Mail Stop 4631

October 2, 2017

<u>Via E-mail</u>
Mr. Charles B. Haaser
Chief Accounting Officer
Yield10 Bioscience, Inc.
19 Presidential Way, Suite 201
Woburn, MA 01801

> **Re: Yield10 Bioscience, Inc.**
> **Form 10-K for the Fiscal Year Ended December 31, 2016**
> **Filed March 30, 2017**
> **Form 10-Q for the Fiscal Quarter Ended March 31, 2017**
> **Filed May 12, 2017**
> **Form 10-Q for the Fiscal Quarter Ended June 30, 2017**
> **Filed August 11, 2017**
> **File No. 1-33133**

Dear Mr. Haaser:

    We have limited our review of your filing to the financial statements and related disclosures and have the following comment. In our comment, we may ask you to provide us with information so we may better understand your disclosure.

    Please respond to this comment within ten business days by providing the requested information or advise us as soon as possible when you will respond. If you do not believe our comment applies to your facts and circumstances, please tell us why in your response.

    After reviewing your response to this comment, we may have additional comments.

<u>Form 10-Q for the Fiscal Quarter Ended March 31, 2017</u>
<u>Form 10-Q for the Fiscal Quarter Ended June 30, 2017</u>

<u>Exhibit 31.2</u>

1.   Your certifications for both quarters refer to the "annual report on Form 10-K." Please file a full amendment to revise the first paragraph of each certification to refer to the correct periodic report. We remind you that your amendments should include currently dated certifications that refer to the amended Forms 10-Q.

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.

You may contact Dale Welcome at (202) 551-3865 or Anne McConnell at (202) 551-3709 with any questions.

Sincerely,

/s/ W. John Cash

W. John Cash
Accounting Branch Chief

Office of Manufacturing and Construction