
**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 **June 30, 2021**

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)

**19 Presidential Way
Woburn, MA**

(Address of principal executive offices)

04-3158289

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

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 August 10, 2021 was 4,871,323.

Yield10 Bioscience, Inc.
Form 10-Q
For the Quarter Ended June 30, 2021

Table of Contents

	<u>Page</u>
<u>Part I. Financial Information</u>	<u>3</u>
Item	
1. <u>Condensed Consolidated Financial Statements (unaudited)</u>	<u>3</u>
<u>Condensed Consolidated Balance Sheets at June 30, 2021 and December 31, 2020</u>	<u>3</u>
<u>Condensed Consolidated Statements of Operations for the three and six months ended June 30, 2021 and 2020</u>	<u>4</u>
<u>Condensed Consolidated Statements of Comprehensive Loss for the three and six months ended June 30, 2021 and 2020</u>	<u>5</u>
<u>Condensed Consolidated Statements of Cash Flows for the six months ended June 30, 2021 and 2020</u>	<u>6</u>
<u>Condensed Consolidated Statements of Series B Convertible Preferred Stock and Stockholders' Equity for the three and six months ended June 30, 2021 and 2020</u>	<u>7</u>
<u>Notes to the Condensed Consolidated Financial Statements</u>	<u>9</u>
2. <u>Management's Discussion and Analysis of Financial Condition and Results of Operations</u>	<u>23</u>
3. <u>Quantitative and Qualitative Disclosures About Market Risk</u>	<u>29</u>
4. <u>Controls and Procedures</u>	<u>29</u>
<u>Part II. Other Information</u>	<u>30</u>
Item	
1. <u>Legal Proceedings</u>	<u>30</u>
1A. <u>Risk Factors</u>	<u>30</u>
2. <u>Unregistered Sales of Equity Securities and Use of Proceeds</u>	<u>30</u>
3. <u>Defaults Upon Senior Securities</u>	<u>30</u>
4. <u>Mine Safety Disclosures</u>	<u>30</u>
5. <u>Other Information</u>	<u>30</u>
6. <u>Exhibits</u>	<u>31</u>
<u>SIGNATURES</u>	<u>32</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)

	June 30, 2021	December 31, 2020
Assets		
Current Assets:		
Cash and cash equivalents	\$ 15,641	\$ 3,423
Short-term investments	4,921	6,279
Accounts receivable	76	86
Unbilled receivables	38	27
Prepaid expenses and other current assets	509	527
Total current assets	21,185	10,342
Restricted cash	264	264
Property and equipment, net	949	921
Right-of-use assets	2,537	2,712
Other assets	275	283
Total assets	\$ 25,210	\$ 14,522
Liabilities and Stockholders' Equity		
Current Liabilities:		
Accounts payable	\$ 101	\$ 60
Accrued expenses	1,237	1,297
Lease liabilities	485	457
Total current liabilities	1,823	1,814
Lease liabilities, net of current portion	2,915	3,163
Other long-term liabilities	10	13
Total liabilities	4,748	4,990
Commitments and contingencies (Note 10)		
Stockholders' Equity:		
Preferred stock (\$0.01 par value per share); 5,000,000 shares authorized; no shares issued or outstanding	—	—
Common stock (\$0.01 par value per share); 60,000,000 shares authorized at June 30, 2021 and December 31, 2020; 4,868,466 and 3,334,048 shares issued and outstanding at June 30, 2021 and December 31, 2020, respectively	49	33
Additional paid-in capital	401,319	384,758
Accumulated other comprehensive loss	(153)	(159)
Accumulated deficit	(380,753)	(375,100)
Total stockholders' equity	20,462	9,532
Total liabilities and stockholders' equity	\$ 25,210	\$ 14,522

