

August 7, 2023

**Via EDGAR**

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

**Re: Yield10 Bioscience, Inc. (the “Company”)  
Registration Statement Filed on Form S-1, as amended (the “Registration Statement”)  
File No. 333-273240**

Ladies and Gentlemen:

Pursuant to Rule 461 under the Securities Act of 1933, as amended, the Company hereby respectfully requests that the effective date for the above-referenced Registration Statement be accelerated to 5:00 p.m., Eastern Time, on August 9, 2023, or as soon as practicable thereafter.

Please contact Megan Gates of Covington & Burling LLP at (617) 603-8805 or mgates@cov.com with any questions you may have regarding this request. In addition, please notify Ms. Gates by telephone when this request for acceleration has been granted.

Respectfully,  
**Yield10 Bioscience, Inc.**

By: /s/ Oliver P. Peoples

Name: Oliver P. Peoples

Title: President & Chief Executive Officer

cc: Megan Gates, Covington & Burling LLP

---