Via Edgar

March 8, 2022

Alan Campbell
Celeste Murphy
Division of Corporation Finance
Office of Life Sciences
U.S. Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549

Re: Comera Life Sciences Holdings, Inc.
Draft Registration Statement on Draft Registration Statement
Submitted February 3, 2022
CIK No. 0001907685

Dear Mr. Campbell and Ms. Murphy:

On behalf of our client, Comera Life Sciences Holdings, Inc., a Delaware corporation (the "***Company***"), we submit to the staff (the "***Staff***") of the U.S. Securities and Exchange Commission (the "***SEC***") this letter setting forth the Company's response to the comments contained in the Staff's letter dated March 2, 2022 (the **"*Comment Letter*"**) regarding the Company's draft registration statement on Form S-4 (the "***Draft Registration Statement***").

The Company has filed via EDGAR a Registration Statement on Form S-4 (the "***Form S-4***"), which reflects the Company's responses to the Comment Letter and certain updated information. Please note that our responses below, insofar as relevant information relates to OTR Acquisition Corp., a Delaware corporation ("***OTR***") or matters arising from OTR's participation in the preparation of the Draft Registration Statement and Form S-4, are based on our discussions with and information received from OTR or its counsel, Greenberg Traurig, P.A., who have similarly participated in the preparation and review of this response letter.

For ease of reference, each comment contained in the Comment Letter is printed in bold below and is followed by the Company's response. All page references in the responses set forth below refer to the page numbers in the Form S-4. All capitalized terms used but not defined in this response letter have the meanings ascribed to such terms in the Form S-4.

Draft Registration Statement on Form S-4

Cover Page

1. ***Please revise the cover page to disclose the expected ownership percentages in the combined company of OTR's public stockholders, the Sponsor and Comera's existing*** **stockholders if the business combination is approved and consummated. Please also present the expected ownership percentages for OTR's public stockholders, the Sponsor and Comera's existing stockholders if the maximum amount of redemptions of OTR Class A common stock occurs.**

Response: In response to the Staff's comment, the Company has revised the disclosure on the cover page of the Form S-4.

2. ***Please revise your disclosure in this section, where appropriate, as well as your disclosure on pages 125-26 to disclose the material risks to unaffiliated investors presented by taking Comera public through a merger rather than an underwritten offering. These risks could include the absence of due diligence conducted by an underwriter that would be subject to liability for any material misstatements or omissions in a registration statement.***

Response: In response to the Staff's comment, the Company has added a Q&A on pages 16-17, a risk factor on page 100 and revised the disclosure on page 141 of the Form S-4.

Questions and Answers about the Business Combination, page 8

3. ***Please revise your disclosure in this section to disclose all possible sources and extent of dilution that OTR stockholders who elect not to redeem their shares may experience in connection with the business combination. Provide disclosure of the impact of each significant source of dilution, including the amount of OTR's public and private warrants, Comera's outstanding equity awards that are not converted into shares of Holdco's common stock pursuant to the business combination and the Earn-Out Shares, at each of the redemption levels detailed in your sensitivity analysis, including any needed assumptions.***

Response: In response to the Staff's comment, the Company has revised the disclosure on pages 11-12 of the Form S-4.

Summary of the Proxy Statement/Prospectus
Comera, page 23

4. ***Please revise your disclosure in this subsection, as well as on page 10, to reflect your statements elsewhere in the prospectus that Comera is (i) currently pre-clinical and (ii) does not have any products approved for sale and has not generated any revenue from product sales.***

Response: In response to the Staff's comment, the Company has revised the disclosure in this subsection and throughout the Form S4, including pages 10 and 26.

Registration Rights and Lock-Up Agreement, page 29

5. ***Please revise your disclosure here and throughout the prospectus, as appropriate, to disclose the number of shares that will be entitled to registration rights.***

Response: In response to the Staff's comment, the Company has revised the disclosure on pages 32, 94, 161 and 278 of the Form S-4.

Engagement Letter between Comera and Maxim Group LLC, page 30

6. ***Please revise your disclosure here and elsewhere in the prospectus, including in the Background of the Business Combination section beginning on page 115, to reflect your disclosure on page 227 that Maxim would receive deferred underwriting fees from its role as an underwriter of OTR's IPO, in addition to the success fee it would receive from Comera, if the business combination is consummated.***

Please also revise the prospectus, where appropriate, whether OTR's board considered Maxim's potential conflict of interest in evaluating the transaction.

