
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

FORM 10-Q

QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.

For the quarterly period ended September 30, 2020

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission file number 001-33133

YIELD10 BIOSCIENCE, INC.

Delaware

(State or other jurisdiction of
incorporation or organization)

04-3158289

(I.R.S. Employer
Identification No.)

**19 Presidential Way
Woburn, MA**

(Address of principal executive offices)

01801

(Zip Code)

(617) 583-1700

(Registrant's telephone number, including area code)

(Former name, former address and former fiscal year, if changed since last report.)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock	YTEN	The Nasdaq Capital Market

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a 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	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
Emerging growth company	<input type="checkbox"/>		

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 13(a) of the Exchange Act.

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

The number of shares outstanding of the registrant's common stock as of November 9, 2020 was 3,334,048.

Yield10 Bioscience, Inc.
Form 10-Q
For the Quarter Ended September 30, 2020

Table of Contents

	Page
<u>Part I. Financial Information</u>	<u>3</u>
Item	
<u>1.</u> <u>Condensed Consolidated Financial Statements (unaudited)</u>	<u>3</u>
<u>Condensed Consolidated Balance Sheets at September 30, 2020 and December 31, 2019</u>	<u>3</u>
<u>Condensed Consolidated Statements of Operations for the three and nine months ended September 30, 2020 and 2019</u>	<u>4</u>
<u>Condensed Consolidated Statements of Comprehensive Loss for the three and nine months ended September 30, 2020 and 2019</u>	<u>5</u>
<u>Condensed Consolidated Statements of Cash Flows for the nine months ended September 30, 2020 and 2019</u>	<u>6</u>
<u>Condensed Consolidated Statements of Series B Convertible Preferred Stock and Stockholders' (Deficit) Equity for the three and nine months ended September 30, 2020 and 2019</u>	<u>7</u>
<u>Notes to the Condensed Consolidated Financial Statements</u>	<u>9</u>
<u>2.</u> <u>Management's Discussion and Analysis of Financial Condition and Results of Operations</u>	<u>24</u>
<u>3.</u> <u>Quantitative and Qualitative Disclosures About Market Risk</u>	<u>31</u>
<u>4.</u> <u>Controls and Procedures</u>	<u>31</u>
<u>Part II. Other Information</u>	<u>31</u>
Item	
<u>1.</u> <u>Legal Proceedings</u>	<u>31</u>
<u>1A.</u> <u>Risk Factors</u>	<u>31</u>
<u>2.</u> <u>Unregistered Sales of Equity Securities and Use of Proceeds</u>	<u>31</u>
<u>3.</u> <u>Defaults Upon Senior Securities</u>	<u>32</u>
<u>4.</u> <u>Mine Safety Disclosures</u>	<u>32</u>
<u>5.</u> <u>Other Information</u>	<u>31</u>
<u>6.</u> <u>Exhibits</u>	<u>32</u>
<u>SIGNATURES</u>	<u>33</u>

PART I. FINANCIAL INFORMATION
ITEM 1. CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

YIELD10 BIOSCIENCE, INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
UNAUDITED

(in thousands, except share and per share data)

	September 30, 2020	December 31, 2019
Assets		
Current Assets:		
Cash and cash equivalents	\$ 2,995	\$ 5,417
Short-term investments	8,794	5,700
Accounts receivable	148	72
Unbilled receivables	56	20
Prepaid expenses and other current assets	368	475
Total current assets	12,361	11,684
Restricted cash	254	332
Property and equipment, net	935	1,243
Right-of-use assets	2,796	3,141
Other assets	300	318
Total assets	\$ 16,646	\$ 16,718
Liabilities, Convertible Preferred Stock and Stockholders' Equity (Deficit)		
Current Liabilities:		
Accounts payable	\$ 103	\$ 279
Accrued expenses	930	1,326
Lease liabilities	443	602
Total current liabilities	1,476	2,207
Lease liabilities, net of current portion	3,283	3,619
Warrant liability	—	14,977
Other long-term liabilities	15	—
Total liabilities	4,774	20,803
Commitments and contingencies (Note 10)		
Series B Convertible Preferred Stock (\$0.01 par value per share); 0 and 5,750 shares issued and outstanding at September 30, 2020 and December 31, 2019, respectively	—	—
Stockholders' Equity (Deficit):		
Series A Convertible Preferred Stock (\$0.01 par value per share); 0 shares and 796 shares issued and outstanding at September 30, 2020 and December 31, 2019, respectively	—	—
Common stock (\$0.01 par value per share); 60,000,000 shares authorized at September 30, 2020 and December 31, 2019; 3,330,778 and 933,423 shares issued and outstanding at September 30, 2020 and December 31, 2019, respectively	33	9
Additional paid-in capital	384,465	360,926
Accumulated other comprehensive loss	(168)	(126)
Accumulated deficit	(372,458)	(364,894)
Total stockholders' equity (deficit)	11,872	(4,085)
Total liabilities, convertible preferred stock and stockholders' equity (deficit)	\$ 16,646	\$ 16,718

The accompanying notes are an integral part of these interim unaudited condensed consolidated financial statements

YIELD10 BIOSCIENCE, INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
UNAUDITED
(in thousands, except share and per share data)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Revenue:				
Grant revenue	\$ 204	\$ 224	\$ 604	\$ 666
Total revenue	204	224	604	666
Expenses:				
Research and development	1,300	1,232	3,939	3,646
General and administrative	1,098	990	3,664	3,201
Total expenses	2,398	2,222	7,603	6,847
Loss from operations	(2,194)	(1,998)	(6,999)	(6,181)
Other income (expense):				
Change in fair value of warrants	—	—	(957)	—
Loan forgiveness income (Note 9)	—	—	333	—
Other income (expense), net	37	16	85	68
Total other income (expense)	37	16	(539)	68
Net loss before income tax expense	(2,157)	(1,982)	(7,538)	(6,113)
Income tax expense	(11)	—	(26)	—
Net loss	\$ (2,168)	\$ (1,982)	\$ (7,564)	\$ (6,113)
Basic and diluted net loss per share	\$ (0.87)	\$ (6.33)	\$ (3.69)	\$ (20.64)
Number of shares used in per share calculations:				
Basic and diluted	2,492,274	312,952	2,050,726	296,139

The accompanying notes are an integral part of these interim unaudited condensed consolidated financial statements

YIELD10 BIOSCIENCE, INC.
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
UNAUDITED
(in thousands)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Net loss:	\$ (2,168)	\$ (1,982)	\$ (7,564)	\$ (6,113)
Other comprehensive loss				
Change in unrealized gain (loss) on investments	(6)	—	1	—
Change in foreign currency translation adjustment	5	(6)	(43)	(14)
Total other comprehensive loss	(1)	(6)	(42)	(14)
Comprehensive loss	\$ (2,169)	\$ (1,988)	\$ (7,606)	\$ (6,127)

The accompanying notes are an integral part of these interim unaudited condensed consolidated financial statements

YIELD10 BIOSCIENCE, INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
UNAUDITED
(in thousands)

	Nine Months Ended September 30,	
	2020	2019
Cash flows from operating activities		
Net loss	\$ (7,564)	\$ (6,113)
Adjustments to reconcile net loss to cash used in operating activities:		
Depreciation	137	150
Change in fair value of warrants	957	—
Loss on disposal of fixed assets	206	—
Charge for 401(k) company common stock match	95	73
Stock-based compensation	506	406
Non-cash lease expense	345	456
Deferred income tax provision	33	—
Changes in operating assets and liabilities:		
Accounts receivable	(76)	23
Unbilled receivables	(36)	(17)
Prepaid expenses and other assets	92	217
Accounts payable	(228)	(66)
Accrued expenses	(324)	48
Lease liabilities	(495)	(622)
Other liabilities	15	—
Net cash used for operating activities	(6,337)	(5,445)
Cash flows from investing activities		
Purchase of property and equipment	(42)	(12)
Proceeds from sale of property and equipment	10	—
Purchase of short-term investments	(6,290)	(1,000)
Proceeds from the sale and maturity of short-term investments	3,197	3,746
Net cash (used for) provided by investing activities	(3,125)	2,734
Cash flows from financing activities		
Proceeds from warrants exercised (Note 12)	1,658	—
Proceeds from public and private offerings, net of issuance costs	5,367	2,583
Taxes paid on employees' behalf related to vesting of stock awards	(17)	(4)
Net cash provided by financing activities	7,008	2,579
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(46)	(14)
Net decrease in cash, cash equivalents and restricted cash	(2,500)	(146)
Cash, cash equivalents and restricted cash at beginning of period	5,749	3,355
Cash, cash equivalents and restricted cash at end of period	\$ 3,249	\$ 3,209
Supplemental disclosure of non-cash information:		
Offering costs remaining in accrued expenses	\$ 63	\$ 41

The accompanying notes are an integral part of these interim unaudited condensed consolidated financial statements

YIELD10 BIOSCIENCE, INC.
CONDENSED CONSOLIDATED STATEMENTS OF SERIES B CONVERTIBLE STOCK AND STOCKHOLDERS' (DEFICIT) EQUITY
UNAUDITED
(In thousands, except share amounts)

Three Months Ended September 30, 2020

	Series B Convertible Preferred Stock		Series A Convertible Preferred Stock		Common Stock			Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Par Value	Shares	Par Value	Shares	Par Value	Additional Paid-In Capital			
Balance, June 30, 2020	—	\$ —	—	\$ —	1,972,798	\$ 20	\$ 378,924	\$ (167)	\$ (370,290)	\$ 8,487
Non-cash stock-based compensation expense	—	—	—	—	—	—	243	—	—	243
Issuance of common stock for 401(k) match	—	—	—	—	3,689	—	23	—	—	23
Issuance of common stock for restricted stock units	—	—	—	—	6,006	—	(17)	—	—	(17)
Issuance of common stock for concurrent private and public offerings, net of offering costs of \$425	—	—	—	—	1,348,285	13	5,292	—	—	5,305
Effect of foreign currency translation and unrealized loss on investments	—	—	—	—	—	—	—	(1)	—	(1)
Net loss	—	—	—	—	—	—	—	—	(2,168)	(2,168)
Balance, September 30, 2020	—	\$ —	—	\$ —	3,330,778	\$ 33	\$ 384,465	\$ (168)	\$ (372,458)	\$ 11,872

Three Months Ended September 30, 2019

	Series B Convertible Preferred Stock		Series A Convertible Preferred Stock		Common Stock			Accumulated other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
	Shares	Par Value	Shares	Par Value	Shares	Par Value	Additional Paid-In Capital			
Balance, June 30, 2019	—	\$ —	—	\$ —	312,352	\$ 3	\$ 360,638	\$ (118)	\$ (356,069)	\$ 4,454
Non-cash stock-based compensation expense	—	—	—	—	—	—	131	—	—	131
Issuance of common stock for 401(k) match	—	—	—	—	607	—	23	—	—	23
Effect of foreign currency translation and unrealized loss on investments	—	—	—	—	—	—	—	(6)	—	(6)
Net loss	—	—	—	—	—	—	—	—	(1,982)	(1,982)
Balance, September 30, 2019	—	\$ —	—	\$ —	312,959	\$ 3	\$ 360,792	\$ (124)	\$ (358,051)	\$ 2,620

The accompanying notes are an integral part of these interim unaudited condensed consolidated financial statements

