

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

WASHINGTON, DC 20549

Amendment No. 1

to

FORM S-1

REGISTRATION STATEMENT

under the

SECURITIES ACT OF 1933

YIELD10 BIOSCIENCE, INC.

(Exact Name of Registrant as Specified in Its Charter)

Delaware

(State or other jurisdiction of
incorporation or organization)

2870

(Primary Standard Industrial
Classification Code Number)

04-3158289

(IRS Employer
Identification No.)

19 Presidential Way

Woburn, Massachusetts 01801

(617) 583-1700

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Dr. Oliver P. Peoples

President & Chief Executive Officer

Yield10 Bioscience, Inc.

19 Presidential Way

Woburn, Massachusetts 01801

(617) 583-1700

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

Joel I. Papernik, Esq.

Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.

919 Third Avenue

New York, NY 10022

(212) 935-3000

Approximate date of commencement of proposed sale to the public: From time to time after this registration statement becomes effective.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933 check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the Registration Statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

EXPLANATORY NOTE

Yield10 Bioscience, Inc. is filing this Amendment No. 1 to its registration statement on Form S-1 (File No. 333-273070) as an exhibits-only filing. Accordingly, this amendment consists only of the facing page, this explanatory note, Item 16 of Part II of the Registration Statement, the signature page to the Registration Statement and the filed exhibit. The remainder of the Registration Statement is unchanged and has therefore been omitted.

PART II INFORMATION NOT REQUIRED IN PROSPECTUS

Item 16. Exhibits and Financial Statement Schedules.

(a) The exhibits listed below are filed as part of or incorporated by reference into this Registration Statement on Form S-1. Where certain exhibits are incorporated by reference from a previous filing, the exhibit numbers and previous filings are identified in parentheses.

Exhibit Number	Exhibit Description	Filed Herewith	Previously Filed	Incorporated by Reference herein from Form or Schedule	Filing Date	SEC File/Reg. Number
3.1.1	<u>Amended and Restated Certificate of Incorporation, as amended, of the Registrant.</u>			Form 10-Q (Exhibit 3.1)	8/9/2018	001-33133
3.1.2	<u>Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Registrant.</u>			Form 8-K (Exhibit 3.1)	1/15/2020	001-33133
3.1.3	<u>Certificate of Designation of Preferences, Rights and Limitations with respect to the Series A Preferred Stock.</u>			Form 8-K (Exhibit 3.1)	11/20/2019	001-33133
3.1.4	<u>Certificate of Designation of Preferences, Rights and Limitations with respect to the Series B Preferred Stock.</u>			Form 8-K (Exhibit 3.2)	11/20/2019	001-33133
3.2	<u>Amended and Restated By-laws of the Registrant.</u>			Form 10-Q (Exhibit 3.1)	11/10/2021	001-33133
4.1	<u>Specimen Stock Certificate for shares of the Registrant's Common Stock.</u>			Form 10-Q (Exhibit 4.1)	11/12/2020	001-33133
4.2	<u>Form of Investor Warrant to Purchase Common Stock.</u>			Form 8-K (Exhibit 4.1)	7/5/2017	001-33133
4.3	<u>Form of Series A Common Warrant to purchase shares of Common Stock.</u>			Form S-1/A (Exhibit 4.3)	12/15/2017	333-221283
4.4	<u>Form of Common Stock Purchase Warrant.</u>			Form 8-K (Exhibit 4.1)	11/20/2019	001-33133
4.5	<u>Form of Pre-Funded Common Stock Purchase Warrant</u>			Form 8-K (Exhibit 4.1)	5/4/2023	001-33133
4.6	<u>Form of Common Stock Purchase Warrant</u>			Form 8-K (Exhibit 4.2)	5/4/2023	001-33133
5.1	<u>Opinion of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.</u>		X			
10.1†	<u>2006 Stock Option and Incentive Plan.</u>			Form S-1/A (Exhibit 10.3)	10/20/2006	333-135760