Response: In response to the Staff's comment, the Company has revised the disclosure on pages 33, and 134 of the Form S-4.

Proposal No. 1 — The Business Combination
The Background of the Business Combination, page 115

7. ***We note your statement on page 120 that on June 24, 2021, the Chairman of OTR told Comera that neither his separate entity nor OTR would participate in a transaction with Comera at that time. Please revise your disclosure to clarify why OTR decided not to pursue a transaction with Comera at that time. Please also disclose whether the transaction opportunity was presented to Comera's board of directors at this time.***

Response: In response to the Staff's comment, the Company has revised the disclosure on page 134 of the Form S-4.

8. ***We note your statement on page 120 indicating that Maxim noted that Comera had made commercial progress with its partnerships. Please revise your disclosure to specify what this progress was.***

Response: In response to the Staff's comment, the Company has revised the disclosure on page 134 of the Form S-4.

9. ***Please revise your disclosure in this section to clearly explain the difference between "pre- money enterprise value" and "pre-money equity value" the first time those terms are used and explain why Comera's pre-money enterprise value was $7.5 million lower than its pre- money equity value.***

Response: In response to the Staff's comment, the Company has revised the disclosure on page 135 of the Form S-4.

10. ***Please revise this section to discuss how OTR's management and board of directors conducted business, scientific and industry due diligence on Comera. To the extent that OTR retained third-party experts to conduct scientific due diligence, please (i) identify these experts; (ii) describe the diligence completed by these experts and how this diligence was presented to OTR's board of directors; and (iii) disclose whether these experts were involved in the comparable company analysis.***

Response: In response to the Staff's comment, the Company has revised the disclosure on page 136 of the Form S-4.

11. ***We note your statement on page 124 that the companies in the comparable company analysis had one or more similar operating and financial characteristics as Comera. Please revise your disclosure to specifically describe these characteristics. We further note that each of the comparable companies presented, other than Arsia Therapeutics which was acquired by Eagle Pharmaceuticals, has products in clinical development and that two of the comparable companies appear to have approved products. Given that Comera appears to be preclinical, please revise your disclosure to explain why OTR did not include any preclinical companies in the comparable company analysis and only selected companies that appear to be significantly more advanced in clinical development than Comera.***

Please also revise to explain why OTR included both Arsia Therapeutics and Eagle Pharmaceuticals in the analysis given that Arsia was acquired by Eagle over five years ago.

Response: In response to the Staff's comment, the Company has revised the disclosure on pages 139-40 of the Form S-4.

Material U.S. Federal Income Tax Considerations, page 147

12. ***We note your disclosure that you are unable to opine with respect to the OTR Merger's qualification as a reorganization under Section 368 of the Code. Please revise your disclosure to opine on the material federal tax consequences to investors of the OTR Merger. If there is significant doubt about the tax consequences, counsel may issue a "should" or "more likely than not" opinion to make clear that the opinion is subject to a degree of uncertainty. For guidance, please refer to Staff Legal Bulletin No. 19.***

Response: In response to the Staff's comment, we supplementally advise the Staff that, in general, the qualification of the OTR Merger as a reorganization under Section 368 of the Code is not significant to holders of OTR Common Stock who can achieve tax-free treatment on the exchange of their shares of OTR Common Stock for shares of Holdco Common Stock under Section 351(a) of the Code, but is relevant to holders who exchange their OTR Warrants (and shares of OTR Common Stock, if any) for Holdco Warrants (and shares of Holdco Common Stock, if any). However, as described in the Form S-4, due to factual uncertainty and a lack of clarity in legal authorities, it is not possible for counsel to provide an opinion with respect to the OTR Merger's qualification as a reorganization under Section 368 of the Code. In response to the Staff's comment, however, the Company has revised the disclosure on pages 20, 97, 98 and 166 of the Form S-4 to describe in more detail the factual uncertainty and lack of clarity in legal authorities regarding the tax treatment of the OTR Merger.

