



DIVISION OF
CORPORATION FINANCE

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

March 28, 2018

Keith R. Leonard, Jr.
Chairman and Chief Executive Officer
Unity Biotechnology, Inc.
3280 Bayshore Blvd
Brisbane, CA 94005

Re: Unity Biotechnology, Inc.
Draft Registration Statement on Form S-1
Submitted March 1, 2018
CIK No. 0001463361

Dear Mr. Leonard:

We have reviewed your 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.

Draft Registration Statement on Form S-1

Prospectus Summary, page 1

1. We note your disclosure that preclinical studies published in Nature and Science have demonstrated the selective elimination of senescent cells extends both the healthspan and lifespan of animals. Please provide the full names of these publications and the dates that such preclinical studies appeared in each publication.

Advantages of Our Approach, page 3

2. Please provide the basis for your statements that you have secured a "lead position" in the discovery and development of senolytic medicines and that you "continue to be at the forefront of extending human lifespan."

Our Pipeline, page 3

3. Please revise the pipeline table on pages 3 and 86 to include columns for Phase 2 and Phase 3. Also, please remove references to product candidates in the discovery or research stage of development from the table. Research and discovery activities that precede the identification of a product candidate are too remote to be highlighted in the pipeline table. Please limit your table to products that are at least in the preclinical stage of development.

Our Team, page 4

4. We note your disclosure here, in the risk factors and in the Business section that you maintain more than a dozen active collaborations with leading external academic institutions, including: the Buck Institute for Research on Aging; Massachusetts General Hospital; Mayo Clinic; the Medical Research Council (MRC, Imperial College); The University of California, San Francisco; and Yale University. Please briefly disclose the nature of such collaborations in the Business section. If any of these collaborations are evidenced by agreements, please tell us how you determined that you were not required to file such agreements as exhibits.

Risk Factors, page 12

5. Please revise your disclosure to explain what you mean by the term "clinically meaningful."

Use of Proceeds, page 63

6. Please specify how far in the clinical development of each of your product candidates you expect to reach with the proceeds of the offering. If any material amounts of other funds are necessary to accomplish the specified purposes for which the proceeds are to be obtained, state the amounts and sources of such other funds needed for each such specified purpose and the sources thereof. Refer to Instruction 3 to Item 504 of Regulation S-K.

Management's Discussion and Analysis of Financial Condition and Results of Operations

Critical Accounting Policies and Estimates

Stock-Based Compensation , page 80

7. Once you have an estimated offering price or range, please explain to us how you determined the fair value of the common stock underlying your equity issuances and the reasons for any differences between the recent valuations of your common stock leading

up to the IPO and the estimated offering price. This information will help facilitate our review of your accounting for equity issuances including stock compensation and beneficial conversion features.

JOBS Act Accounting Election, page 83

8. You disclose that you have elected to use the transition period for complying with new or revised accounting standards. Therefore please remove the check mark on the cover page that states you have elected not to use the extended transition period.

Business, page 85

9. Please define DMSO in Figure 6 on page 101 and PBS in Figures 15A and 15B on page 114.

Preclinical Studies with UBX0101, page 99

10. We note your disclosure that you have "completed IND-enabling studies of UBX0101, including GLP safety assessment studies, with single administration of intra-articular and oral dosing." For each pre-clinical trial, please disclose the date(s) of the trials, the sponsor and the location, scope and size, dosage and duration, and actual results observed.

Intellectual Property, page 117

11. For each of your material patents, please disclose (1) the specific product(s) to which such patents or patent applications relate; (2) whether the patents are owned or licensed from third parties, and if so, from whom; (3) the type of patent protection (composition of matter, use or process); (4) patent expiration dates and expected expiration dates for patent applications; and (5) the jurisdictions where such patents were issued and such patent applications are pending.

Principal Stockholders, page 163

12. Please revise your disclosure to identify the natural person or persons who have voting and investment control of the shares held by WuXi PharmaTech Healthcare Fund I LP, Venrock Partners, the Mayo Clinic and Baillie Gifford & Co.

General

13. Please supplementally provide us with copies of all written communications, as defined in Rule 405 under the Securities Act, that you, or anyone authorized to do so on your behalf, present to potential investors in reliance on Section 5(d) of the Securities Act, whether or not they retain copies of the communications.
14. Please provide us proofs of all graphics, visual, or photographic information you will provide in the printed prospectus prior to its use, for example in a preliminary prospectus. Please note that we may have comments regarding this material.

Keith R. Leonard, Jr.
Unity Biotechnology, Inc.
March 28, 2018
Page 4

You may contact Vanessa Robertson at 202-551-3649 or Lisa Vanjoske at 202-551-3614 if you have questions regarding comments on the financial statements and related matters. Please contact Jeffrey Gabor at 202-551-2544 or Ada Sarmiento at 202-551-3798 with any other questions.

Division of Corporation Finance
Office of Healthcare & Insurance

cc: Brian Cuneo, Esq.