Nine Months Ended September 30, 2020

	Series B Convertible Preferred Stock		Series A Convertible Preferred Stock		Common Stock			Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' (Deficit) Equity
	Shares	Par Value	Shares	Par Value	Shares	Par Value	Additional Paid-In Capital			
Balance, December 31, 2019	5,750	\$ —	796	\$ —	933,423	\$ 9	\$ 360,926	\$ (126)	\$ (364,894)	\$ (4,085)
Non-cash stock-based compensation expense	—	—	—	—	—	—	597	—	—	597
Issuance of common stock for 401(k) match	—	—	—	—	17,518	—	86	—	—	86
Issuance of common stock for warrant exercise	—	—	—	—	207,296	2	1,656	—	—	1,658
Issuance of common stock upon conversion of Series A Convertible Preferred Stock	—	—	(796)	—	99,500	2	(2)	—	—	—
Issuance of common stock upon conversion of Series B Convertible Preferred Stock	(5,750)	—	—	—	718,750	7	(7)	—	—	—
Reclassification of warrant liability to equity	—	—	—	—	—	—	15,934	—	—	15,934
Issuance of common stock upon vesting of restricted stock units	—	—	—	—	6,006	—	(17)	—	—	(17)
Issuance of common stock for private and public offering, net of offering costs of \$425	—	—	—	—	1,348,285	13	5,292	—	—	5,305
Effect of foreign currency translation and unrealized loss on investments	—	—	—	—	—	—	—	(42)	—	(42)
Net loss	—	—	—	—	—	—	—	—	(7,564)	(7,564)
Balance, September 30, 2020	—	\$ —	—	\$ —	3,330,778	\$ 33	\$ 384,465	\$ (168)	\$ (372,458)	\$ 11,872

Nine Months Ended September 30, 2019

	Series B Convertible Preferred Stock		Series A Convertible Preferred Stock		Common Stock			Accumulated other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
	Shares	Par Value	Shares	Par Value	Shares	Par Value	Additional Paid-In Capital			
Balance, December 31, 2018	—	\$ —	—	\$ —	250,631	\$ 3	\$ 357,743	\$ (110)	\$ (351,938)	\$ 5,698
Non-cash stock-based compensation expense	—	—	—	—	—	—	406	—	—	406
Issuance of common stock for 401(k) match	—	—	—	—	1,671	—	64	—	—	64
Issuance of stock for restricted stock unit vesting, net of 2,449 shares withheld for employee taxes	—	—	—	—	116	—	(4)	—	—	(4)
Issuance of common stock for registered direct offering, net of \$349 offering costs	—	—	—	—	60,541	—	2,583	—	—	2,583
Effect of foreign currency translation and unrealized loss on investments	—	—	—	—	—	—	—	(14)	—	(14)
Net loss	—	—	—	—	—	—	—	—	(6,113)	(6,113)
Balance, September 30, 2019	—	\$ —	—	\$ —	312,959	\$ 3	\$ 360,792	\$ (124)	\$ (358,051)	\$ 2,620

YIELD10 BIOSCIENCE, INC.
NOTES TO THE CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
UNAUDITED

(All dollar amounts, except share and per share amounts, are stated in thousands)

1. NATURE OF BUSINESS AND BASIS OF PRESENTATION

Yield10 Bioscience, Inc. is an agricultural bioscience company that uses its "Trait Factory" and the Camelina oilseed "Fast Field Testing" system to develop high value seed traits for the agriculture and food industries. Yield10 is headquartered in Woburn, Massachusetts and has an Oilseed Center of Excellence in Saskatoon, Saskatchewan, Canada. The Company's goal is to efficiently develop superior gene traits for the major crops including corn, soybean, canola, and other crops to enable step-change increases in crop yield of at least 10-20 percent. Yield10's "Trait Factory" encompasses discovery of gene targets using its GRAIN ("Gene Ranking Artificial Intelligence Network") big data mining platform, deployment of trait gene targets in the oilseed Camelina and generation of field performance data. The "Trait Factory" enables two complementary commercial opportunities with different paths to market. The first is trait licensing to the major seed companies for corn, soybean, canola and other crops. Data from the Company's trait field testing in Camelina has enabled Yield10 to establish research license agreements with leading seed companies including the Bayer Crop Science division of Bayer AG ("Bayer"), GDM, Forage Genetics International, LLC, a division of Land O'Lakes, Inc. ("Forage Genetics") and JR Simplot Company ("Simplot"). These companies are progressing the development of Yield10 traits in soybean, forage sorghum, and potato, respectively. The second commercial opportunity is to improve the performance and value of Camelina as a platform to develop a commercial crop product business producing nutritional oils and PHA biomaterials. Using this approach, Yield10 can leverage the resources of the major seed companies to efficiently develop superior gene traits for the major crops thereby creating opportunities for licensing revenue while focusing internal resources on trait gene discovery and the commercial development of Camelina products.

The accompanying unaudited condensed consolidated financial statements are presented in U.S. dollars, are unaudited, and have been prepared by Yield10 in accordance with accounting principles generally accepted in the United States of America ("GAAP") and pursuant to the rules and regulations of the U.S. Securities and Exchange Commission ("SEC"). Certain information and footnote disclosures normally included in the Company's annual consolidated financial statements have been condensed or omitted. The year-end condensed consolidated balance sheet data was derived from audited financial statements but does not include all disclosures required by GAAP. The condensed consolidated financial statements, in the opinion of management, reflect all adjustments (consisting only of normal recurring adjustments) necessary for fair statements of the financial position and results of operations for the interim periods ended September 30, 2020 and September 30, 2019.

The results of operations for the interim periods are not necessarily indicative of the results of operations to be expected for any future period or the entire fiscal year. These interim unaudited condensed consolidated financial statements should be read in conjunction with the audited consolidated financial statements for the year ended December 31, 2019, which are contained in the Company's [Annual Report on Form 10-K](#) filed with the SEC on March 25, 2020.

The accompanying condensed consolidated financial statements have been prepared on a basis which assumes that the Company will continue as a going concern and which contemplates the realization of assets and satisfaction of liabilities and commitments in the normal course of business. Except for a single year, the Company has recorded losses since its initial founding, including the three and nine months ended September 30, 2020.

As of September 30, 2020, the Company held unrestricted cash, cash equivalents and short-term investments of \$11,789. The Company follows the guidance of Accounting Standards Codification ("ASC") Topic 205-40, *Presentation of Financial Statements-Going Concern*, in order to determine whether there is substantial doubt about its ability to continue as a going concern for one year after the date its financial statements are issued. Based on its cash forecast, management expects that the Company's present capital resources will be sufficient to fund its planned operations for at least that period of time. This forecast of cash resources is forward-looking information that involves risks and uncertainties, and the actual amount of expenses could vary materially and adversely as a result of a number of factors. The Company's ability to continue operations after its current cash resources are exhausted depends on its ability to obtain additional financing through, among other sources, public or private equity financing, secured or unsecured debt financing, equity or debt bridge financing, warrant holders' ability and willingness to exercise the Company's outstanding warrants, additional government grants or collaborative arrangements with third parties, as to which no assurance can be given. Management does not know whether additional financing will be available on terms favorable or acceptable to the Company when needed, if at all. If adequate additional funds are not available when required, management may be forced to curtail the Company's research efforts, explore strategic alternatives and/or wind down its operations and pursue options for liquidating its remaining assets, including intellectual property.

If the Company issues equity or debt securities to raise additional funds in the future, (i) the Company may incur fees associated with such issuance, (ii) its existing stockholders may experience dilution from the issuance of new equity securities, (iii) the Company may incur ongoing interest expense and be required to grant a security interest in Company assets in connection with any debt issuance, and (iv) the new equity or debt securities may have rights, preferences and privileges senior to those of the Company's existing stockholders. In addition, utilization of the Company's net operating loss and research and development credit carryforwards may be subject to significant annual limitations under Section 382 of the Internal Revenue Code due to ownership changes resulting from equity financing transactions. If the Company raises additional funds through collaboration, licensing or other similar arrangements, it may be necessary to relinquish valuable rights to its potential products or proprietary technologies or grant licenses on terms that are not favorable to the Company.

2. ACCOUNTING POLICIES

Principles of Consolidation

The Company's unaudited condensed consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States of America. The unaudited condensed consolidated financial statements include the accounts of the Company and its wholly owned subsidiaries. All intercompany transactions were eliminated, including transactions with its Canadian subsidiary, Metabolix Oilseeds, Inc.

Reverse Stock Split

On January 15, 2020, the Company effected a 1-for-40 reverse stock split of its common stock. Unless otherwise indicated, all share amounts, per share data, share prices, and conversion rates set forth in these notes and the accompanying financial statements have, where applicable, been adjusted retroactively to reflect this reverse stock split.

Cash, Cash Equivalents and Restricted Cash

The Company considers all highly liquid investments purchased with an original maturity date of ninety days or less at the date of purchase to be cash equivalents.

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the Company's Unaudited Condensed Consolidated Balance Sheets included herein:

	September 30, 2020	December 31, 2019
Cash and cash equivalents	\$ 2,995	\$ 5,417
Restricted cash	254	332
Total cash, cash equivalents and restricted cash	<u>\$ 3,249</u>	<u>\$ 5,749</u>

Amounts included in restricted cash represent those required to be set aside by contractual agreement. Restricted cash of \$254 at September 30, 2020 and \$332 at December 31, 2019 consists primarily of funds held in connection with the Company's lease agreement for its Woburn, Massachusetts facility.

Investments

The Company considers all investments purchased with an original maturity date of more than ninety days at the date of purchase and a maturity date of one year or less at the balance sheet date to be short-term investments. All other investments are classified as long-term.

Other-than-temporary impairments of equity investments are recognized in the Company's statements of operations if the Company has experienced a credit loss and has the intent to sell the investment or if it is more likely than not that the Company will be required to sell the investment before recovery of the amortized cost basis. Realized gains and losses, dividends, interest income and declines in value judged to be other-than-temporary credit losses are included in other income (expense). Any premium or discount arising at purchase is amortized and/or accreted to interest income.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of grant revenue and expenses during the reporting periods. Actual results could differ from those estimates.

Foreign Currency Translation

Foreign denominated assets and liabilities of the Company's wholly owned foreign subsidiaries are translated into U.S. dollars at the prevailing exchange rates in effect on the balance sheet date. Revenues and expenses are translated at average exchange rates prevailing during the period. Any resulting translation gains or losses are recorded in accumulated other comprehensive income (loss) in the consolidated balance sheet. When the Company dissolves, sells or substantially sells all of the assets of a consolidated foreign subsidiary, the cumulative translation gain or loss of that subsidiary is released from comprehensive income (loss) and included within its consolidated statement of operations during the fiscal period when the dissolution or sale occurs.

Comprehensive Income (Loss)

Comprehensive income (loss) is comprised of net income (loss) and certain changes in stockholders' equity that are excluded from net income (loss). The Company includes unrealized gains and losses on debt securities and foreign currency translation adjustments in other comprehensive income (loss).

Income Taxes

The Company accounts for income taxes using the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been recognized in the consolidated financial statements or in the Company's tax returns. Under this method, deferred tax assets and liabilities are determined based on the difference between the financial statement and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. A valuation allowance is provided to reduce the deferred tax asset to a level which, more likely than not, will be realized.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to concentrations of credit risk primarily consist of cash, cash equivalents and investments. The Company has historically invested its cash in highly rated money market funds, corporate debt, federal agency notes and U.S. treasury notes. Investments, when purchased, are acquired in accordance with the Company's investment policy which establishes a concentration limit per issuer.

At September 30, 2020, 100% of the Company's total accounts and unbilled receivables are due from U.S. government grants.

Fair Value Measurements

The carrying amounts of the Company's financial instruments as of September 30, 2020 and December 31, 2019, which include cash equivalents, accounts receivable, unbilled receivables, accounts payable, and accrued expenses, approximate their fair values due to the short-term nature of these instruments. See Note 5 for further discussion on fair value measurements.

