maintain the market price of the securities at a level above that which might otherwise prevail in the open market. These transactions may be discontinued at any time.

If indicated in the applicable prospectus supplement, underwriters or other persons acting as agents may be authorized to solicit offers by institutions or other suitable purchasers to purchase the securities at the public offering price set forth in the prospectus supplement, pursuant to delayed delivery contracts providing for payment and delivery on the date or dates stated in the prospectus supplement. These purchasers may include, among others, commercial and savings banks, insurance companies, pension funds, investment companies and educational and charitable institutions. Delayed delivery contracts will be subject to the condition that the purchase of the securities covered by the delayed delivery contracts will not at the time of delivery be prohibited under the laws of any jurisdiction in the United States to which the purchaser is subject. The underwriters and agents will not have any responsibility with respect to the validity or performance of these contracts.

We may engage in at-the-market offerings into an existing trading market in accordance with rule 415(a)(4) under the Securities Act. In addition, we may enter into derivative transactions with third parties, or sell securities not covered by this prospectus to third parties in privately negotiated transactions. If the applicable prospectus supplement so indicates, in connection with those derivatives, the third parties may sell securities covered by this prospectus and the applicable prospectus supplement, including in short sale transactions. If so, the third party may use securities pledged by us, or borrowed from us or others to settle those sales or to close out any related open borrowings of Common Stock, and may use securities received from us in settlement of those derivatives to close out any related open borrowings of our Common Stock. In addition, we may loan or pledge securities to a financial institution or other third party that in turn may sell the securities using this prospectus and an applicable prospectus supplement. Such financial institution or other third party may transfer its economic short position to investors in our securities or in connection with a concurrent offering of other securities.

The underwriters, dealers and agents may engage in transactions with us, or perform services for us, in the ordinary course of business for which they receive compensation.

LEGAL MATTERS

The validity of the Shares have been passed upon by Morgan Lewis Bockius LLP, Palo Alto, California.

EXPERTS

The consolidated financial statements as of December 31, 2022 and 2021, and for each of the years then ended incorporated by reference in this prospectus have been so incorporated in reliance on the report of Armanino LLP an independent registered public accounting firm, incorporated herein by reference, given on the authority of said firm as experts in auditing and accounting. The report on the consolidated financial statements contains an explanatory paragraph regarding the Company's ability to continue as a going concern.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus is part of the registration statement on Form S-3 we filed with the SEC under the Securities Act and does not contain all of the information set forth or incorporated by reference in the registration statement and the exhibits to the registration statement. For further information with respect to us and the securities we are offering under this prospectus, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement. We file annual, quarterly, and current reports, proxy statements and other information with the SEC. The SEC maintains a website that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC, including SeaStar Medical Holding Corporation. The address of the SEC website is www.sec.gov.

We maintain a website at www.SeaStarmedical.com. Information contained in or accessible through our website does not constitute a part of this prospectus.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to “incorporate by reference” into this 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. 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 in this 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, 2022, filed with the SEC on [March 30, 2023](#), and as amended on Form 10-K/A, filed with the SEC on [April 28, 2023](#);
- our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2023, June 30, 2023, and September 30, 2023, filed with the SEC on [May 15, 2023](#), [August 14, 2023](#), and [November 14, 2023](#), respectively;
- our Current Reports on Form 8-K filed with the SEC on [January 9, 2023](#), [February 9, 2023](#), [February 15, 2023](#), [March 16, 2023](#), [May 9, 2023](#), [June 9, 2023](#), [June 16, 2023](#), [June 30, 2023](#), [August 2, 2023](#), [August 8, 2023](#), [August 30, 2023](#), [September 8, 2023](#), [September 20, 2023](#), [September 26, 2023](#), [October 3, 2023](#), [October 30, 2023](#), [November 27, 2023](#), and [November 29, 2023](#); and
- the description of our Common Stock which is registered under Section 12 of the Exchange Act, in our registration statement on Form 8-A, filed on [January 22, 2021](#), including any amendments or reports filed for the purposes of updating this description.