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 June 30,		Six Months Ended June 30,	
	2021	2020	2021	2020
Revenue:				
Grant revenue	\$ 174	\$ 221	\$ 370	\$ 400
Total revenue	174	221	370	400
Expenses:				
Research and development	1,651	1,179	2,967	2,639
General and administrative	1,604	1,179	3,036	2,566
Total expenses	3,255	2,358	6,003	5,205
Loss from operations	(3,081)	(2,137)	(5,633)	(4,805)
Other income (expense):				
Change in fair value of warrants	—	—	—	(957)
Loan forgiveness income (Note 9)	—	333	—	333
Other income (expense), net	—	15	(1)	48
Total other income (expense)	—	348	(1)	(576)
Net loss from operations before income taxes	(3,081)	(1,789)	(5,634)	(5,381)
Income tax provision	(11)	(7)	(19)	(15)
Net loss	\$ (3,092)	\$ (1,796)	\$ (5,653)	\$ (5,396)
Basic and diluted net loss per share	\$ (0.64)	\$ (0.92)	\$ (1.23)	\$ (2.95)
Number of shares used in per share calculations:				
Basic and diluted	4,868,156	1,957,927	4,583,723	1,827,526

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 June 30,		Six Months Ended June 30,	
	2021	2020	2021	2020
Net loss:	\$ (3,092)	\$ (1,796)	\$ (5,653)	\$ (5,396)
Other comprehensive loss				
Change in unrealized gain on investments	—	(15)	1	7
Change in foreign currency translation adjustment	6	7	5	(48)
Total other comprehensive income (loss)	6	(8)	6	(41)
Comprehensive loss	<u>\$ (3,086)</u>	<u>\$ (1,804)</u>	<u>\$ (5,647)</u>	<u>\$ (5,437)</u>

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)

	Six Months Ended June 30,	
	2021	2020
Cash flows from operating activities		
Net loss	\$ (5,653)	\$ (5,396)
Adjustments to reconcile net loss to cash used in operating activities:		
Depreciation and amortization	108	91
Change in fair value of warrants	—	957
Loan forgiveness income (Note 9)	—	(333)
Loss on disposal of fixed assets	—	206
Charge for 401(k) company common stock match	69	66
Stock-based compensation	739	297
Non-cash lease expense	175	262
Deferred income tax provision	14	27
Changes in operating assets and liabilities:		
Accounts receivable	10	59
Unbilled receivables	(11)	(39)
Prepaid expenses and other assets	24	84
Accounts payable	41	(129)
Accrued expenses	(69)	(390)
Lease liabilities	(220)	(391)
Other liabilities	(3)	17
Net cash used for operating activities	(4,776)	(4,612)
Cash flows from investing activities		
Purchase of property and equipment	(136)	(42)
Proceeds from sale of property and equipment	—	10
Purchase of investments	(3,891)	(503)
Proceeds from the maturity of short-term investments	5,250	999
Net cash provided by investing activities	1,223	464
Cash flows from financing activities		
Proceeds from warrants exercised (Note 12)	3,856	1,658
Proceeds from PPP loan (Note 9)	—	333
Proceeds from public offering, net of issuance costs	11,993	—
Taxes paid on employees' behalf related to vesting of stock awards	(83)	—
Net cash provided by financing activities	15,766	1,991
Effect of exchange rate changes on cash, cash equivalents and restricted cash	5	(48)
Net increase (decrease) in cash, cash equivalents and restricted cash	12,218	(2,205)
Cash, cash equivalents and restricted cash at beginning of period	3,687	5,749
Cash, cash equivalents and restricted cash at end of period	<u>\$ 15,905</u>	<u>\$ 3,544</u>

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' EQUITY
UNAUDITED
(In thousands, except share amounts)

Three Months Ended June 30, 2021

	Series B Convertible Preferred Stock		Series A Convertible Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Par Value	Shares	Par Value	Shares	Par Value				
Balance, March 31, 2021	—	\$ —	—	\$ —	4,865,335	\$ 49	\$ 400,865	\$ (159)	\$ (377,661)	\$ 23,094
Non-cash stock-based compensation expense	—	—	—	—	—	—	414	—	—	414
Issuance of common stock for 401(k) match	—	—	—	—	3,131	—	40	—	—	40
Effect of foreign currency translation and unrealized loss on investments	—	—	—	—	—	—	—	6	—	6
Net loss	—	—	—	—	—	—	—	—	(3,092)	(3,092)
Balance, June 30, 2021	—	\$ —	—	\$ —	4,868,466	\$ 49	\$ 401,319	\$ (153)	\$ (380,753)	\$ 20,462

