



January 2, 2018

VIA EDGAR

Securities and Exchange Commission  
Division of Corporation Finance  
100 F Street, N.E.  
Washington, D.C. 20549

Ladies and Gentlemen:

On December 11, 2017, Yield10 Bioscience, Inc. (the "Company") attempted to file an amendment to a Registration Statement on Form S-1 (File No. 333-221283) using its licensed third-party software program. Unfortunately, due to an inadvertent programming error, an incorrect file number (333-220040) was contained within the file that the Company submitted via a live filing. Further, in attempting to correct the error, the Company filed the amendment two additional times, and the same erroneous file number reference was repeated. This resulted in three filings of an amendment to the Form S-1 on December 11, 2017 with an erroneous file reference. The three filings were identical to one another in form and substance.

The accession numbers of the incorrect filings are 0001121702-17-000102 (accepted at 08:32:37), 0001121702-17-000099 (accepted at 15:33:31), and 0001121702-17-000098 (accepted at 15:33:40). No securities have been sold in connection with these erroneously filed amendments.

The incorrect file number that was referenced in the filings, 333-220040, relates to the Company's Registration Statement on Form S-1 that was declared effective on August 31, 2017, and relates to the resale of the Company's securities for the benefit of selling stockholders. We believe it is important to avoid any confusion on the part of investors and selling stockholders who may believe that the prior Registration Statement is being amended, which it is not. As a result, we respectfully request that the three erroneous filings of the amendment to the Form S-1 with the accession numbers above be removed from the Company's EDGAR page.

Please note also that the Company was able to file the amendment to the Form S-1 with the correct file number using the services of Merrill Corp., and that filing was accepted on December 11, 2017 at 21:49:59 (accession number 0001104659-17-072805). This filing should not be removed from the Company's EDGAR page.

Please contact me at 978-513-1874 or our outside legal counsel, Megan N. Gates, at 617-348-4443 with any questions regarding this matter. A fax number to which the Staff can send communications regarding this matter (to my attention) is 781-933-3279.

Best regards,

/s/ Charles B. Haaser

Charles B. Haaser

VP-Finance, Chief Accounting Officer & Treasurer