

**Yield10 Bioscience, Inc.  
19 Presidential Way  
Woburn, Massachusetts 01801**

October 30, 2019

**VIA EDGAR**

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

Attention: Edward M. Kelly, Esq.

Re: Yield10 Bioscience, Inc.  
Registration Statement on Form S-1  
File No. 333-233683

Dear Mr. Kelly:

We hereby request the withdrawal of our request for acceleration, dated October 28, 2019, of the effective date of the above-referenced Registration Statement that was requested to become effective at 5:00 p.m., Eastern Time, on October 30, 2019, or as soon thereafter as practicable.

Please call Megan Gates, of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., counsel to the Registrant, at (617) 348-4443 with any comments or questions regarding this matter.

Very truly yours,

Yield10 Bioscience, Inc.

By: /s/ Charles B. Haaser

Name: Charles B. Haaser

Title: Vice President, Finance, Chief Accounting  
Officer and Treasurer

cc: *Yield10 Bioscience, Inc.*  
Oliver P. Peoples, Ph.D.

*Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.*  
Megan N. Gates, Esq.