Segment Information

The accounting guidance for segment reporting establishes standards for reporting information on operating segments in financial statements. The Company is an agricultural bioscience company operating in one segment, which is the development of new technologies to enable step-change increases in crop yield to enhance global food security and production of specialty oils and niche crops. The Company's chief operating decision-maker does not manage any part of the Company separately, and the allocation of resources and assessment of performance are based on the Company's consolidated operating results.

Property and Equipment

Property and equipment are stated at cost less accumulated depreciation. Repairs and maintenance are charged to operating expense as incurred. Depreciation is computed using the straight-line method over the estimated useful lives of the assets once they are placed in service as follows:

Asset Description	Estimated Useful Life (years)
Equipment	3
Furniture and fixtures	5
Software	3
Leasehold improvements	Shorter of useful life or term of lease

Right-of-Use Assets

The Company's right-of-use assets consist of leased assets recognized in accordance with ASC 842, *Leases*, ("ASC 842") which requires lessees to recognize a lease liability and a corresponding lease asset for long-term lease contracts. Right-of-use assets represent the Company's right to use an underlying asset for the lease term and lease liabilities represent its obligation to make lease payments arising from the lease, both of which are recognized based on the present value of the future minimum lease payments over the lease term at the commencement date. The Company uses its incremental borrowing rate in calculating the present value of future lease payments when interest rates are not implicit in the lease. Leases with terms of 12 months or less at inception are expensed as costs are incurred and not capitalized under ASC 842.

Impairment of Long-Lived Assets

Long-lived assets, such as property and equipment, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Accounting guidance further requires that companies recognize an impairment loss only if the carrying amount of a long-lived asset is not recoverable based on its undiscounted future cash flows and measure an impairment loss as the difference between the carrying amount and fair value of the asset.

Grant Revenue

The Company's source of continuing revenue is from its government research grants, in which it serves as either the primary contractor or as a subcontractor. These grants are considered an ongoing major and central operation of the Company's business. Revenue is earned as research expenses related to the grants are incurred. Revenue earned on government grants, but not yet invoiced as of the balance sheet date, are recorded as unbilled receivables in the accompanying consolidated balance sheets at September 30, 2020 and December 31, 2019. Funds received from government grants in advance of work being performed, if any, are recorded as deferred revenue until earned.

Research and Development

All costs associated with internal research and development are expensed as incurred. Research and development expenses include, among others, direct costs for salaries, employee benefits, subcontractors, product trials, facility related expenses, depreciation, and stock-based compensation. Costs incurred in connection with government research grants are recorded as research and development expense.

General and Administrative Expenses

The Company's general and administrative expense includes costs for salaries, employee benefits, facilities expenses, consulting and professional service fees, travel expenses, depreciation expenses and office related expenses incurred to support the administrative operations of the Company.

Intellectual Property Costs

The Company includes all costs associated with the prosecution and maintenance of patents within general and administrative expenses in the consolidated statement of operations.

Stock-Based Compensation

All share-based payments to employees, members of the Board of Directors and non-employees are recognized within operating expense based on the straight-line recognition of their grant date fair value over the period during which the recipient is required to provide service in exchange for the award. See Note 7 for a description of the types of stock-based awards granted, the compensation expense related to such awards and detail of equity-based awards outstanding.

Recent Accounting Standards

From time to time, new accounting pronouncements are issued by the Financial Accounting Standards Board ("FASB") or other standard setting bodies that the Company adopts as of the specified effective date. During the nine months ended September 30, 2020, the Company adopted the following new accounting guidance.

In August 2018, the FASB issued ASU No. 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurement*. This standard modifies certain disclosure requirements on fair value measurements. This standard became effective for the Company on January 1, 2020 and did not have a material impact on its disclosures.

In November 2018, the FASB issued ASU No. 2018-18, *Collaborative Arrangements (Topic 808): Clarifying the Interaction between Topic 808 and Topic 606*. This standard makes targeted improvements for collaborative arrangements as follows:

- Clarifies that certain transactions between collaborative arrangement participants should be accounted for as revenue under ASC 606, *Revenue from Contracts with Customers*, when the collaborative arrangement participant is a customer in the context of a unit of account. In those situations, the guidance in ASC 606 should be applied, including recognition, measurement, presentation and disclosure requirements;
- Adds unit-of-account guidance to ASC 808, *Collaborative Arrangements*, to align with the guidance in ASC 606 (that is, a distinct good or service) when an entity is assessing whether the collaborative arrangement or a part of the arrangement is within the scope of ASC 606; and
- Precludes a company from presenting transactions with collaborative arrangement participants that are not directly related to sales to third parties with revenue recognized under ASC 606 if the collaborative arrangement participant is not a customer.

This standard became effective on January 1, 2020. However, since the Company is not currently participating in any collaborative arrangements, the new standard does not impact its financial statements.

The following new pronouncement is not yet effective but may impact the Company's financial statements in the future.

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments—Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*. The FASB subsequently issued amendments to ASU 2016-13, which have the same effective date and transition date as the initial pronouncement. This standard requires entities to estimate an expected lifetime credit loss on financial assets ranging from short-term trade accounts receivable to long-term financings and report credit losses using an expected losses model rather than the incurred losses model that was previously used, and establishes additional disclosures related to credit risks. For available-for-sale debt securities with unrealized losses, this standard now requires allowances to be recorded instead of reducing the amortized cost of the investment. This standard limits the amount of credit losses to be recognized for available-for-sale debt securities to the amount by which carrying value exceeds fair value and requires the reversal of previously recognized credit losses if fair value increases. The guidance is effective for fiscal years beginning after December 15, 2022 for SEC filers that are eligible to be smaller reporting companies under the SEC's definition, and interim periods within those fiscal years. The Company is currently evaluating the impact this guidance will have on the Company's condensed consolidated financial statements.

3. BASIC AND DILUTED NET INCOME (LOSS) PER SHARE

Basic net income (loss) per share is computed by dividing net income (loss) by the weighted-average number of common shares outstanding. Diluted net income (loss) per share is computed by dividing net income (loss) by the weighted-average number of dilutive common shares outstanding during the period. Diluted shares outstanding is calculated by adding to the weighted shares outstanding any potential (unissued) shares of common stock from outstanding stock options and warrants based on the treasury stock method, as well as weighted shares outstanding of any potential (unissued) shares of

common stock from restricted stock units. In periods when a net loss is reported, all common stock equivalents are excluded from the calculation because they would have an anti-dilutive effect, meaning the loss per share would be reduced. Therefore, in periods when a loss is reported, basic and dilutive loss per share are the same. Common stock equivalents include stock options, restricted stock awards and warrants.

The number of shares of potentially dilutive common stock presented on a weighted average basis, related to options, restricted stock units, convertible preferred stock and warrants (prior to consideration of the treasury stock method) that were excluded from the calculation of dilutive shares since the inclusion of such shares would be anti-dilutive for the three and nine months ended September 30, 2020 and September 30, 2019, respectively, are shown below. Issued and outstanding warrants shown in the table below are described in greater detail in Note 12, contained herein.

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Options	317,706	61,310	183,346	51,386
Restricted Stock Awards	12,288	—	12,874	56
Series A Convertible Preferred Stock	—	—	17,013	—
Series B Convertible Preferred Stock	—	—	41,971	—
Warrants	2,843,699	175,995	2,843,699	175,995
Total	3,173,693	237,305	3,098,903	227,437

4. INVESTMENTS

Investments consist of the following at September 30, 2020 and December 31, 2019:

	Accumulated Cost at September 30, 2020	Unrealized		Market Value at September 30, 2020
		Gain	(Loss)	
Short-term investments				
Government securities	\$ 8,793	\$ 1	\$ —	\$ 8,794
Total	\$ 8,793	\$ 1	\$ —	\$ 8,794

	Accumulated Cost at December 31, 2019	Unrealized		Market Value at December 31, 2019
		Gain	(Loss)	
Short-term investments				
Government securities	\$ 5,700	\$ —	\$ —	\$ 5,700
Total	\$ 5,700	\$ —	\$ —	\$ 5,700

All short-term investments are classified as available for sale as of September 30, 2020 and December 31, 2019. The Company held no long-term investments at September 30, 2020, and December 31, 2019.

5. FAIR VALUE MEASUREMENTS

The Company has certain financial assets recorded at fair value which have been classified as Level 1 and Level 2 within the fair value hierarchy as described in the accounting standards for fair value measurements. In addition, during November 2019, the Company issued Series A Warrants and Series B Warrants in two concurrent securities offerings. At the time of issuance, the Company determined that all of the Series A Warrants and Series B Warrants should be classified as a warrant liability in accordance with ASC 480, *Distinguishing Liabilities from Equity*, and recognized at fair value due to the insufficiency of common shares available to permit their exercise. At December 31, 2019, the warrant liability met Level 3 classification criteria for classification within the fair value hierarchy. Fair value is the price that would be received from the sale of an asset or the price paid to transfer a liability in an orderly transaction between independent market participants at the measurement date. Fair values determined by Level 1 inputs utilize observable data such as quoted prices in active markets for identical instruments. Fair values determined by Level 2 inputs utilize data points other than quoted prices in active markets that are observable either directly or indirectly. Fair values determined by Level 3 inputs utilize unobservable data points in which there is little or no market data, which require the reporting entity to develop its own assumptions. The fair value hierarchy level is determined by the lowest level of significant input.

The Company's financial assets classified as Level 2 at September 30, 2020 and December 31, 2019 were initially valued at the transaction price and subsequently valued utilizing third-party pricing services. Because the Company's investment portfolio may include securities that do not always trade daily, the pricing services use many observable market inputs to determine value including reportable trades, benchmark yields and benchmarking of like securities. The Company validates the prices provided by the third-party pricing services by reviewing their pricing methods and obtaining market values from other pricing sources. After completing the validation procedures, the Company did not adjust or override any fair value measurements provided by these pricing services as of September 30, 2020 and December 31, 2019.

The \$14,977 fair value of the Series A and Series B Warrant liability at December 31, 2019 was determined using the Black-Scholes valuation model. The expected volatility and the risk free discount rate used in the Black-Scholes model were determined based on the Company's historical market price published on the Nasdaq Capital Market and from published U.S. Treasury yield curves, respectively, for a period matched to the contractual term of each warrant series.

At December 31, 2019	Series A Warrants	Series B Warrants
Fair market value of common stock (per share)	\$6.86	\$6.86
Expected term (years)	2.3	7.3
Risk free rate	1.62%	1.83%
Volatility	127%	115%

On January 15, 2020, the Company filed an amendment to its Certificate of Incorporation with the State of Delaware to effect a 1-for-40 reverse stock split. As a result of the reverse stock split, the Company's number of authorized but unissued shares of Common Stock increased significantly and the Series A Warrants and Series B Warrants issued under the offerings completed in November 2019 became eligible for exercise. Prior to reclassification as equity, on January 15, 2020, the Company adjusted the warrant liability to its then \$15,934 fair value using the assumptions below, recording a loss on the adjustment to fair value of \$957.

At January 15, 2020	Series A Warrants	Series B Warrants
Fair market value of common stock (per share)	\$3.77	\$3.77
Expected term (years)	2.3	7.3
Risk free rate	1.62%	1.83%
Volatility	127%	115%

The tables below present information about the Company's assets and liabilities that are measured at fair value on a recurring basis as of September 30, 2020 and December 31, 2019 and indicate the fair value hierarchy of the valuation techniques utilized to determine such fair value.

