

140 Scott Drive
Menlo Park, California 94025
Tel: +1.650.328.4600 Fax: +1.650.463.2600
www.lw.com

LATHAM & WATKINS^{LLP}

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April 23, 2018

VIA EDGAR AND HAND DELIVERY

File No. 055191-0006

United States Securities and Exchange Commission
Division of Corporation Finance
Office of Healthcare & Insurance
100 F Street, N.E.
Washington, D.C. 20549-6010

Attention: Suzanne Hayes, Assistant Director
James Rosenberg, Senior Assistant Chief Accountant
Jeffrey Gabor, Staff Attorney
Ada Sarmento, Staff Attorney
Lisa Vanjoske, Assistant Chief Accountant
Vanessa Robertson, Senior Staff Accountant

Re: **Unity Biotechnology, Inc.**
Registration Statement on Form S-1
Filed on April 5, 2018
CIK No. 0001463361

Ladies and Gentlemen:

On behalf of Unity Biotechnology, Inc. (the "**Company**" or "**Unity**"), we are hereby filing Amendment No. 1 to the Company's Registration Statement on Form S-1 ("**Amendment No. 1**"). The Company previously filed its Registration Statement on Form S-1 with the U.S. Securities and Exchange Commission (the "**Commission**") on April 5, 2018 (the "**Registration Statement**"). Amendment No. 1 has been revised to reflect the Company's responses to the comment letter to the Registration Statement received on April 19, 2018 from the staff of the Commission (the "**Staff**"). For your convenience, we are providing by overnight delivery a courtesy package that includes six copies of Amendment No. 1, three of which have been marked to show changes from the Registration Statement, as well as a copy of this letter.

For ease of review, we have set forth below each of the numbered comments of your letter in bold type followed by the Company's responses thereto.

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Registration Statement on Form S-1

Business

Licenses and Collaborations, page 132

1. **We note your responses to our prior comments 4 and 11. We note that UBX0101 appears to be your most advanced product candidate and that you co-own a patent family with the Buck Institute for Research on Aging, the John Hopkins University, and Mayo Clinic directed toward the use of UBX0101 for the treatment of osteoarthritis. Please file these agreements as exhibits or provide further analysis as to why you are not required to file these agreements as exhibits pursuant to Item 601(b)(10) of Regulation S-K.**

Response: In response to the Staff's comment, the Company has filed the agreements with each of the Buck Institute for Research on Aging, John Hopkins University and the Mayo Clinic that provide for the assignment of intellectual property related to the use of UBX0101 for the treatment of osteoarthritis with the Registration Statement. The Company further advises the Staff that it has revised pages 134 and 135 of the Registration Statement with respect to the foregoing agreements.

Principal Stockholders, page 168

2. **We note your response to our prior comment 12. With respect to Venrock, please disclose in footnote 3, as you did in your response, that the investment and voting decisions are made jointly by three or more individuals associated with their sole general partner, Venrock Management. With respect to the Mayo Clinic, please revise your disclosure in footnote 4 to identify the natural person or persons with whom Mr. Hoffman shares voting and investment control. With respect to Baillie Gifford & Co., please disclose in footnote 5, as you did in your response, that the investment and voting decisions of SMIT and EWIT are made jointly by three or more individuals of their agent, Baillie Gifford & Co.**

Response: In response to the Staff's comment, the Company has revised page 172 of the Registration Statement. In the case of the Mayo Clinic, the Company respectfully advises the Staff that Mr. Hoffman has sole dispositive power over the shares held by Mayo Clinic and Mayo Foundation.

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We hope the foregoing answers are responsive to your comments. Please do not hesitate to contact me by telephone at (650) 463-3014 or by fax at (650) 463-2600 with any questions or comments regarding this correspondence.

Very truly yours,

/s/ Brian J. Cuneo

Brian J. Cuneo
of LATHAM & WATKINS LLP

cc: Keith R. Leonard Jr., Unity Biotechnology, Inc.
Tamara L. Tompkins, Unity Biotechnology, Inc.
Alan C. Mendelson, Latham & Watkins LLP
Mark V. Roeder, Latham & Watkins LLP
Alan F. Denenberg, Davis Polk & Wardwell LLP