Three Months Ended June 30, 2020

	Series B Convertible Preferred Stock		Series A Convertible Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Par Value	Shares	Par Value	Shares	Par Value				
Balance, March 31, 2020	—	\$ —	296	\$ —	1,923,184	\$ 19	\$ 377,963	\$ (159)	\$ (368,494)	\$ 9,329
Non-cash stock-based compensation expense	—	—	—	—	—	—	194	—	—	194
Issuance of common stock for 401(k) match	—	—	—	—	10,114	—	38	—	—	38
Issuance of common stock for warrant exercise	—	—	—	—	2,500	—	730	—	—	730
Issuance of common stock upon conversion of Series A Convertible Preferred Stock	—	—	(296)	—	37,000	1	(1)	—	—	—
Effect of foreign currency translation and unrealized loss on investments	—	—	—	—	—	—	—	(8)	—	(8)
Net loss	—	—	—	—	—	—	—	—	(1,796)	(1,796)
Balance, June 30, 2020	—	\$ —	—	\$ —	1,972,798	\$ 20	\$ 378,924	\$ (167)	\$ (370,290)	\$ 8,487

Six Months Ended June 30, 2021

	Series B Convertible Preferred Stock		Series A Convertible Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulated other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
	Shares	Par Value	Shares	Par Value	Shares	Par Value				
Balance, December 31, 2020	—	\$ —	—	\$ —	3,334,048	\$ 33	\$ 384,758	\$ (159)	\$ (375,100)	\$ 9,532
Non-cash stock-based compensation expense	—	—	—	—	—	—	749	—	—	749
Issuance of common stock for 401(k) match	—	—	—	—	6,890	—	62	—	—	62
Issuance of common stock for warrant exercise	—	—	—	—	481,973	5	3,851	—	—	3,856
Issuance of common stock for restricted stock units	—	—	—	—	5,555	—	—	—	—	—
Taxes paid on employees' behalf related to vesting of stock awards	—	—	—	—	—	—	(83)	—	—	(83)
Issuance of common stock in connection with stock offering, net of offering costs	—	—	—	—	1,040,000	11	11,982	—	—	11,993
Effect of foreign currency translation and unrealized loss on investments	—	—	—	—	—	—	—	6	—	6
Net loss	—	—	—	—	—	—	—	—	(5,653)	(5,653)
Balance, June 30, 2021	—	\$ —	—	\$ —	4,868,466	\$ 49	\$ 401,319	\$ (153)	\$ (380,753)	\$ 20,462

Six Months Ended June 30, 2020

	Series B Convertible Preferred Stock		Series A Convertible Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulated other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
	Shares	Par Value	Shares	Par Value	Shares	Par Value				
December 31, 2019	5,750	\$ —	796	\$ —	933,423	\$ 9	\$ 360,926	\$ (126)	\$ (364,894)	\$ (4,085)
Non-cash stock-based compensation expense	—	—	—	—	—	—	354	—	—	354
Issuance of common stock for 401(k) match	—	—	—	—	13,829	—	63	—	—	63
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
Effect of foreign currency translation and unrealized loss on investments	—	—	—	—	—	—	—	(41)	—	(41)
Net loss	—	—	—	—	—	—	—	—	(5,396)	(5,396)
Balance, June 30, 2020	—	\$ —	—	\$ —	1,972,798	\$ 20	\$ 378,924	\$ (167)	\$ (370,290)	\$ 8,487

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

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. ("Yield10" or the "Company") is an agricultural bioscience company that is using its differentiated trait gene discovery platform, the "Trait Factory", to develop improved Camelina varieties to produce proprietary products, and to produce other high value genetic 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 goals are to efficiently develop and commercialize a high value crop products business by developing superior varieties of Camelina for the production of feedstock oils and meal, nutritional oils, and PHA bioplastics, and to license its yield traits to major seed companies for commercialization in major row crops, including corn, soybean and canola.