Description	Fair value measurements at reporting date using			Balance as of September 30, 2020
	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	
Assets				
Cash equivalents:				
Money market funds	\$ 2,350	\$ —	\$ —	\$ 2,350
Short-term investments:				
U.S. government and agency securities	—	8,794	—	8,794
Total assets	\$ 2,350	\$ 8,794	\$ —	\$ 11,144

Description	Fair value measurements at reporting date using			Balance as of December 31, 2019
	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	
Assets				
Cash equivalents:				
Money market funds	\$ 2,622	\$ —	\$ —	\$ 2,622
U.S. government and agency securities	—	1,750	—	1,750
Short-term investments:				
U.S. government and agency securities	—	5,700	—	5,700
Total assets	\$ 2,622	\$ 7,450	\$ —	\$ 10,072
Liabilities				
Warrant liability	\$ —	\$ —	\$ 14,977	\$ 14,977
Total liabilities	\$ —	\$ —	\$ 14,977	\$ 14,977

There were no transfers of financial assets or liabilities between category levels for the three and nine months ended September 30, 2020 and the three and nine months ended September 30, 2019.

The Company owns 648,149 shares of Series A Redeemable Convertible Preferred Stock of Tephra, Inc. ("Tephra"), a privately held medical device company located in Lexington, Massachusetts, that is engaged in the development of medical device products that restore, maintain, or improve tissue function. The Company received the preferred shares from Tephra during 2002 in connection with a technology sublicense agreement that was later terminated during 2016. The preferred shares owned by the Company represent less than one percent of Tephra's current outstanding common shares on a fully diluted basis and were fully written off through an impairment charge during 2005 prior to Tephra initiating commercial product sales.

6. ACCRUED EXPENSES

Accrued expenses consisted of the following at:

	September 30, 2020	December 31, 2019
Employee compensation and benefits	\$ 483	\$ 669
Leased facilities	101	51
Professional services	153	327
Other	193	279
Total accrued expenses	\$ 930	\$ 1,326

7. STOCK-BASED COMPENSATION

Expense Information for Employee and Non-Employee Stock Awards

The Company recognized stock-based compensation expense related to stock awards, including awards to non-employees and members of the Board of Directors of \$209 and \$506 for the three and nine months ended September 30, 2020 and \$131 and \$406 for the three and nine months ended September 30, 2019, respectively. At September 30, 2020, there was approximately \$2,141 of pre-tax stock-based compensation expense related to unvested awards not yet recognized.

The compensation expense related to unvested stock options is expected to be recognized over a remaining weighted average period of 3.38 years.

Stock Options

A summary of option activity for the nine months ended September 30, 2020 is as follows:

	Number of Shares	Weighted Average Exercise Price
Outstanding at December 31, 2019	62,065	\$ 178.95
Granted	266,192	\$ 5.93
Exercised	—	\$ —
Forfeited	(721)	\$ 48.40
Expired	(655)	\$ 2,587.46
Outstanding at September 30, 2020	<u>326,881</u>	<u>\$ 33.52</u>
Vested and expected to vest at September 30, 2020	326,881	\$ 33.52
Options exercisable at September 30, 2020	66,176	\$ 127.65

Restricted Stock Units

The Company records stock compensation expense for restricted stock units ("RSUs") on a straight-line basis over their requisite service period, which approximates the vesting period, based on each RSU's award date market value. As RSUs vest, the Company withholds a number of shares from its employees with an aggregate fair market value equal to the minimum tax withholding amount (unless the employee makes other arrangements for payment of the tax withholding) from the common stock issuable at the vest date. The Company then pays the minimum required income tax for the employees. During the nine months ended September 30, 2020 and September 30, 2019, the Company paid \$17 and \$4 for income tax withholdings associated with RSUs.

A summary of RSU activity for the nine months ended September 30, 2020 is as follows:

	Number of RSUs	Weighted Average Remaining Contractual Life (years)
Outstanding at December 31, 2019	—	
Awarded	17,000	
Common stock issued upon vesting	(8,500)	
Forfeited	—	
Outstanding at September 30, 2020	<u>8,500</u>	0.37

8. LEASES

Lease Accounting

As a lessee, the Company follows the lease accounting guidance codified in ASC 842. Under ASC 842, a lease is classified as a finance lease if any of five criteria described in the guidance apply to the lease. Any lease not classified as a finance lease is classified as an operating lease with expense recognition occurring on a straight-line basis over the term of the lease. The Company's existing lease arrangements meet the standards for operating lease classification.

Under ASC 842, a lease liability is recorded on the commencement date of a lease and is calculated as the present value of the remaining lease payments, using the interest rate implicit in the lease, or if that rate is not readily determinable, using the lessee's incremental borrowing rate. A right-of-use asset equal to the lease liability is also recorded with adjustments made, as necessary, for lease prepayments, lease accruals, initial direct costs and lessor lease incentives that may be present within the terms of the lease. The Company has adopted the short-term lease exception that permits lessees to omit leases with terms of twelve months or less from the accounting requirements of ASC 842.

Maturity Analysis of Lease Liabilities

At September 30, 2020, the Company's lease liabilities will mature as follows:

Year ended December 31,	Undiscounted Cash Flows	
2020 (October to December)	\$	173
2021		704
2022		726
2023		749
2024		771
Thereafter		1,540
Total undiscounted future lease payments		4,663
Discount		(937)
Total lease liabilities	\$	3,726
Short-term lease liability	\$	443
Long-term lease liability	\$	3,283

At September 30, 2020, the Woburn, Massachusetts facility is the only remaining lease included in the Company's right-of-use assets and corresponding lease liabilities.

Quantitative Disclosure of Lease Costs (unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Lease cost:				
Operating lease cost	\$ 151	\$ 257	\$ 537	\$ 774
Short-term lease cost	167	139	473	393
Sublease income	(140)	(126)	(419)	(385)
Total lease cost, net	\$ 178	\$ 270	\$ 591	\$ 782

Other information as of:

	September 30, 2020	December 31, 2019
Weighted-average remaining lease term (years)	6.2	6.7
Weighted-average discount rate	7.25%	7.24%

Real Estate Leases

During 2016, the Company entered into a lease agreement for its headquarters, pursuant to which the Company leased approximately 29,622 square feet of office and research and development space located at 19 Presidential Way, Woburn, Massachusetts. The lease began on June 1, 2016 and will end on November 30, 2026. The lease agreement does not include any options for an early termination or for an extension of the lease. Pursuant to the lease, the Company is required to pay certain taxes and operating costs associated with the premises throughout the term of the lease. During the buildout of the rented space, the landlord paid \$889 for tenant improvements to the facility and an additional \$444 for tenant improvements that result in increased rental payments by the Company. Upon adopting ASC 842 these improvements were recorded as a reduction in the valuation of the right-of-use asset.

In November 2019, the Company entered into a modification agreement to the Woburn lease in which Yield10 returned 7,409 square feet of underutilized space to the landlord for the remaining term of the lease. In exchange for returning the space, the landlord agreed to fund modifications and upgrades to the office space retained by the Company. The modifications were completed in February 2020, and after that point the Company has no further financial obligations for the vacated space, including lease rental charges, utilities, maintenance and real estate tax charges. The Company's security deposit was also reduced from \$307 to \$229. During the first fiscal quarter of 2020, the Company wrote off \$206 in leasehold improvements and office furniture, net of proceeds, associated with the returned space.

In October 2016, the Company entered into a sublease agreement with a subsidiary of CJ CheilJedang Corporation ("CJ") with respect to CJ's sublease of approximately 9,874 square feet of its leased facility located in Woburn, Massachusetts. The sublease space was determined to be in excess of the Company's needs. The CJ sublease is unaffected by the Company's recent lease modification with the landlord and it remains coterminous with the Company's master lease. CJ will pay pro rata rent and operating expenses equal to the amounts payable to the landlord by the Company, as adjusted from time to time in accordance with the terms of the master lease. Future CJ sublease payments have not been presented as an offset to total undiscounted future lease payments of \$4,663 shown in the lease maturity analysis table above. CJ provided the Company with a security deposit of \$103 in the form of an irrevocable letter of credit.

Through May 2020, the Company leased approximately 13,702 square feet of unused office and laboratory space in Lowell, Massachusetts. The lease terminated in accordance with the terms of the lease agreement and the facility has been returned to the landlord. No further expenses are anticipated under this lease.

The Company's wholly-owned subsidiary, Metabolix Oilseeds, Inc. ("MOI"), located in Saskatoon, Saskatchewan, Canada, leases approximately 6,900 square feet of office, laboratory and greenhouse space located within Innovation Place at 410 Downey Road and within the research facility of National Research Council Canada located at 110 Gymnasium Place. None of the leases contain renewal or early termination options. MOI's leases for these facilities expire on various dates through May 2021.

9. CARES ACT LOAN

The Coronavirus Aid, Relief, and Economic Security Act ("CARES Act") was enacted on March 27, 2020 and subsequently amended by the Paycheck Protection Program Flexibility Act (the "Flexibility Act") on June 5, 2020, in order to provide relief from the economic impacts of COVID-19. During April 2020, the Company received \$333 in loan proceeds from the Paycheck Protection Program (the "PPP"), established pursuant to the CARES Act and administered by the U.S. Small Business Administration. The unsecured loan (the "PPP Loan") is evidenced by a promissory note of the Company dated April 19, 2020 in the principal amount of \$333, issued to a third-party lender (the "lender"). The PPP Loan was amended as a result of the changes made by the Flexibility Act.

Under the CARES Act and the PPP, the Company may apply for and be granted forgiveness for all or a part of the PPP Loan. The amount of loan proceeds eligible for forgiveness is based on a formula that takes into account a number of factors, including the amount of loan proceeds used by the Company during the twenty-four-week period after the loan origination for certain purposes including payroll costs, rent payments on certain leases, and certain qualified utility payments. At least 60% of the loan amount must be used for eligible payroll costs; maintaining or rehiring employees and maintaining salaries at certain levels; and other factors. In September 2020 the Company applied for forgiveness for the PPP Loan and is currently waiting for a determination to be made on its application.

Under the terms of the PPP Loan, as amended, interest will accrue on the outstanding principal at the rate of 1.0% per annum. The term of the PPP Loan is two years from the date the loan proceeds were received, though it may be payable sooner in connection with an event of default under the terms of the PPP Loan. To the extent the loan amount is not forgiven under the PPP, the Company is obligated to make equal monthly payments of principal and interest, beginning ten months from the date of the PPP Loan, until the maturity date.

The PPP Loan may be prepaid in part or in full, at any time, without penalty. The PPP Loan provides for certain customary events of default, including, but not limited to, failing to make a payment when due under the loan, failure to take actions required by the loan, the Company defaulting under certain agreements in favor of any third party, making false statements, the Company's insolvency, and the commencement of creditor or forfeiture proceedings against the Company. Upon the occurrence of an event of default, the lender has customary remedies and may, among other things, require immediate payment of all amounts owed under the PPP Loan, collect all amounts owed from the Company, and file suit and obtain judgment against the Company.

During the Company's second quarter of 2020, it utilized the entire PPP Loan amount for qualifying expenses and has applied for loan forgiveness. Management of the Company considers it reasonably certain that it will meet the conditions for

loan forgiveness, and as a result, the Company recorded the full amount of the loan, or \$333, within other income (expense) in its condensed consolidated statement of operations during the nine months ended September 30, 2020.

10. COMMITMENTS AND CONTINGENCIES

Litigation

From time to time, the Company may be subject to legal proceedings and claims in the ordinary course of business. The Company is not currently aware of any such proceedings or claims that it believes will have, individually or in the aggregate, a material adverse effect on its business, financial condition or results of operations.

Guarantees

As of September 30, 2020, and December 31, 2019, the Company did not have significant liabilities recorded for guarantees.

