

Prospectus Supplement No. 12
(To Prospectus dated March 30, 2023)

Comera Life Sciences Holdings, Inc.
1,946,846 Warrants to Purchase Common Stock
15,093,712 Shares of Common Stock Including
1,946,846 Shares of Common Stock issuable upon the
exercise of Warrants and 342,755 Shares of Common Stock
issuable upon conversion of the Series A Convertible Perpetual
Preferred Stock offered by Selling Securityholders

This prospectus supplement no. 12 (this “Prospectus Supplement”) updates, amends and supplements the prospectus dated March 30, 2023 (as amended or supplemented from time to time, the “Prospectus”) which forms a part of the Registration Statement on Form S-1 (Registration Statement No. 333-264686) filed by Comera Life Sciences Holdings, Inc. (“Holdco”). Capitalized terms used in this Prospectus Supplement and not otherwise defined herein have the meanings specified in the Prospectus.

This Prospectus Supplement is being filed to update, amend and supplement the information included or incorporated by reference in the Prospectus with the information contained in our Current Report on Form 8-K, filed with the Securities and Exchange Commission (the “SEC”) on January 4, 2024 (the “Current Report”). Accordingly, we have attached the Current Report to this Prospectus Supplement.

This Prospectus Supplement is not complete without, and may not be delivered or utilized except in combination with, the Prospectus, including any amendments or supplements thereto. This Prospectus Supplement should be read in conjunction with the Prospectus and any amendments or supplements thereto. If there is any inconsistency between the information in the Prospectus and this Prospectus Supplement, you should rely on the information in this Prospectus Supplement.

The Holdco Common Stock is listed on the OTCQB of OTC Markets Group Inc. (the “OTCQB”) under the symbol “CMRA”, and the Holdco Warrants are listed on the OTC Pink Marketplace under the symbol “CMRAW”. On January 3, 2024, the closing price of the Holdco Common Stock as reported on the OTCQB was \$0.052 per share, and the last sale price of the Holdco Warrants as reported on the OTC Pink Marketplace was \$0.0014 per warrant.

Investing in our securities is highly speculative and involves a high degree of risk. Before buying any securities, you should review carefully the risks and uncertainties of investing in our securities described in the section titled “Risk Factors” beginning on page 17 of the Prospectus, and under similar headings in any amendments or supplements thereto.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of the securities to be issued under the Prospectus or passed upon the accuracy or adequacy of the Prospectus. Any representation to the contrary is a criminal offense.

The date of this Prospectus Supplement is January 4, 2024

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

FORM 8-K

CURRENT REPORT
Pursuant to Section 13 or 15(d)
of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): January 2, 2024

Comera Life Sciences Holdings, Inc.
(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction
of incorporation)

1-41403
(Commission
File Number)

87-4706968
(IRS Employer
Identification No.)

12 Gill Street
Suite 4650
Woburn, Massachusetts
(Address of principal executive offices)

01801
(Zip Code)

Registrant's telephone number, including area code: (617) 871-2101

Not Applicable
(Former name or former address, if changed since last report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

| Title of each class | Trading Symbol(s) | Name of each exchange on which registered |
|--------------------------|-------------------|--|
| Common Stock Warrants | CMRA CMRAW | The Nasdaq Stock Market LLC The Nasdaq Stock Market LLC |

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

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 13(a) of the Exchange Act.

Item 8.01. Other Events

As previously disclosed, on December 29, 2023, Comera Life Sciences Holdings, Inc. (the “Company”) completed a private placement (the “Private Placement”) of 12.0% Senior Secured Convertible Notes due 2024 in the aggregate principal amount of \$1.5 million and accompanying warrants to purchase up to an aggregate of 54,545,442 shares of the Company’s common stock, pursuant to which the Company granted the purchasers (the “Purchasers”) in the Private Placement the right to purchase all outstanding shares of the Company’s common stock not then held by the Purchasers (the “Share Purchase Option”). On January 2, 2024, the Purchasers exercised the Share Purchase Option. The final terms and conditions of the proposed transaction to effect the Share Purchase Option will be subject to the negotiation of a definitive agreement between the parties.

This Current Report on Form 8-K (this “Report”) shall not constitute an offer to sell or the solicitation of an offer to buy nor shall there be any sale of these securities in any state or jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such state or jurisdiction.

