

March 31, 2021

Oliver Peoples
President and Chief Executive Officer
YIELD10 BIOSCIENCE, INC.
19 Presidential Way
Woburn, Massachusetts 01801

INC.

Statement on Form S-3

2021

Re: YIELD10 BIOSCIENCE,
Registration
Filed March 29,
File No. 333-254830

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 Charles Eastman, Staff Accountant, at (202) 551-3794 with any questions.

Sincerely,

Division of Corporation Finance
Office of Manufacturing