Information About Comera, page 164

13. ***Your disclosure on page 33 indicates that Comera is party to several in-license agreements and your disclosure on page 164 indicates that Comera is a party to "key collaborations with large pharmaceutical companies." Please revise this section, where appropriate, to describe the material terms of Comera's in-license agreements, as well as the terms of any other material license or collaboration agreements, and file the agreements as exhibits to your registration statement. In your descriptions of each agreement, please disclose:***

- ***each parties' rights and obligations under the agreement;***
- ***quantify all payment made to date;***
- ***the aggregate amount of all potential development, regulatory and commercial milestone payments;***
- ***disclose the amount of option fees for additional targets, if applicable;***
- ***quantify the royalty rate, or a range no greater than 10 percentage points per tier;***
- ***disclose when royalty provisions expire, if the expiration is based on a number of years following commercialization, disclose the number of years;***
- ***disclose the expiration date; and***
- ***describe any termination provisions.***

Response: The Company advises that there are no current in-license agreements. Accordingly, in response to the Staff's comment, the Company has removed references to current in-license agreements and revised the disclosure to clarify that remaining references are to potential future in-license arrangements.

In addition, references to specific service arrangements or collaboration agreements elsewhere in the prospectus have been removed and disclosure has been added to pages 180 of the Form S-4. The Company has determined that none of the collaborations constitute a material contract under Item 601(b)(10) of Regulation S-K and, therefore, such contracts are not required to be filed as exhibits to the Form S-4.

Overview, page 164

14. ***We note your disclosure that Comera's SQore™ platform enables Comera to transform essential biologics from IV to SQ forms, optimize current versions of SQ biologics and produce biosimilar versions of existing SQ products. However, your disclosure throughout the prospectus appears to indicate that Comera's products and partnership products are still at the preclinical stage. Please revise your disclosure here and throughout the prospectus, including on page 197 and including your statements that Comera "provide[s] patients and families with the freedom of self-injectable care" to clarify that Comera is a preclinical stage company and does not have any products approved for marketing. Alternatively, please advise.***

Response: In response to the Staff's comment, the Company has revised the disclosure throughout the Form S4, including pages 10, 26, 181, and 215.

The Market, page 164

15. ***Please revise to provide the sources for the statistics provided in the first paragraph of this section, including your statements that the global market for biotherapeutics is expected to grow to approximately $422 billion in 2025 and that biotherapeutics constitute 75% of pharma pipelines.***

Response: In response to the Staff's comment, the Company has revised the disclosure and identified the source of statistics on page 182 of the Form S-4.

Industry Challenges, page 165

16. ***We note your statements that Comera has developed (i) new patent surfactant compounds that can be used as an alternative to polysorbates and (ii) new thermal stabilizers that can be used to protect protein formulations from degradation in storage conditions. Please revise your disclosure to clarify how Comera has demonstrated that its compounds and thermal stabilizers have demonstrated these qualities and whether these compounds and thermal stabilizers are currently used in product candidates or clinically approved products.***

Response: In response to the Staff's comment, the Company has revised the disclosure on pages 183, 184, and 187 of the Form S-4.

Our Technology Platform, page 166

17. ***We note your statement that regulatory requirements can potentially be "streamlined." Please revise your disclosure to remove any implication that Comera will be successful in commercializing its technology or product candidates in an accelerated manner as such statements are speculative.***

Response: In response to the Staff's comment, the Company has revised the disclosure on page 184 of the Form S-4.

18. ***Please revise your disclosure to provide the source for the claim that Comera has industry- leading expertise in biolayer interferometry. To the extent that this statement is based on management's belief, please so state.***

Response: In response to the Staff's comment, the Company has revised the disclosure on page 185 of the Form S-4.

OTR Acquisition Corp.
Report of Independent Registered Public Accounting Firm, page F-2

19. ***The audit report for OTR Acquisition Corp refers to the initial restatement in May 2021 related to the classification of warrants, but does not refer to the subsequent restatement in December 2021 related to the classification of shares subject to possible redemption. Further, the disclosures in Note 2 discuss the December 2021 restatement but not the May 2021 restatement. Please revise to ensure consistency between the restatement paragraph provided in the auditor's report and the restatement discussion in your financial statement footnotes.***

Response: In response to the Staff's comment, we supplementally advise the Staff that OTR filed Amendment No. 3 to its Form 10-K for the year ended December 31, 2020 on March 8, 2022, which includes a new audit report from WithumSmith+Brown, PC, OTR's independent registered public accounting firm. OTR's audited 2021 financial statements have been included in the Form S-4 along with WithumSmith+Brown, PC's 2021 audit report.