We also incorporate by reference in to this prospectus 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 registration statement of which this prospectus is a part and prior to effectiveness of such registration statement, as well as after the date of this prospectus 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 and will become a part of this prospectus 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 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 but not delivered with this prospectus, 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 in to this document modifies or supersedes the statement.



\$100,000,000

**Common Stock
Preferred Stock
Warrants
Debt Securities
Rights
Units**

Prospectus

December _____, 2023

You should rely only on the information contained or incorporated by reference in this prospectus. We have not authorized anyone to provide you with different information. You should not assume that the information contained or incorporated by reference in this prospectus 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 estimated costs and expenses payable by us in connection with the offering of the securities being registered. All the amounts shown are estimates, except for the SEC registration fee.

SEC registration fee	\$ 13,500.52
Accounting fees and expenses	\$ (1)
Legal fees and expenses	\$ (1)
Printing and miscellaneous expenses	\$ (1)
Total	\$ <u>(1)</u>

(1) These fees are calculated based on the securities offered and the number of issuances and accordingly cannot be estimated at this time.

(2) Does not include any fees or expenses in connection with any subsequent underwritten offering and any prospectus supplements prepared in connection therewith.

Item 15. Indemnification of Directors and Officers.

Section 145 of the General Corporation Law of the State of Delaware (the "DGCL") provides, generally, that a corporation shall have the power to indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation) by reason of the fact that such person is or was a director, officer, employee or agent of the corporation against all expenses, judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the corporation and, with respect to any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful. A corporation may similarly indemnify such person for expenses actually and reasonably incurred by such person in connection with the defense or settlement of any action or suit 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 best interests of the corporation, and, in the case of claims, issues and matters as to which such person shall have been adjudged liable to the corporation, provided that a court shall have determined, upon application, that, despite the adjudication of liability but in view of all of the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which such court shall deem proper.

In accordance with Section 102(b)(7) of the DGCL, the Charter provides that a director will not be personally liable to us or our stockholders for monetary damages for breach of fiduciary duty as a director, except for liability (i) for any breach of the director's duty of loyalty to us or our stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct

or a knowing violation of law, (iii) under Section 174 of the DGCL, or (iv) for any transaction from which the director derived an improper personal benefit. No such provision shall eliminate or limit the liability of a director for any act or omission occurring prior to the date when such provision became effective. Accordingly, these provisions will have no effect on the availability of equitable remedies such as an injunction or rescission based on a director's breach of his or her duty of care.

The Charter provides that we will indemnify our present and former directors and officers to the maximum extent permitted by the DGCL and that such indemnification will not be exclusive of any other rights to which those seeking indemnification may be entitled under any bylaw provision, agreement, vote of stockholders or disinterested directors or otherwise.

The Company entered, and expects to continue to enter into, indemnification agreements with its directors, executive officers, and other employees as determined by the Board. Each indemnification agreement provides for indemnification and advancements by the Company of certain expenses and costs, if the basis of the indemnitee's involvement was by reason of the fact that the indemnitee is or was a director, officer, employee, or agent of the Company or any of its subsidiaries or was serving at the Company's request in an official capacity for another entity, to the fullest extent permitted by the laws of the state of Delaware.

Item 16. Exhibits.

Exhibit Number	Description
<u>3.1</u>	<u>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).</u>
<u>3.2</u>	<u>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 by the registrant on September 20, 2023).</u>
<u>3.3</u>	<u>Amended and Restated Bylaws of SeaStar Medical Holding Corporation (incorporated by reference to Exhibit 3.2 to Form 8-K filed by the registrant on November 4, 2022).</u>
<u>4.1</u>	<u>Specimen Common Stock Certificate (incorporated by reference to Exhibit 4.1 to Form 8-K filed by the registrant on November 4, 2022).</u>
<u>4.2</u>	<u>Description of Securities (included under "Description of Securities" in Form S-1 filed by the registrant on January 20, 2023).</u>
<u>5.1**</u>	<u>Opinion of Morgan Lewis Bockius LLP.</u>