The accompanying 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 June 30, 2021 and June 30, 2020.

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, 2020, which are contained in the Company's [Annual Report on Form 10-K](#) filed with the SEC on March 16, 2021.

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. With the exception of a single year, the Company has recorded losses since its initial founding, including the three and six months ended June 30, 2021.

As of June 30, 2021, the Company held unrestricted cash, cash equivalents and investments of \$20,562. 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 current 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.

The full impact of the COVID-19 pandemic continues to evolve as of the date of this report. As such, the full magnitude that the pandemic will have on the Company's financial condition, liquidity and future results of operations is uncertain. While management currently expects the impact of COVID-19 to be temporary, there is uncertainty around the duration and its broader impact on the economy and therefore the effects it will have on Yield10's financial condition, liquidity, operations, suppliers, industry, and workforce. Given the evolving nature of the COVID-19 pandemic and the global responses to it, the Company is not able to estimate the effects of the COVID-19 pandemic on its results of operations, financial condition, or liquidity for future periods.

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 subsidiaries, Metabolix Oilseeds, Inc. ("MOI") and Yield10 Bioscience Securities Corp.

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 unaudited condensed 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:

	June 30, 2021	December 31, 2020
Cash and cash equivalents	\$ 15,641	\$ 3,423
Restricted cash	264	264
Total cash, cash equivalents and restricted cash	<u>\$ 15,905</u>	<u>\$ 3,687</u>

Amounts included in restricted cash represent those required to be set aside by contractual agreement. Restricted cash of \$264 at June 30, 2021 and December 31, 2020 consists primarily of funds held in connection with the Company's lease agreement for its Woburn, Massachusetts facility.

Investments

The Company classifies 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. The Company classifies investments with a maturity date of greater than one year from the balance sheet date as long-term investments.

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

The functional currency for MOI is the Canadian dollar. Foreign denominated assets and liabilities of MOI 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 all or substantially 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 Loss

Comprehensive loss is comprised of net loss and certain changes in stockholders' equity that are excluded from net loss. The Company includes unrealized gains and losses on debt securities and foreign currency translation adjustments in other comprehensive 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 deferred tax assets to a level which, more likely than not, will be realized.

The Company accounts for uncertain tax positions using a "more-likely-than-not" threshold for recognizing and resolving uncertain tax positions. The evaluation of uncertain tax positions is based on factors that include, but are not limited to, changes in tax law, the measurement of tax positions taken or expected to be taken in tax returns, the effective settlement of matters subject to audit, new audit activity and changes in facts or circumstances related to a tax position. The provision for income taxes includes the effects of any resulting tax reserves or unrecognized tax benefits that are considered appropriate as well as the related net interest and penalties, if any. The Company evaluates uncertain tax positions on a quarterly basis and adjusts the level of the liability to reflect any subsequent changes in the relevant facts surrounding the uncertain positions.

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 June 30, 2021, 100% of the Company's accounts and unbilled receivables are due from the Company's Michigan State University ("MSU") sub-award. During the three and six months ended June 30, 2021, revenue earned from the MSU sub-award, represented 100.0% and 89.5% of recognized government grant revenue, respectively. A research grant of \$39 awarded to MOI through the Canadian Industrial Research Assistance Program ("IRAP") and earned during the first quarter of 2021, represented the remaining difference of 10.5% during six months ended June 30, 2021. During the three and six months ended June 30, 2020, the MSU sub-award represented 69.7% and 83.3%, of government grant revenue earned for each of the respective periods. The remaining differences of 30.3% and 16.7% during the three and six months ended June 30, 2020 were from grant revenue recognized from an earlier Canadian research grant of \$67 awarded through IRAP.