Notes to Financial Statements—Comera Life Sciences, Inc., page F-31

20. ***Please include disclosure in your financial statement footnotes that describes the terms of your significant license or collaboration agreements. In this regard, you have disclosed elsewhere in the prospectus that Comera has had service arrangements or collaboration agreements with Bayer, Astellas, KBI Biopharma and Merck KGaA.***

Response: The Company respectfully advises the Staff that these arrangements are not considered significant and disclosure of specific customers and contractual terms was not deemed necessary. Accordingly, references to specific service arrangements or collaboration agreements elsewhere in the prospectus have been removed. In general, the Company's contracts typically contain one performance obligation to perform research services on behalf of its customers. The research services are performed over a short period of time, typically less than twelve months. The related consideration is generally either a fixed fee or variable consideration based on the efforts to perform the research services. These contracts typically include rights to negotiate for a license, or other products and services, upon completion of the research services. As of December 31, 2021, there were no outstanding arrangements with commercialization licenses, or which contain milestone, royalty, or similar forms of contingent consideration.

In response to the Staff's comment, the Company has revised the revenue and contract balances policy disclosures beginning on page F-35 of the Form S-4 to further clarify the nature of these arrangements.

2. Basis of Presentation and Significant Accounting Policies
Revenue and Deferred Revenue, page F-34

21. ***Your revenue recognition policy is generic and not specific to your specific revenue sources. In this regard, we note that your revenues to-date have been generated from research agreements with various partners, which represent formulation development collaborations and product-specific licenses. Please revise to more clearly describe the nature of your revenue-generating contracts, the specific performance obligations under each contract (e.g., license transfer, research & development services, etc.), how the transaction price is determined for each contract and the methods used to recognize revenue.***

Response: In response to the Staff's comment, the Company has revised the revenue and contract balances policy disclosures beginning on page F-35 of the Form S-4.

Cost of Revenue, page F-35

22. ***We note that you present cost of revenues as well as an associated gross profit on the face of your Statement of Operations. Please specify the types of revenues to which these costs are associated and why it is appropriate to present a gross profit measure for such revenues. For example, to the extent that you have provided a license to a specific product, technology or know-how to a customer, explain how you determined the cost of revenue related to this license and the associated gross profit. Further, given that license and collaboration agreements can have significantly different terms based on the product or customer, explain why you believe the presentation of a gross profit measure related to these agreements provides meaningful information.***

Response: The Company respectfully advises the Staff that all revenue relates to one type, which is research and development services. In general, the Company's contracts typically contain one performance obligation to perform research services on behalf of its customers. The research services are performed over a short period of time, typically less than twelve months. The related consideration is generally either a fixed fee or variable consideration based on the efforts to perform the research services. These contracts typically include rights to negotiate for a license, or other products and services upon completion of the research services. As of December 31, 2021, there were no outstanding arrangements with commercialization licenses, or which contain milestone, royalty, or similar forms of contingent consideration.

The cost of revenues relate to internal and external costs necessary to provide the research services. Specifically, internal costs include salaries and benefits, including stock-based compensation expense for employees performing the research services. External costs include the cost of any materials, consultants, contractors, or other similar items related to the research services.

Costs associated with development of the Company's intellectual property is expensed as incurred as research and development expense and therefore cost of revenues do not include any expenses related to Company's intellectual property.

The Company acknowledges the Staff's comment regarding the value of information provided through presentation of the gross profit measure and has removed such measure from the Company's financial statements.

Exhibits

23. ***Please file the Comera 2021 Stock Option and Grant Plan and the executive officer letters described on pages 195-96 as exhibits to your registration statement.***

Response: In response to the Staff's comment, the Company has added the requested documents as exhibits 10.6 – 10.11 to the Form S-4.

Please do not hesitate to contact Mitchell Nussbaum at (212) 407-4159 or Janeane Ferrari at (212) 407-4209 if you would like additional information with respect to any of the foregoing. Thank you.

Sincerely,

/s/ Loeb & Loeb LLP
Loeb & Loeb LLP

cc: Jeffrey Hackman
Comera Life Sciences Holdings, Inc.

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