The Company enters into indemnification provisions under various agreements with other companies in the ordinary course of business, typically with business partners and contractors. Under these provisions, the Company generally indemnifies and holds harmless the indemnified party for losses suffered or incurred by the indemnified party as a result of its activities. These indemnification provisions generally survive termination of the underlying agreement. The maximum potential amount of future payments the Company could be required to make under these indemnification provisions is unlimited. However, to date Yield10 Bioscience has not incurred material costs to defend lawsuits or settle claims related to these indemnification provisions. As a result, the estimated fair value of the indemnifications under these agreements is believed to be minimal. Accordingly, the Company has no liabilities recorded for these agreements as of September 30, 2020 and December 31, 2019.

11. GEOGRAPHIC INFORMATION

The geographic distribution of the Company's grant revenues and long-lived assets are summarized in the tables below:

	U.S.	Canada	Eliminations	Total
Three Months Ended September 30, 2020:				
Grant revenue from external customers	\$ 204	\$ —	\$ —	\$ 204
Inter-geographic revenues	—	625	(625)	—
Revenues	<u>\$ 204</u>	<u>\$ 625</u>	<u>\$ (625)</u>	<u>\$ 204</u>
Three Months Ended September 30, 2019:				
Grant revenue from external customers	\$ 224	\$ —	\$ —	\$ 224
Inter-geographic revenues	—	477	(477)	—
Revenues	<u>\$ 224</u>	<u>\$ 477</u>	<u>\$ (477)</u>	<u>\$ 224</u>
Nine Months Ended September 30, 2020:				
Net revenues from external customers	\$ 537	\$ 67	\$ —	\$ 604
Inter-geographic revenues	—	1,403	(1,403)	—
Net revenues	<u>\$ 537</u>	<u>\$ 1,470</u>	<u>\$ (1,403)</u>	<u>\$ 604</u>
Nine Months Ended September 30, 2019:				
Net revenues from external customers	\$ 666	\$ —	\$ —	\$ 666
Inter-geographic revenues	—	1,313	(1,313)	—
Net revenues	<u>\$ 666</u>	<u>\$ 1,313</u>	<u>\$ (1,313)</u>	<u>\$ 666</u>

Foreign revenue is based on the country in which the Company's subsidiary that earned the revenue is domiciled. During the three and nine months ended September 30, 2020, revenue earned from the Company's Michigan State University sub-award represented 100.0% and 88.9%, respectively, of total government grant revenue for each period.

The geographic distribution of the Company's long-lived assets is summarized as follows:

	U.S.	Canada	Eliminations	Total
September 30, 2020	\$ 894	\$ 41	\$ —	\$ 935
December 31, 2019	\$ 1,186	\$ 57	\$ —	\$ 1,243

12. CAPITAL STOCK AND WARRANTS

Common Stock

Registered Public Offering

On August 26, 2020, the Company completed a public offering of 835,000 shares of its common stock at a public offering price of \$4.25 per share. In addition, the underwriter exercised its over-allotment option to purchase 116,835 shares of common stock at the same price for total gross proceeds of \$4,045 before issuance costs of \$425. Of these issuance costs, \$63 were outstanding as of September 30, 2020 and will be paid during the Company's fourth fiscal quarter. The shares of common stock were offered by the Company pursuant to a registration statement on Form S-3 (File No. 333-237539), as initially filed with the SEC on April 1, 2020 and declared effective on April 10, 2020.

Private Placement

Concurrent with the registered public offering described above, the Company completed a separate private placement offering of 396,450 shares of its common stock on August 26, 2020 to certain existing shareholders at the same \$4.25 price offered to investors in the public offering. The gross proceeds from this private placement were \$1,685.

Reverse Stock Split

On January 15, 2020, the Company completed a 1-for-40 reverse stock split ("Reverse Stock Split") of its common stock by filing a certificate of amendment (the "Charter Amendment") with the State of Delaware to amend its certificate of incorporation. The ratio for the Reverse Stock Split was determined by the Company's board of directors following approval by stockholders at the Company's special meeting held on January 9, 2020. The Reverse Stock Split had the effect of increasing the Company's common shares available for issuance by reducing issued and outstanding common shares by a divisible factor of 40 while its authorized common shares remained at the current 60 million shares. Proportional adjustments were made to the Company's outstanding stock options and to the number of shares issued and issuable under the Company's equity compensation plans.

November 2019 Concurrent Securities Offerings

On November 19, 2019, the Company closed on concurrent public and private securities offerings, receiving combined gross cash proceeds of \$11,500, before issuance costs of \$1,254.

The public portion of the offering included sales of Class A Units and Class B Units as follows:

- 405,750 Class A Units priced at a public offering price of \$8.00 per unit, with each unit consisting of one share of common stock, par value \$0.01 per share, Series A Warrants to purchase one share of common stock at an exercise price of \$8.00 per share, expiring two and one-half-years from the closing date of the offering, and Series B Warrants to purchase one share of common stock at an exercise price of \$8.00 per share, expiring seven and one-half-years from the closing date of the offering. The 405,750 Class A Units sold include the full exercise of the underwriter's over-allotment option of 93,750 Class A Units.
- 2,504 Class B Units, priced at a public offering price of \$1,000 per unit, with each unit consisting of one share of Series A Convertible Preferred Stock, par value \$0.01 per share, convertible at any time at the holder's option into 125 shares of common stock, par value \$0.01 per share, Series A Warrants to purchase 125 shares of common stock at an exercise price of \$8.00 per share, expiring two and one-half-years from the closing date of the offering, and Series B Warrants to purchase 125 shares of common stock at an exercise price of \$8.00 per share, expiring seven and one-half-years from the closing date of the offering. The Series A Convertible Preferred Stock was convertible into shares of common stock at any time using a conversion ratio of \$8.00 per share. As of April 30, 2020, all of the shares of the Series A Convertible Preferred Stock had converted to 313,000 shares of the Company's common stock.
- Gross proceeds from the sale of Class A Units and Class B Units totaled \$5,750.

In the concurrent private placement, certain existing shareholders purchased the following securities:

- 5,750 Units, priced at \$1,000 per unit, each unit consisting of one share of the Company's Series B Convertible Preferred Stock, par value \$0.01 per share, contingently convertible into 125 shares of common stock at an exercise price of \$8.00, Series A Warrants to purchase 125 shares of common stock, par value \$0.01 per share, at an exercise price of \$8.00 per share, expiring two and one-half-years from the closing date of the offering, and Series B Warrants to purchase 125 shares of common stock at an exercise price of \$8.00 per share, expiring seven and one-half-years from the closing date of the offering.
- Gross proceeds from the private placement also totaled \$5,750.

As of the November 19, 2019 closing date of the two offerings, the Company did not have sufficient authorized and available shares of common stock to permit conversion of the Series B Convertible Preferred Stock sold in the private placement or to permit the exercise of the 2,875,000 combined Series A Warrants and Series B Warrants issued under both the public and the private offerings. The Series B Convertible Preferred Shares and the Series A Warrants and Series B Warrants were not convertible or exercisable until more shares of common stock became available for issuance through the Company's filing of the Charter Amendment for the Reverse Stock Split. Upon the filing of the Charter Amendment on January 15, 2020, all of the Series B Convertible Preferred Stock sold in the private placement automatically converted into 718,750 shares of common stock and the Series A Warrants and Series B Warrants issued in both offerings became eligible for exercise.

Until their conversion to common stock, the Company recorded the Series A Convertible Preferred Stock as permanent equity within the Company's balance sheet. The contingent redemption rights of the Series B Convertible Preferred stockholders were judged to be outside of the Company's control and resulted in their classification as temporary equity within the Company's balance sheet until their automatic conversion to common shares in January 2020.

The Series A and Series B Warrants are free standing financial instruments, legally detachable and separately exercisable from the common and preferred shares issued in the concurrent offerings. At the time of their issuance, the Company determined that all of the warrants should be classified as a warrant liability and recorded at an inception date fair value of \$24,518 due to the insufficiency of common shares available to permit their exercise. As the proceeds from the offerings were less than the fair value of their respective warrants, the warrants were recorded at their full fair value and the difference between the fair value and the cash proceeds of \$13,018 was recorded to other income (expense) in the Company's consolidated statement of operations during the year ended December 31, 2019. No residual offering proceeds remained to be allocated to the common and preferred shares sold in the offerings.

The Company re-measured the fair value of the warrants on December 31, 2019 and again on January 15, 2020 (the date of filing the Charter Amendment to increase available shares of common stock), resulting in, respectively, the recognition of a gain of \$9,541 followed by a loss of \$957, due to the change in fair value at each valuation date. By filing the Charter Amendment and enacting the 1-for-40 Reverse Stock Split, the Company's outstanding common shares were reduced by a divisible factor of 40 while authorized common shares remained at the current 60 million shares. As a result of this corporate action, sufficient shares of authorized, but unissued shares of common stock became available for Series A and Series B warrant holders to exercise their warrants resulting in their reclassification from warrant liability to equity in the Company's consolidated balance sheet.

At closing, the proceeds of the combined offerings were allocated solely to the liability classified warrants, and as a consequence, the offering costs of \$1,254 were immediately expensed to other income (expense) in the consolidated statement of operations for the year ended December 31, 2019 in accordance with accounting guidance.

March 2019 Registered Direct Offering

On March 18, 2019, the Company completed a registered direct offering of its common stock. Proceeds from the transaction were \$2,932 before issuance costs of \$349. Investors participating in the transaction purchased a total of 60,541 shares of common stock at a price of \$48.40 per share.

Preferred Stock

The Company's Certificate of Incorporation authorizes it to issue up to 5,000,000 shares of \$0.01 par value preferred stock.

Description of Series A Convertible Preferred Stock

The November 2019 public offering of the Company's securities included the issuance of 2,504 shares of Series A Convertible Preferred Stock. Each Series A Convertible Preferred Share was convertible into 125 shares of common stock at a conversion price of \$8.00 per share. As of April 30, 2020, all 2,504 shares of the Series A Convertible Preferred Stock had converted to 313,000 shares of common stock.

Description of Series B Convertible Preferred Stock

The November 2019 private offering of the Company's securities included the issuance of 5,750 shares of Series B Convertible Preferred Stock. Each share of Series B Convertible Preferred Stock was convertible into 125 shares of common stock at a conversion price of \$8.00 per share. All of the Series B Convertible Preferred Stock converted automatically to 718,750 shares of common stock on January 15, 2020, upon the Company's filing of a Charter Amendment for the reverse stock split described above.

When converted, the shares of Series A and B Convertible Preferred Stock were restored to the status of authorized but unissued shares of preferred stock, subject to reissuance by the Company's board of directors.

