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

DIVISION OF
CORPORATION FINANCE

November 10, 2020

Shalabh Gupta, M.D.
Chief Executive Officer, President and Chairman
Unicycive Therapeutics, Inc.
5150 El Camino Real, Suite A-32
Los Altos, CA 94022

Re: Unicycive Therapeutics, Inc.
Amendment No. 1 to Draft Registration Statement on Form S-1
Submitted November 2, 2020
CIK No. 0001766140

Dear Dr. Gupta:

We have reviewed your amended draft registration statement and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by providing the requested information and either submitting an amended draft registration statement or publicly filing your registration statement on EDGAR. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing the information you provide in response to these comments and your amended draft registration statement or filed registration statement, we may have additional comments.

Amendment No. 1 to Draft Registration Statement on Form S-1 submitted November 2, 2020

PROSPECTUS SUMMARY
Overview, page 1

1. We note your response to prior comment 1 and that UNI 494 was initially developed by Sphaera Pharmaceuticals. Please revise the business section to clearly disclose the discovery/preclinical work conducted by Sphaera Pharmaceuticals.

Business
Background on Renazorb, page 52

2. We note your response to prior comment 2 and your revised disclosure here and throughout the registration statement that your candidate has "the potential to be

effective." Please revise the prospectus to remove any statements that suggest the efficacy of your candidate, as these determinations are the exclusive authority of the FDA or other regulators.

Clinical Trial Experience, page 53

3. We note your response to prior comment 8 and reissue. For the clinical trial discussed in this section, please disclose the phase; the date(s) of the trial and the location; duration of treatment and dosage information (both amount and frequency); the specific endpoints established by the trial protocol; and actual results observed, including whether statistical significance was demonstrated and the p-values supporting statistical significance.

General

4. We note your response to prior comment 14. The pipeline table on page 49 and on your website indicates that Renazorb has completed Phase 3 clinical trials. However, we note your disclosure on page 1 that "Spectrum conducted a Phase 1 clinical trial with Renazorb in 2012 prior to the grant of [your] license in 2018." To the extent that you have completed Phase 2 and 3 clinical trials, please include disclosure that complies with comment 3 above. Otherwise, revise the pipeline table on page 49 and on your website to illustrate the product candidate's current status.

You may contact Ibolya Ignat at 202-551-3636 or Brian Cascio at 202-551-3676 if you have questions regarding comments on the financial statements and related matters. Please contact Jeffrey Gabor at 202-551-2544 or Celeste Murphy at 202-551-3257 with any other questions.

Sincerely,

Division of Corporation Finance
Office of Life Sciences

cc: Jeffrey Fessler, Esq.