



DIVISION OF  
CORPORATION FINANCE

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

October 13, 2020

Oliver P. Peoples  
President & Chief Executive Officer  
Yield10 Bioscience, Inc.  
19 Presidential Way  
Woburn, Massachusetts 01801

**Re: Yield10 Bioscience, Inc.**  
**Registration Statement on Form S-1**  
**Filed October 8, 2020**  
**File No. 333-249388**

Dear Dr. Peoples:

This is to advise you that we have not reviewed and will not review your registration statement.

Please refer to Rules 460 and 461 regarding requests for acceleration. We remind you that the company and its management are responsible for the accuracy and adequacy of their disclosures, notwithstanding any review, comments, action or absence of action by the staff.

Please contact Sergio Chinos, Staff Attorney, at (202) 551-7844 with any questions.

Sincerely,

Division of Corporation Finance  
Office of Manufacturing

cc: Megan N. Gates