Warrants

The following table summarizes information regarding outstanding warrants to purchase common stock as of September 30, 2020:

Issuance	Number of Shares Issuable Upon Exercise of Outstanding Warrants	Exercise Price Per Share of Common Stock	Expiration Date
November 2019 Public Offering - Series A	580,727	\$ 8.00	May 19, 2022
November 2019 Public Offering - Series B	649,477	\$ 8.00	May 19, 2027
November 2019 Private Placement - Series A	718,750	\$ 8.00	May 19, 2022
November 2019 Private Placement - Series B	718,750	\$ 8.00	May 19, 2027
December 2017 Public Offering - Series A	160,975	\$ 90.00	December 21, 2022
July 2017 Registered Direct Offering	14,270	\$ 201.60	January 7, 2024
Consultant	750	\$ 116.00	September 11, 2024
Total	2,843,699		

February 2020 Warrant Exercises

In connection with the Company's public securities offering that closed on November 19, 2019, the Company issued Series A Warrants and Series B Warrants to purchase shares of the Company's common stock. The warrants were issued, and are held, in book-entry form through The Depository Trust & Clearing Corporation ("DTCC"). During early 2020, warrants equal to a total of 207,296 shares of the Company's common stock were exercised, generating cash proceeds of \$1,658. In May 2020, Yield10 was informed by DTCC and its warrant agent that the exercise price of each warrant issued in the November 2019 public securities offering had been proportionately adjusted in accordance with the Company's 1-for-40 reverse stock split completed in January 2020, but that the number of shares issuable upon the exercise of each warrant had not been proportionately adjusted following the stock split within the records of DTCC. Based on DTCC's notification, the Company believed that up to 88,762 shares of common stock were incorrectly issued and up to \$710 in proceeds were incorrectly collected for certain warrants exercised during February 2020. Following a thorough review with the warrant agent, DTCC and brokers for certain warrant holders who exercised these warrants, the Company determined that the number of shares of common stock issued and the amount of cash collected from the exercises were in fact correct, but that DTCC's records did not accurately reflect the number of warrants remaining in the affected warrant holders' accounts following their exercises. As of June 30, 2020, the issue was resolved by adjusting the DTCC accounts of the warrant holders. Accordingly, the Company was not required to return cash proceeds and the warrant holders were not required to return any of the common shares issued from the exercises. In its Quarterly Report on Form 10-Q for the quarter ended March 31, 2020, the Company recorded \$710 within accrued expenses for the cash proceeds from the February 2020 warrant exercises that the Company previously expected to be returned to warrant holders. That accrual was relieved and reclassified to equity as of June 30, 2020.

Reserved Shares

The following shares of common stock were reserved for future issuance upon exercise of stock options, vesting of RSUs and conversion of warrants:

	September 30, 2020	December 31, 2019
Stock Options	326,881	62,065
RSUs	8,500	—
Series A Convertible Preferred Stock - November 2019 Public Offering	—	99,500
Warrants	2,843,699	175,995
Total number of common shares reserved for future issuance	3,179,080	337,560

13. SUBSEQUENT EVENT

On November 12, 2020, the Company entered into an exclusive collaborative research and development agreement with UK-based Rothamsted Research Limited ("Rothamsted") for the development of engineered Camelina lines containing high levels of omega-3 fish oils. Yield10 will pay quarterly research funding and option fees totaling \$250 over a two-year period in exchange for an exclusive right to internally evaluate Rothamsted technology. At any time during this two-year period, the Company can exercise an option to undertake negotiations with Rothamsted for an exclusive or non-exclusive worldwide commercial license that is expected to contain a one-time license fee and certain milestone and royalty payments based on achievement of regulatory and product sales objectives.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.

(All dollar amounts are stated in thousands)

Forward-Looking Statements

This Quarterly Report on Form 10-Q contains "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act"), and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). These statements relate to our future plans, objectives, expectations and intentions and may be identified by words such as "may," "will," "should," "expects," "plans," "anticipate," "intends," "target," "projects," "contemplates," "believe," "estimates," "predicts," "potential," and "continue," or similar words.

Although we believe that our expectations are based on reasonable assumptions within the limits of our knowledge of our business and operations, these forward-looking statements contained in this document are neither promises nor guarantees. Our business is subject to significant risk and uncertainties and there can be no assurance that our actual results will not differ materially from our expectations. These forward looking statements include, but are not limited to, statements concerning our business plans and strategies; expected future financial results and cash requirements; statements related to the coronavirus pandemic and its potential adverse impacts; plans for obtaining additional funding; plans and expectations that depend on our ability to continue as a going concern; and plans for development and commercialization of our Yield10 technologies. Such forward-looking statements are subject to a number of risks and uncertainties that could cause actual results to differ materially from those anticipated including, without limitation, risks related to our limited cash resources, uncertainty about our ability to secure additional funding, risks related to the execution of our business plans and strategies, risks associated with the protection and enforcement of our intellectual property rights, as well as other risks and uncertainties set forth under the caption "Risk Factors" in Part I, Item 1A, of the Company's [Annual Report on Form 10-K](#) for the year ended December 31, 2019 and in our other filings with the SEC, including in Part II, Item 1A of this Report on Form 10-Q.

The forward-looking statements and risk factors presented in this document are made only as of the date hereof and we do not intend to update any of these risk factors or to publicly announce the results of any revisions to any of our forward-looking statements other than as required under the federal securities laws.

Unless the context otherwise requires, all references in this Quarterly Report on Form 10-Q to "Yield10 Bioscience," "Yield10," "we," "our," "us," "our company" or "the company" refer to Yield10 Bioscience, Inc., a Delaware corporation, and

its subsidiaries.

Overview

Yield10 Bioscience, Inc. is an agricultural bioscience company that uses its "Trait Factory" and the Camelina oilseed "Fast Field Testing" system to develop high value seed traits for the agriculture and food industries. Yield10 is headquartered in Woburn, Massachusetts and has an Oilseed Center of Excellence in Saskatoon, Saskatchewan, Canada. Our goal is to efficiently develop superior gene traits for the major crops including corn, soybean, canola, and other crops to enable step-change increases in crop yield of at least 10-20 percent. Our "Trait Factory" encompasses discovery of gene targets using our GRAIN ("Gene Ranking Artificial Intelligence Network") big data mining platform, deployment of trait gene targets in the oilseed Camelina and generation of field performance data. The "Trait Factory" enables two complementary commercial opportunities with different paths to market. The first is trait licensing to the major seed companies for corn, soybean, canola and other crops. Data from our trait field testing in Camelina has enabled Yield10 to establish research license agreements with leading seed companies, including the Bayer Crop Science division of Bayer AG ("Bayer"), GDM, Forage Genetics International, LLC, a division of Land O'Lakes, Inc. ("Forage Genetics") and JR Simplot Company ("Simplot"). These companies are progressing the development of Yield10 traits in soybean, forage sorghum, and potato, respectively. The second commercial opportunity is to improve the performance and value of Camelina as a platform to develop a commercial crop product business producing nutritional oils and PHA biomaterials. Using this approach, Yield10 can leverage the resources of the major seed companies to efficiently develop superior gene traits for the major crops thereby creating opportunities for licensing revenue while focusing internal resources on trait gene discovery and the commercial development of Camelina products.

As of September 30, 2020, we held unrestricted cash, cash equivalents and short-term investments of \$11,789. We follow the guidance of ASC Topic 205-40, *Presentation of Financial Statements-Going Concern*, in order to determine whether there is substantial doubt about our ability to continue as a going concern for one year after the date our financial statements are issued. Based on our current cash forecast, we expect that our present capital resources will be sufficient to fund our planned operations and meet our obligations, when due, through the end of 2021. Our ability to continue operations after our current cash resources are exhausted depends on our ability to obtain additional financing through, among other sources, public or private equity financing, secured or unsecured debt financing, equity or debt bridge financing, warrant holders' ability and willingness to exercise the Company's outstanding warrants, additional government research grants or collaborative arrangements with third parties, as to which no assurances can be given. We do not know whether additional financing will be available on terms favorable or acceptable to us when needed, if at all. If adequate additional funds are not available when required, we may be forced to curtail our research efforts, explore strategic alternatives and/or wind down our operations and pursue options for liquidating our remaining assets, including intellectual property and equipment.

If we issue equity or debt securities to raise additional funds in the future, (i) we may incur fees associated with such issuances, (ii) our existing stockholders may experience dilution from the issuance of new equity securities, (iii) we may incur ongoing interest expense and be required to grant a security interest in our assets in connection with any debt issuance, and (iv) the new equity or debt securities may have rights, preferences and privileges senior to those of our existing stockholders. In addition, utilization of our net operating loss and research and development credit carryforwards may be subject to significant annual limitations under Section 382 of the Internal Revenue Code due to ownership changes resulting from equity financing transactions. If we raise additional funds through collaboration, licensing or other similar arrangements, it may be necessary to relinquish valuable rights to our potential products or proprietary technologies or grant licenses on terms that are not favorable to us.

Government Grants

On May 20, 2020, Metabolix Oilseeds, Inc. ("MOI"), the Company's wholly-owned Canadian research subsidiary, received a research grant through the Industrial Research Assistance Program administered by National Research Council Canada ("NRC"). The objective of the grant was to provide financial research assistance to innovative, early-stage small and medium-sized enterprises. Under the terms of the agreement, NRC agreed to contribute up to a maximum of \$67 for payroll costs incurred by MOI during the period April 1, 2020 - June 24, 2020. During the second quarter of 2020, MOI submitted claims for eligible payroll costs and recognized revenue for the full amount of the award.

During 2018, we entered into a sub-award with Michigan State University ("MSU") to support a Department of Energy ("DOE") funded grant entitled "A Systems Approach to Increasing Carbon Flux to Seed Oil." Our participation under this projected five-year grant is being awarded on an annual basis with the first year commencing September 15, 2017. Although our funding under this sub-award has been appropriated through the fourth contractual year ending in September 2021 for \$2,403, we anticipate that the final option year through September 14, 2022 will be awarded to Yield10 during 2021 for total sub-award funding of \$2,957, provided the U.S. Congress continues to appropriate funds for the program, we are able

to make progress towards meeting grant objectives and we remain in compliance with other terms and conditions of the sub-award.

As of September 30, 2020, proceeds of \$641 remain to be recognized through the end of the fourth contractual year under our MSU sub-award as shown in the table below. This includes amounts for reimbursement to our subcontractors, as well as reimbursement for our employees' time, benefits and other expenses related to future performance.

Program Title	Funding Agency	Total Government Funded Appropriations	Total revenue recognized through September 30, 2020	Remaining amount to be recognized as of September 30, 2020	Contract/Grant Expiration
Subcontract from Michigan State University project funded by DOE entitled "A Systems Approach to Increasing Carbon Flux to Seed Oil"	Department of Energy	\$ 2,403	\$ 1,762	\$ 641	September 2021
Funding from National Research Council Canada through its Industrial Research Assistance Program (NRC-IRAP) entitled "Innovation Assistance Program"	National Research Council Canada	67	67	—	June 2020
Total		\$ 2,470	\$ 1,829	\$ 641	

Critical Accounting Estimates and Judgments

The discussion and analysis of our financial condition and results of operations are based upon our consolidated financial statements, which have been prepared in accordance with GAAP for interim financial information. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. On an ongoing basis, we evaluate our estimates, including those related to revenue recognition, stock-based and performance-based compensation, measurement of right-of-use assets and lease liabilities, the recognition of lease expense and income taxes. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates. The critical accounting policies and the significant judgments and estimates used in the preparation of our condensed consolidated financial statements for the three and nine months ended September 30, 2020, are consistent with those discussed in our [Annual Report on Form 10-K](#) for the year ended December 31, 2019, in the section captioned "Management's Discussion and Analysis of Financial Condition and Results of Operations—Critical Accounting Estimates and Judgments."

Results of Operations

Comparison of the Three Months Ended September 30, 2020 and 2019

Revenue

	Three Months Ended September 30,		Change
	2020	2019	
Grant revenue	\$ 204	\$ 224	\$ (20)

Grant revenue was \$204 and \$224 for the three months ended September 30, 2020 and September 30, 2019, respectively. Grant revenue recorded during each of these periods was derived solely from the Company's DOE sub-award with MSU.

We anticipate that MSU grant revenue will fluctuate over the next twelve months as a result of varying annual budget appropriations awarded under the MSU sub-award and our fluctuating application of resources. Our forecast related to grant revenue is subject to change, should we receive new grants or if our ability to earn revenue from our existing grant is negatively impacted by the COVID-19 pandemic.