Exhibit Number	Exhibit Description	Filed Herewith	Previously Filed	Incorporated by Reference herein from Form or Schedule	Filing Date	SEC File/Reg. Number
10.1.1†	2006 Stock Option and Incentive Plan, Form of Incentive Stock Option Agreement.			Form S-1/A (Exhibit 10.3.1)	10/20/2006	333-135760
10.1.2†	2006 Stock Option and Incentive Plan, Form of Non-Qualified Stock Option Agreement.			Form S-1/A (Exhibit 10.3.2)	10/20/2006	333-135760
10.1.3†	2006 Stock Option and Incentive Plan, Form of Director Non-Qualified Stock Option Agreement.			Form S-1/A (Exhibit 10.3.3)	10/20/2006	333-135760
10.2†	2014 Stock Option and Incentive Plan, Revised and Restated.			Form 10-Q (Exhibit 10.1)	8/13/2015	001-33133
10.2.1†	2014 Stock Option and Incentive Plan, Form of Incentive Stock Option Award.			Form 10-K (Exhibit 10.3.1)	3/25/2015	001-33133
10.2.2†	2014 Stock Option and Incentive Plan, Form of Non-Qualified Stock Option Award.			Form 10-K (Exhibit 10.3.2)	3/25/2015	001-33133
10.2.3†	2014 Stock Option and Incentive Plan, Form of Restricted Stock Unit Award.			Form 10-K (Exhibit 10.3.3)	3/25/2015	001-33133
10.3†	Amended and Restated 2018 Stock Option and Incentive Plan.			Form 8-K (Exhibit 10.1)	5/30/2023	001-33133
10.3.1†	Amended and Restated 2018 Stock Option and Incentive Plan, Form of Stock Option Agreement.			Form 10-K (Exhibit 10.2.5)	3/28/2019	001-33133
10.3.2†	2018 Stock Option and Incentive Plan, Form of Restricted Stock Unit Agreement.			Form 10-K (Exhibit 10.2.6)	3/25/2020	001-33133
10.4†	Employment Agreement between the Company and Oliver P. Peoples dated March 28, 2017.			Form 10-K (Exhibit 10.3)	3/30/2017	001-33133
10.5†	Employment Agreement between the Company and Charles B. Haaser dated March 28, 2017.			Form 10-K (Exhibit 10.4)	3/30/2017	001-33133

Exhibit Number	Exhibit Description	Filed Herewith	Previously Filed	Incorporated by Reference herein from Form or Schedule	Filing Date	SEC File/Reg. Number
10.6†	Employment Agreement between the Company and Lynne H. Brum dated March 28, 2017.			Form 10-K (Exhibit 10.6)	3/30/2017	001-33133
10.7†	Employment Agreement between the Company and Kristi Snell dated March 28, 2017.			Form 10-K (Exhibit 10.8)	3/30/2017	001-33133
10.8†	Form of Employee Noncompetition, Confidentiality and Inventions Agreement between the Company and its Employee.			Form 10-K (Exhibit 10.9)	3/30/2017	001-33133
10.9†	Form of Indemnification Agreement between the Registrant and its Directors and Officers.			Form S/1/A (Exhibit 10.14)	10/20/2006	333-135760
10.10	Standstill Agreement dated June 19, 2015 between the Company and Jack W. Schuler, Renate Schuler and the Schuler Family Foundation.			Form 8-K (Exhibit 10.1)	6/17/2015	001-33133
10.11	Lease Agreement between the Company and ARE MA Region No. 20, LLC dated January 20, 2016 for the premises located at 19 Presidential Way, Woburn, MA.			Form 8-K (Exhibit 10.1)	1/26/2016	001-33133
10.12	Sublease between CJ Research Center LLC and the Company, dated as of September 16, 2016.			Form 10-K (Exhibit 10.20)	3/30/2017	001-33133
10.13	Form of Securities Purchase Agreement dated July 3, 2017 between the Company and the Purchasers named therein.			Form 8-K (Exhibit 10.1)	7/5/2017	001-33133
10.14@	Exclusive License Agreement, dated May 17, 2018, between the Company and the University of Missouri.			Form 10-Q (Exhibit 10.2)	8/9/2018	001-33133
10.15	Form of Securities Purchase Agreement dated March 14, 2019 between the Company and the Investors named therein.			Form 8-K (Exhibit 10.1)	3/15/2019	001-33133