Important Information and Where to Find It

In connection with the proposed transaction between the Company and the Purchasers contemplated by the exercise of the Share Purchase Option and following the anticipated execution of a definitive agreement, the Company will file relevant materials with the SEC, including a proxy statement, the definitive version of which will be sent or provided to the Company’s stockholders. The Company and the Purchasers will jointly file a transaction statement on Schedule 13E-3. The Company may also file other documents with the U.S. Securities and Exchange Commission (the “SEC”) regarding the proposed transaction. This document is not a substitute for the proxy statement or any other document which the Company may file with the SEC or send to its stockholders in connection with the proposed transaction. INVESTORS AND SECURITY HOLDERS ARE URGED TO READ THE PROXY STATEMENT, THE SCHEDULE 13E-3 AND ANY OTHER RELEVANT DOCUMENTS THAT ARE FILED OR WILL BE FILED WITH THE SEC, AS WELL AS ANY AMENDMENTS OR SUPPLEMENTS TO THESE DOCUMENTS AND DOCUMENTS INCORPORATED BY REFERENCE THEREIN, CAREFULLY AND IN THEIR ENTIRETY BECAUSE THEY CONTAIN OR WILL CONTAIN IMPORTANT INFORMATION ABOUT THE PROPOSED TRANSACTION AND RELATED MATTERS. Investors and security holders may obtain free copies of the proxy statement (when it is available), the Schedule 13E-3 (when it is available) and other documents that are filed or will be filed with the SEC by the Company through the website maintained by the SEC at www.sec.gov and the Company’s investor relations website at ir.comeralifesciences.com.

Participants in the Solicitation

The Company and certain of its directors and executive officers, as well as the Purchasers and their affiliates, may be deemed to be participants in the solicitation of proxies from the Company’s stockholders in respect of the proposed transaction and any other matters to be voted on at a special meeting to be held in connection with the proposed transaction. Information regarding the Company’s directors and executive officers, including a description of their direct interests, by security holdings or otherwise, is contained in the Company’s Annual Report on Form 10-K, which was filed with the SEC on March 17, 2023, and will be included in the proxy statement (when available). The Company’s stockholders may obtain additional information regarding the direct and indirect interests of the participants in the solicitation of proxies in connection with the proposed transaction, including the

interests of the Company's directors and executive officers in the transaction, which may be different than those of the Company's stockholders generally, by reading the proxy statement and any other relevant documents that are filed or will be filed with the SEC relating to the transaction. You may obtain free copies of these documents using the sources indicated above.

Forward-Looking Statements

This Report includes "forward-looking statements" within the meaning of the federal securities laws. These forward-looking statements generally are identified by the words "believe," "project," "expect," "anticipate," "estimate," "intend," "strategy," "future," "opportunity," "plan," "may," "should," "will," "would," "will be," "will continue," "will likely result," and similar expressions. Forward-looking statements are predictions, projections and other statements about future events including statements related to the Purchasers' exercise of the Share Purchase Option to take the Company private and the terms, timing, structure, benefits and costs of any such transaction and whether such transaction will be consummated. These forward-looking statements are based on current expectations and assumptions and, as a result, are subject to risks and uncertainties. Many factors could cause actual future events to differ materially from the forward-looking statements in this Report, including, but not limited to: the results of our strategic review process; our ability to raise capital; cash flow, cash burn, expenses, obligations and liabilities; the interest of third parties in entering into a merger, reverse merger, or other strategic transaction with the Company; the outcomes of any litigation, regulatory proceedings, inquiries or investigations that we may become subject to; and other important factors discussed in the Company's filings with the SEC. If we do not obtain additional equity or debt funding, our cash resources will be depleted and we could be required to materially reduce or suspend operations, which would likely have a material adverse effect on our business, stock price and our business relationships with third parties. If we do not have sufficient funds to continue operations or satisfy our liabilities, we could be required to seek a reorganization, liquidation or other restructuring that could result in our stockholders losing some or all of their investment in us. The foregoing list of factors is not exhaustive. Forward-looking statements speak only as of the date they are made. Readers are cautioned not to put undue reliance on forward-looking statements, and the Company assumes no obligation and does not intend to update or revise these forward-looking statements, whether as a result of new information, future events, or otherwise. The Company can give no assurance that it will achieve its expectations.

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Dated: January 4, 2024

COMERA LIFE SCIENCES HOLDINGS, INC.

By: /s/ Michael Campbell

Name: Michael Campbell

Title: Chief Financial Officer