Expenses

	Three Months Ended September 30,		Change
	2020	2019	
Research and development expenses	\$ 1,300	\$ 1,232	\$ 68
General and administrative expenses	1,098	990	108
Total expenses	\$ 2,398	\$ 2,222	\$ 176

Research and Development Expenses

Total research and development expenses increased slightly from \$1,232 during the three months ended September 30, 2019 to \$1,300 during the three months ended September 30, 2020. The small \$68, or 6 percent, increase is primarily the result of increased compensation and benefits of \$68 from annual merit increases in base compensation that became effective on January 1, 2020, and from the Company's pro rata accrual for 2020 estimated performance bonuses expected to be paid in early 2021. In the previous year, we did not accrue for 2019 employee bonuses until the fourth quarter of 2019.

Based on our current planning and financial forecast, we anticipate that research and development expense may increase over the next twelve months as we continue to expand our plant field trials, enter into research collaborations with third parties and continue to prepare our Camelina germplasm for future commercial launch. Our forecasts related to research and development expense are subject to change due to the potential impact of the COVID-19 pandemic, or as new collaborative and other business opportunities arise that alter our plans.

General and Administrative Expenses

General and administrative expenses for the three months ended September 30, 2020 and September 30, 2019 increased by \$108 from \$990 to \$1,098. The 11 percent increase is primarily due to an increase in compensation and benefits expense of \$77 and an increase in professional fees of \$24. Compensation and benefits increased as a result of 2020 annual merit increases in base compensation and the recording of a pro rata estimate for 2020 bonus expenses. The small increase in professional fees is related to general legal and accounting work performed by our outside legal and accounting firms during the quarter.

Based on our current planning and financial forecast, we anticipate that general and administrative expense may increase over the next twelve months as we add regulatory support and business development resources to our Company as we continue to prepare for our future Camelina product launch. Our forecasts related to general and administrative expense are subject to change due to the potential impact of the COVID-19 pandemic, or as new collaborative and other business opportunities arise that alter our plans.

Other Income (Expense), Net

	Three Months Ended September 30,		Change
	2020	2019	
Other income (expense), net	\$ 37	\$ 16	\$ 21

Other Income (Expense), net

Other income (expense) for the three months ended September 30, 2020 and September 30, 2019 was derived primarily from investment income earned from the Company's cash equivalents and short-term investments.

Comparison of the Nine Months Ended September 30, 2020 and 2019

Revenue

	Nine Months Ended September 30,		Change
	2020	2019	
Grant revenue	\$ 604	\$ 666	\$ (62)

Grant revenue was \$604 and \$666 for the nine months ended September 30, 2020 and September 30, 2019, respectively. Grant revenue for each of these periods was derived primarily from the Company's DOE sub-award with MSU. During the nine months ended September 30, 2020, we also recognized \$67 awarded by National Research Council Canada to our subsidiary Metabolix Oilseeds, Inc. for general research support.

Expenses

	Nine Months Ended September 30,		Change
	2020	2019	
Research and development expenses	\$ 3,939	\$ 3,646	\$ 293
General and administrative expenses	3,664	3,201	463
Total expenses	\$ 7,603	\$ 6,847	\$ 756

Research and Development Expenses

Research and development expenses during the nine months ended September 30, 2020 and September 30, 2019 were \$3,939 and \$3,646, respectively. The \$293, or 8 percent, increase is primarily due to a \$260 increase in compensation and benefits and our recording a \$141 loss on disposal of fixed assets. Compensation and benefits increased from \$1,964 during the nine months ended September 30, 2019 to \$2,224 during the nine months ended September 30, 2020, as a result of annual merit increases in base compensation that became effective on January 1, 2020, and as a result of the Company's pro rata nine-month accrual for 2020 estimated performance bonuses expected to be paid in early 2021. In the previous year, we did not accrue for 2019 employee bonuses until the fourth quarter of 2019. In November 2019, we entered into a modification agreement to our Woburn lease in which we returned 7,409 square feet of underutilized space to the landlord for the remaining term of the lease. As a result of this lease modification, during the nine months ended September 30, 2020 we wrote off \$141 in leasehold improvements and office furniture previously utilized in our research and development activities. Facilities expenses partially offset some of the increased year-to-date expenses, declining by \$56 as a result of returning the underutilized space in our Woburn facility to the landlord. Office related expenses also decreased by \$78, primarily from the impact of the COVID-19 pandemic.

General and Administrative Expenses

General and administrative expenses for the nine months ended September 30, 2020 and September 30, 2019 increased by \$463 from \$3,201 to \$3,664. The 14 percent increase is due to an increase in compensation and benefits of \$217 as a result of 2020 annual merit increases in base compensation and the recording of estimated bonus expenses. Professional fees increased by \$234 from \$581 during the nine months ended September 30, 2019 to \$815 during the nine months ended September 30, 2020 and are primarily related to legal and accounting work performed by our outside legal and accounting firms in connection with securities registrations and corporate governance activities.

Other Income (Expense), Net

	Nine Months Ended September 30,		Change
	2020	2019	
Change in fair value of warrants	\$ (957)	\$ —	\$ (957)
Loan forgiveness income	333	—	\$ 333
Other income (expense), net	85	68	17
Total other income (expense), net	\$ (539)	\$ 68	\$ (607)

Change in Fair Value of Warrants

On November 19, 2019, we closed on concurrent securities offerings that included a total of 2,875,000 warrants that received liability classification on their date of issuance. In accordance with applicable accounting guidance, the fair value of the warrants was recalculated as of the Company's December 31, 2019 fiscal year-end balance sheet date and again on January 15, 2020, in connection with the Company's filing of a Charter Amendment to effect a 1-for-40 reverse stock split. The reverse stock split increased the number of shares of common stock available for issuance resulting in reclassification of the warrants from a liability to equity. On the date of the reverse stock split we recorded a loss from the change in fair value of the warrants

of \$957 as a result of the revaluation. See Note 12 - Capital Stock and Warrants, in the accompanying condensed consolidated financial statements.

Loan Forgiveness Income

During April 2020, we received \$333 in loan proceeds from PPP, established pursuant to the CARES Act. Under the CARES Act and the PPP, we may apply for and be granted forgiveness for all or part of the PPP loan. Subject to certain requirements and limitations on loan forgiveness, only loan proceeds spent on payroll and other eligible costs during a twenty-four-week period will qualify for forgiveness. During our second quarter we utilized the entire PPP loan amount for qualifying expenses and therefore consider it reasonably certain that we will meet the conditions for loan forgiveness. As such, we recorded the full amount of the loan proceeds, or \$333, within other income (expense) during the second quarter of 2020. In September 2020 we applied for forgiveness for the PPP loan and are currently waiting for a determination to be made on our application. See Note 9 in the accompanying condensed consolidated financial statements.

Other Income (Expense), net

Other income (expense) for the nine months ended September 30, 2020 and September 30, 2019 was derived primarily from investment income earned from the Company's cash equivalents and short-term investments.

Liquidity and Capital Resources

Currently, we require cash to fund our working capital needs, to purchase capital assets, and to pay our operating lease obligations and other operating costs. The primary sources of our liquidity have historically included equity financings, government research grants and income earned on cash and short-term investments.

Since our inception, we have incurred significant expenses related to our research, development and commercialization efforts. Except for 2012, when we recognized deferred revenue from a terminated joint venture, we have recorded losses since our initial founding, including the three and nine months ended September 30, 2020. As of September 30, 2020, we had an accumulated deficit of \$372,458. Our total unrestricted cash, cash equivalents and short-term investments as of September 30, 2020, were \$11,789 as compared to cash, cash equivalents and short-term investments of \$11,117 at December 31, 2019. Our cash, cash equivalents and short-term investments are held primarily for working capital purposes. As of September 30, 2020, we had restricted cash of \$254 that consists of \$229 held in connection with the lease agreement for our Woburn, Massachusetts facility and \$25 held in connection with our corporate credit card program. As of September 30, 2020, we continue to have no outstanding debt.

Investments are made in accordance with our corporate investment policy, as approved by our Board of Directors. The primary objective of this policy is to preserve principal, and investments are limited to high quality corporate debt, U.S. Treasury bills and notes, money market funds, bank debt obligations, municipal debt obligations and asset-backed securities. The policy establishes maturity limits, concentration limits, and liquidity requirements. As of September 30, 2020, we were in compliance with this policy.

We anticipate net cash usage during 2020 within a range of \$8,500 - \$9,000 and estimate that our current cash resources will be sufficient to fund operations and meet our obligations, when due, through the end of 2021. We follow the guidance of ASC Topic 205-40, *Presentation of Financial Statements-Going Concern*, in order to determine whether there is substantial doubt about our ability to continue as a going concern for one year after the date our financial statements are issued. Based on our cash forecast, we expect that our present capital resources will be sufficient to fund our planned operations for at least that period of time. This forecast of cash resources is forward-looking information that involves risks and uncertainties, and the actual amount of expenses could vary materially and adversely as a result of a number of factors. Our ability to continue operations after our current cash resources are exhausted will depend upon our ability to obtain additional financing through, among other sources, public or private equity financing, secured or unsecured debt financing, equity or debt bridge financing, warrant holders' ability and willingness to exercise the Company's outstanding warrants, additional government research grants or collaborative arrangements with third parties, as to which no assurances can be given. We do not know whether additional financing will be available on terms favorable or acceptable to us when needed, if at all. If adequate additional funds are not available when required, we may be forced to curtail our research efforts, explore strategic alternatives and/or wind down our operations and pursue options for liquidating our remaining assets, including intellectual property and equipment.

On April 1, 2020, we filed a shelf registration statement on Form S-3 (File No. 333-237539) with the SEC, which was declared effective on April 10, 2020 (the "Shelf Registration Statement"). The Shelf Registration Statement contained a prospectus which covers the offering, issuance and sale by the Company of up to a maximum aggregate offering price of \$25.0

million of our common stock, preferred stock, warrants and subscription rights, which securities may be sold either individually or in units. However, pursuant to the instructions to Form S-3, while the public float (as defined below) of our common stock remains below \$75 million, we only have the ability to sell shares under such Shelf Registration Statement, during any 12-month period, in an amount less than or equal to one-third of the aggregate market value of our common stock held by non-affiliates (our “public float”).

During April 2020, we received \$333 in loan proceeds from the Paycheck Protection Program (the “PPP”), established pursuant to the CARES Act. Under the CARES Act and the PPP, we have applied for and may be granted, forgiveness for all or part of the PPP loan. Subject to certain requirements and limitations on loan forgiveness, only loan proceeds spent on payroll and other eligible costs during a twenty-four-week period will qualify for forgiveness. During our second quarter of 2020, we utilized the entire PPP loan amount for qualifying expenses and therefore consider it reasonably certain that we will meet the conditions for loan forgiveness. As such, we recorded the full amount of the loan proceeds, or \$333, within other income (expense) during the second quarter of 2020. In September 2020 we applied for forgiveness for the PPP loan and are currently waiting for a determination to be made on our application.

If we issue equity or debt securities to raise additional funds, (i) we may incur fees associated with such issuances, (ii) our existing stockholders will experience dilution from the issuance of new equity securities, (iii) we may incur ongoing interest expense and be required to grant a security interest in our assets in connection with any debt issuance, and (iv) the new equity or debt securities may have rights, preferences and privileges senior to those of our existing stockholders. In addition, utilization of our net operating loss and research and development credit carryforwards may be subject to significant annual limitations under Section 382 of the Internal Revenue Code due to ownership changes resulting from future equity financing transactions. If we raise additional funds through collaboration, licensing or other similar arrangements, it may be necessary to relinquish valuable rights to our potential products or proprietary technologies or grant licenses on terms that are not favorable to us.