Exhibit Number	Exhibit Description	Filed Herewith	Previously Filed	Incorporated by Reference herein from Form or Schedule	Filing Date	SEC File/ Reg. Number
10.16	Securities Purchase Agreement, dated as of November 14, 2019, by and between Yield10 Bioscience, Inc. and the Investors listed on Schedule I thereto.			Form 8-K (Exhibit 10.1)	11/20/2019	001-33133
10.17	Securities Purchase Agreement, dated as of August 22, 2020, by and between Yield10 Bioscience, Inc. and the Investors listed on Schedule I thereto.			Form 8-K (Exhibit 10.1)	8/25/2020	001-33133
10.18	Collaboration and Option Agreement, dated November 12, 2020, by and between Yield10 Bioscience, Inc. and Rothamsted Research Institute, as amended.			Form 10-K (Exhibit 10.18)	3/14/2023	001-33133
10.19	Equity Distribution Agreement, dated January 23, 2023, by and between the Company and Maxim Group LLC.			Form 8-K (Exhibit 1.1)	1/24/2023	001-33133
10.20	Securities Purchase Agreement, dated as of May 3, 2023, by and between the Company and the Purchasers.			Form 8-K (Exhibit 10.1)	5/4/2023	001-33133
21.1	Subsidiaries of the Registrant.			Form 10-K (Exhibit 21.1)	3/16/2021	001-33133
23.1	Consent of RSM US LLP, an independent registered public accounting firm.		X			
23.2	Consent of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. (included in Exhibit 5.1)		X			
24.1	Power of Attorney (included in the signature pages to the Registration Statement).		X			
101.INS	XBRL Instance Document.		X			
101.SCH	XBRL Taxonomy Extension Schema.		X			
101.CAL	XBRL Taxonomy Extension Calculation Linkbase.		X			
101.DEF	XBRL Taxonomy Extension Definition Linkbase.		X			

Exhibit Number	Exhibit Description	Filed Herewith	Previously Filed	Incorporated by Reference herein from Form or Schedule	Filing Date	SEC File/Reg. Number
101.LAB	XBRL Taxonomy Extension Label Linkbase.		X			
101.PRE	XBRL Taxonomy Extension Presentation Linkbase.		X			
107	Filing Fee Table	X				

† Management contract or compensatory plan or arrangement.

@ Certain confidential portions of this Exhibit were omitted by means of marking such portions with brackets (“[***]”) because the identified confidential portions (i) are not material and (ii) is the type of information that the Company treats as private or confidential.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this Amendment No. 1 to the Registration Statement on Form S-1 to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Woburn, Massachusetts, on July 12, 2023.

YIELD10 BIOSCIENCE, INC.

By: /s/ Oliver P. Peoples

Oliver P. Peoples President and Chief
Executive Officer

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement on Form S-1 has been signed below by the following persons in the capacities and on the dates indicated.

<u>/s/ OLIVER P. PEOPLES</u> Oliver P. Peoples, Ph.D.	President and Chief Executive Officer and Director (Principal Executive Officer)	July 12, 2023
<u>/s/ CHARLES B. HAASER</u> Charles B. Haaser	Vice President, Finance, and Chief Accounting Officer (Principal Financial and Accounting Officer)	July 12, 2023
<u>*</u> Sherri M. Brown	Director	July 12, 2023
<u>*</u> Richard W. Hamilton, Ph.D.	Director	July 12, 2023
<u>*</u> WILLIE LOH, Ph.D.	Director	July 12, 2023
<u>*</u> Anthony J. Sinskey, Sc.D.	Director	July 12, 2023
<u>*</u> Robert L. Van Nostrand	Chairman	July 12, 2023

*By: /s/ Oliver P. Peoples, Ph.D.

Oliver P. Peoples, Ph.D., Attorney-In-Fact

Calculation of Filing Fee Table

Form S-1
(Form Type)

Yield10 Bioscience, Inc.
(Exact name of Registrant as Specified in its Charter)

Table 1 — Newly Registered Securities

Security Type	Security Class Title	Fee Calculation Rule ⁽³⁾	Amount Registered ⁽¹⁾	Proposed Maximum Offering Price Per Unit ⁽²⁾	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
Equity	Common stock, par value \$0.01 per share	457(c)	1,006,710	\$1.965	\$1,978,185.15	\$0.00011020	\$218.00
Total Offering Amount					\$1,978,185.15		\$218.00
Total Fees Previously Paid							—
Total Fee Offsets							—
Net Fee Due							\$218.00

- (1) Pursuant to Rule 416(a) promulgated under the Securities Act of 1933, as amended, this Registration Statement shall also cover any additional shares of common stock of Yield10 Bioscience, Inc. (the “Registrant”) that become issuable with respect of the securities identified in the above table by reason of any stock dividend, stock split, recapitalization or other transaction effected without the Registrant’s receipt of consideration that results in an increase in the number of outstanding shares of Registrant’s common stock.
- (2) Estimated in accordance with Rules 457(c) solely for purposes of calculating the registration fee on the basis of \$1.965, the weighted average of the high and low prices of the Registrant’s common stock as reported on the Nasdaq Capital Market on June 28, 2023.
- (3) Consists of 1,006,710 shares of common stock registered for resale by the selling security holders named in this Registration Statement, issuable upon the exercise of outstanding warrants.