<u>10.1</u>	<u>Securities Purchase Agreement, dated March 15, 2023, by and between the registrant and 3i, LP (incorporated by reference to Exhibit 10.1 to Form 8-K filed by the registrant on March 16, 2023).</u>
<u>10.2</u>	<u>Registration Rights Agreement, dated March 15, 2023, by and between the registrant and 3i, LP (incorporated by reference to Exhibit 10.2 to Form 8-K filed by the registrant on March 16, 2023).</u>
<u>10.3</u>	<u>First Amendment to Securities Purchase Agreement, dated August 7, 2023, by and between the registrant and 3i, LP (incorporated by reference to Exhibit 10.1 to Form 8-K filed by the registrant on August 8, 2023).</u>
<u>10.4</u>	<u>First Amendment to Registration Rights Agreement, dated August 7, 2023, by and between the registrant and 3i, LP (incorporated by reference to Exhibit 10.2 to Form 8-K filed by the registrant on August 8, 2023).</u>
<u>10.5</u>	<u>Letter Agreement, dated August 7, 2023, by and between the registrant and 3i, LP (incorporated by reference to Exhibit 10.3 to Form 8-K filed by the registrant on August 8, 2023).</u>
<u>10.6</u>	<u>Letter Agreement, dated August 30, 2023, by and between the registrant and 3i, LP (incorporated by reference to Exhibit 10.1 to Form 8-K filed by the registrant on August 30, 2023).</u>
<u>23.1**</u>	<u>Consent of Armanino LLP, independent registered public accounting firm.</u>
<u>23.2**</u>	Consent of Morgan Lewis Bockius LLP (included in <u>Exhibit 5.1</u>).
<u>24.1**</u>	<u>Power of Attorney (included on signature page).</u>
<u>107**</u>	<u>Filing Fee Table.</u>

** Filed herewith.

Item 17. Undertakings.

- (a) 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 a 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and

- (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;

provided, however, that the undertakings set forth in paragraphs (1)(i), (1)(ii) and (1)(iii) of this section do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the SEC by the registrant pursuant to Section 13 or Section 15(d) of the Exchange Act that are incorporated by reference in this registration statement or are contained in a form of prospectus filed pursuant to Rule 424(b) that is part of this 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:
 - (i) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and
 - (ii) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability

purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. 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 effective date, 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 effective date.

- (5) That, for purposes of determining any liability under the Securities Act, each filing of the registrant's annual report pursuant to Section 13(a) or 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in the registration statement 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.
- (b) Insofar as indemnification for liabilities arising under the Securities Act of 1933 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 Securities and Exchange Commission such indemnification is against public policy as expressed in the 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 Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Denver, Colorado, on December 8, 2023.

SEASTAR MEDICAL HOLDING CORPORATION

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

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Eric Schlorff, as his or her true and lawful attorney-in-fact and agent, with the full power of substitution and resubstitution, for him or her and in his or her name, place or stead, in any and all capacities, to sign any and all amendments (including post-effective amendments, exhibits thereto and other documents in connection therewith) to this Registration Statement, and to sign any registration statement for the same offering covered by this registration statement that is to be effective upon filing pursuant to Rule 462 of the Securities Act of 1933, as amended, and to file the same, with all exhibits thereto and other documents in connection therewith, with the SEC, 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 in connection therewith, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming that the attorney-in-fact and agent, or his 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 has been signed by the following persons in the capacity and on the dates indicated.

Name	Title	Date
<u>/s/ Eric Schlorff</u> Eric Schlorff	Chief Executive Officer and Director (Principal Executive Officer)	December 8, 2023
<u>/s/ Caryl Baron</u> Caryl Baron	Interim Chief Financial Officer (Principal Financial and Accounting Officer)	December 8, 2023
<u>/s/ Rick Barnett</u> Rick Barnett	Chairman of the Board of Directors	December 8, 2023
<u>/s/ Kenneth Van Heel</u> Kenneth Van Heel	Director	December 8, 2023

<u>/s/ Andres Lobo</u> Andres Lobo	Director	December 8, 2023
<u>/s/ Allan Collins</u> Allan Collins	Director	December 8, 2023
<u>/s/ Bruce Rodgers</u> Bruce Rodgers	Director	December 8, 2023
<u>/s/ Richard Russell</u> Richard Russell	Director	December 8, 2023