Net cash used for operating activities during the nine months ended September 30, 2020 was \$6,337, compared to net cash used for operating activities during the nine months ended September 30, 2019 of \$5,445. Net cash used for operating activities during the nine months ended September 30, 2020 primarily reflects the greater net loss of \$7,564, cash payments made to reduce the Company's lease liabilities of \$495 and our payment of 2019 bonus compensation of \$344. Non-cash charges offsetting a portion of the net loss include depreciation expense of \$137, a loss recorded from the revaluation of the Company's warrant liability of \$957, losses from the disposal of fixed assets of \$206, stock-based compensation expense of \$506, and non-cash lease expense of \$345. The net cash usage for operating activities during the nine months ended September 30, 2019 of \$5,445 was primarily the result of the Company's net loss of \$6,113 and payments made to reduce lease liabilities of \$622, partially offset by non-cash depreciation expense of \$150, stock compensation of \$406 and non-cash lease expense of \$456.

Net cash of \$3,125 was used by investing activities during the nine months ended September 30, 2020, primarily as a result of our purchasing \$6,290 of new short-term investments, partially offset by \$3,197 in short-term investments reaching their maturity dates and converting back into cash.

Net cash of \$7,008 was provided by financing activities during the nine months ended September 30, 2020, compared to net cash of \$2,579 provided by financing activities during the nine months ended September 30, 2019. During early 2020, warrants equal to a total of 207,296 shares of our common stock were exercised, generating cash proceeds of \$1,658. In addition, on August 26, 2020, we completed a public offering of 951,835 shares of our common stock at a public offering price of \$4.25 per share, for total gross proceeds of \$4,045 before issuance costs of \$425. Included within these issuance costs are \$63 in costs that remain outstanding as of September 30, 2020 that will be paid during our fourth quarter. The shares of common stock were offered by us pursuant to a registration statement on Form S-3 (File No. 333-237539), as initially filed with the SEC on April 1, 2020 and declared effective on April 10, 2020. Also, on August 26, 2020, we completed a separate but concurrent private placement offering of 396,450 shares of our common stock to certain existing shareholders at the same \$4.25 price as the registered public offering noted above. The gross proceeds from this private placement were \$1,685. Net cash of \$2,579 was provided by financing activities during the nine months ended September 30, 2019, primarily as a result of our completion of a registered direct sale of 60,541 shares of common stock during March 2019 at an offering price of \$48.40 per share.

Off-Balance Sheet Arrangements

As of September 30, 2020, we had no off-balance sheet arrangements as defined in Item 303(a)(4) of the SEC's Regulation S-K.

Recent Accounting Pronouncements

See Note 2, "Accounting Policies," to our condensed consolidated financial statements included in this Quarterly Report on Form 10-Q for a full description of recent accounting pronouncements.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

Not applicable.

ITEM 4. CONTROLS AND PROCEDURES.

Evaluation of Disclosure Controls and Procedures

Our management (with the participation of our Principal Executive Officer and Principal Accounting Officer) evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act), as of September 30, 2020. Disclosure controls and procedures are designed to ensure that information required to be disclosed by the Company in the reports it files or submits under the Exchange Act is recorded, processed, summarized and reported on a timely basis and that such information is accumulated and communicated to management, including the Principal Executive Officer and the Principal Accounting Officer, as appropriate, to allow timely decisions regarding disclosure. Based on this evaluation, our Principal Executive Officer and Principal Accounting Officer concluded that these disclosure controls and procedures are effective.

Changes in Internal Control over Financial Reporting

There have been no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) under the Exchange Act) during the quarter ended September 30, 2020 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II — OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS.

From time to time, the Company may be subject to legal proceedings and claims in the ordinary course of business. The Company is not currently aware of any such proceedings or claims that it believes will have, individually or in the aggregate, a material adverse effect on the business, financial condition or the results of operations.

ITEM 1A. RISK FACTORS.

There have been no material changes to the risk factors described in our [Annual Report on Form 10-K](#) for the year ended December 31, 2019, filed with the Securities and Exchange Commission, or SEC, on March 25, 2020, as amended and supplemented by the risk factors described in our [Quarterly Report on Form 10-Q](#) for the quarter ended March 31, 2020, filed with the SEC on May 15, 2020.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS.

Recent Sales of Unregistered Securities

On July 2, 2020, we issued 3,689 shares of common stock to participants in the Yield10 Bioscience, Inc. 401(k) Plan as a matching contribution. The issuance of these securities is exempt from registration pursuant to Section 3(a)(2) of the Securities Act, as amended as exempted securities.

On August 26, 2020, we completed a private placement offering of 396,450 shares of our common stock to certain existing shareholders at a price of \$4.25 per share. These shares were registered for resale by the shareholders on a Form S-1 registration statement (Reg. No. 333-249388) that was declared effective by the SEC on October 16, 2020.

Issuer Purchases of Equity Securities

During the three months ended September 30, 2020, there were no repurchases made by us or on our behalf, or by any "affiliated purchasers," of shares of our common stock.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES.

None.

ITEM 4. MINE SAFETY DISCLOSURES.

Not applicable.

ITEM 5. OTHER INFORMATION.

None.

ITEM 6. EXHIBITS.

[4.1](#) Specimen Stock Certificate for shares of the Registrant's Common Stock (filed herewith).

[10.1](#) Securities Purchase Agreement, dated as of August 22, 2020, by and between Yield10 Bioscience, Inc. and the Investors listed on Schedule I thereto (incorporated herein by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on August 25, 2020 (File No. 001-33133)).

[31.1](#) Certification Pursuant to Rule 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934 of the Principal Executive Officer (filed herewith).

[31.2](#) Certification Pursuant to Rule 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934 of the Principal Financial Officer (filed herewith).

[32.1](#) Section 1350 Certification (furnished herewith).

101.1 The following financial information from the Yield10 Bioscience, Inc. Quarterly Report on Form 10-Q for the quarter ended September 30, 2020 formatted in XBRL: (i) Condensed Consolidated Balance Sheets, September 30, 2020 and December 31, 2019; (ii) Condensed Consolidated Statements of Operations, Three and Nine Months Ended September 30, 2020 and 2019; (iii) Condensed Consolidated Statements of Comprehensive Loss, Three and Nine Months Ended September 30, 2020 and 2019; (iv) Condensed Consolidated Statements of Cash Flows, Nine Months Ended September 30, 2020 and 2019; (v) Condensed Consolidated Statements of Series B Convertible Preferred Stock and Stockholders' (Deficit) Equity, Three and Nine Months Ended September 30, 2020 and 2019; and (vi) Notes to Consolidated Financial Statements.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

YIELD10 BIOSCIENCE, INC.

November 12, 2020

By: /s/ OLIVER PEOPLES

Oliver Peoples

President and Chief Executive Officer

(Principal Executive Officer)

November 12, 2020

By: /s/ CHARLES B. HAASER

Charles B. Haaser

Chief Accounting Officer

(Principal Financial and Accounting Officer)

2000330

NUMBER
MC



SHARES

INCORPORATED UNDER THE LAWS
OF THE STATE OF DELAWARE

Yield10 Bioscience, Inc.

CUSIP 98585K 86 2
SEE REVERSE FOR CERTAIN DEFINITIONS

THIS CERTIFIES THAT

SPECIMEN

is the owner of

FULLY PAID AND NON-ASSESSABLE SHARES OF THE COMMON STOCK, \$.01 PAR VALUE, OF

Yield10 Bioscience, Inc.

transferable on the books of the Corporation by the holder hereof in person or by duly authorized Attorney, upon surrender of this Certificate, properly endorsed.

This Certificate is not valid until countersigned and registered by the Transfer Agent and Registrar.

WITNESS the facsimile seal of the Corporation and the facsimile signatures of its duly authorized officers.

Dated:

Oliver P. Reddis

PRESIDENT AND CHIEF EXECUTIVE OFFICER



Charles B. Haam

TREASURER

COUNTERSIGNED AND REGISTERED
BY: AMERICAN STOCK TRANSFER & TRUST COMPANY, LLC
(Brooklyn, NY)
TRANSFER AGENT
AND REGISTRAR
AUTHORIZED SIGNATURE

THE CORPORATION IS AUTHORIZED TO ISSUE MORE THAN ONE CLASS OR SERIES OF STOCK. THE CORPORATION WILL FURNISH WITHOUT CHARGE TO EACH STOCKHOLDER WHO SO REQUESTS THE POWERS, DESIGNATIONS, PREFERENCES AND RELATIVE, PARTICIPATING, OPTIONAL OR OTHER SPECIAL RIGHTS OF EACH CLASS OF STOCK OR SERIES THEREOF AND THE QUALIFICATIONS, LIMITATIONS OR RESTRICTIONS OF SUCH PREFERENCES AND/OR RIGHTS.

The following abbreviations, when used in the inscription on the face of this certificate, shall be construed as though they were written out in full according to applicable laws or regulations:

TEN COM	- as tenants in common	UNIF GIFT MIN ACT-	_____ Custodian _____
TEN ENT	- as tenants by the entireties		(Cust) (Minor)
JT TEN	- as joint tenants with right of survivorship and not as tenants in common		under Uniform Gifts to Minors Act _____
			(State)

Additional abbreviations may also be used though not in the above list.

For Value Received, _____ hereby sell, assign and transfer unto

PLEASE INSERT SOCIAL SECURITY OR OTHER IDENTIFYING NUMBER OF ASSIGNEE

(PLEASE PRINT OR TYPEWRITE NAME AND ADDRESS, INCLUDING ZIP CODE, OF ASSIGNEE)

Shares of the capital stock represented by the within Certificate, and do hereby irrevocably constitute and appoint

Attorney to transfer the said stock on the books of the within named Corporation with full power of substitution in the premises.

Dated _____

NOTICE: THE SIGNATURE TO THIS ASSIGNMENT MUST CORRESPOND WITH THE NAME AS WRITTEN UPON THE FACE OF THE CERTIFICATE IN EVERY PARTICULAR, WITHOUT ALTERATION OR ENLARGEMENT OR ANY CHANGE WHATSOEVER.

Signature(s) Guaranteed:

THE SIGNATURE(S) SHOULD BE GUARANTEED BY AN ELIGIBLE GUARANTOR INSTITUTION (BANKS, STOCKBROKERS, SAVINGS AND LOAN ASSOCIATIONS AND CREDIT UNIONS WITH MEMBERSHIP IN AN APPROVED SIGNATURE GUARANTEE MEDALLION PROGRAM), PURSUANT TO S.E.C. RULE 17Ad-15.

CERTIFICATION

I, Oliver Peoples, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Yield10 Bioscience, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Dated: November 12, 2020

/s/ OLIVER PEOPLES

Name: Oliver Peoples

Title: *President and Chief Executive Officer*
(Principal Executive Officer)

CERTIFICATION

I, Charles B. Haaser, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Yield10 Bioscience, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Dated: November 12, 2020

/s/ CHARLES B. HAASER

Name: Charles B. Haaser
 Title: Chief Accounting Officer
 (Principal Financial and Accounting Officer)

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Quarterly Report on Form 10-Q of Yield10 Bioscience, Inc. (the "Company") for the quarter ended September 30, 2020 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), we, Oliver Peoples, President, Chief Executive Officer and Principal Executive Officer of the Company and Charles B. Haaser, Chief Accounting Officer and Principal Financial and Accounting Officer of the Company, certify, pursuant to 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, to our knowledge that:

1. The Report fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934, as amended; and
2. The information in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

This certification is being provided pursuant to 18 U.S.C. 1350 and is not to be deemed a part of the Report, nor is it to be deemed to be "filed" for any purpose whatsoever.

Dated: November 12, 2020

/s/ OLIVER PEOPLES

Oliver Peoples

President and Chief Executive Officer

(Principal Executive Officer)

Dated: November 12, 2020

/s/ CHARLES B. HAASER

Charles B. Haaser

Chief Accounting Officer

(Principal Financial and Accounting Officer)