

March 30, 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 March 27, 2020
File No. 333-237420

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
Office of

Corporation Finance
Manufacturing
cc: Megan N. Gates