Fair Value Measurements

The carrying amounts of the Company's financial instruments as of June 30, 2021 and December 31, 2020, 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 improved Camelina varieties to produce proprietary products, and to produce other high value genetic traits for the agriculture and food industries. 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 and amortization. Repairs and maintenance are charged to operating expense as incurred. Depreciation and amortization 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 right-of-use 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 a 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 unaudited condensed consolidated balance sheets at June 30, 2021 and December 31, 2020. 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, crop trials, regulatory activities, 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, stock-based compensation and office related expenses incurred to support the administrative and business development 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 Company's unaudited condensed 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 expenses 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 three months ended June 30, 2021, the Company did not adopt any new accounting guidance.

In December 2019 the FASB issued Accounting Standards Update No. 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes*. This standard removes certain exceptions to the general principles in Topic 740 and simplifies certain other aspects of the accounting for income taxes. This standard became effective for us on January 1, 2021, and did not have a material impact on our consolidated financial statements and related disclosures.

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 its 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 and the conversion of convertible preferred stock. 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, convertible preferred stock 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 six months ended June 30, 2021 and June 30, 2020, respectively, are shown below. Issued and outstanding warrants and more detailed information related to the Company's convertible preferred stock shown in the table below are described in greater detail in Note 12, contained herein.

	Three Months Ended June 30,		Six Months Ended June 30,	
	2021	2020	2021	2020
Options	198,907	71,873	177,595	69,852
Restricted Stock Awards	18,862	17,000	14,639	13,170
Series A Convertible Preferred Stock	—	12,166	—	25,613
Series B Convertible Preferred Stock	—	—	—	63,187
Warrants	175,995	2,843,699	175,955	2,843,699
Total	393,764	2,944,738	368,189	3,015,521

4. INVESTMENTS

Investments consist of the following at June 30, 2021 and December 31, 2020:

	Accumulated Cost at June 30, 2021	Unrealized		Market Value at June 30, 2021
		Gain	(Loss)	
Short-term investments				
U.S. government and agency securities	\$ 4,920	\$ 1	\$ —	\$ 4,921
Total	\$ 4,920	\$ 1	\$ —	\$ 4,921

	Accumulated Cost at December 31, 2020	Unrealized		Market Value at December 31, 2020
		Gain	(Loss)	
Short-term investments				
U.S. government and agency securities	\$ 6,279	\$ —	\$ —	\$ 6,279
Total	\$ 6,279	\$ —	\$ —	\$ 6,279

All investments are classified as available for sale as of June 30, 2021 and December 31, 2020.

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. 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 June 30, 2021 and December 31, 2020 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 on a daily basis, 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 June 30, 2021 and December 31, 2020.

The tables below present information about the Company's assets and liabilities that are measured at fair value on a recurring basis as of June 30, 2021 and December 31, 2020 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 June 30, 2021
	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	\$ 14,132	\$ —	\$ —	\$ 14,132
Short-term investments:				
U.S. government and agency securities	—	4,921	—	4,921
Total assets	<u>\$ 14,132</u>	<u>\$ 4,921</u>	<u>\$ —</u>	<u>\$ 19,053</u>

Description	Fair value measurements at reporting date using			Balance as of December 31, 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	\$ 2,873	\$ —	\$ —	\$ 2,873
Short-term investments:				
U.S. government and agency securities	—	6,279	—	6,279
Total assets	<u>\$ 2,873</u>	<u>\$ 6,279</u>	<u>\$ —</u>	<u>\$ 9,152</u>

There were no transfers of financial assets or liabilities between category levels during the three and six months ended June 30, 2021 and the three and six months ended June 30, 2020.

During November 2019, the Company issued Series A Warrants and Series B Warrants in two concurrent securities offerings that were considered free standing financial instruments, that were legally detachable and separately exercisable from the common and preferred stock issued in the two offerings. The Company initially 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 their inception date fair value due to the insufficiency of common shares available to permit their exercise. The warrant liability met Level 3 classification criteria for classification within the fair value hierarchy. 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 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 Black-Scholes valuation model, recording a loss on the adjustment to fair value of \$957.

The following table shows a reconciliation of the beginning and ending balances for the Level 3 warrant liability for the six months ending June 30, 2020.

	Six Months Ended June 30, 2020
Warrant liability, December 31, 2019	\$ 14,977
Recognized loss from mark-to-market adjustment prior to reclassification of warrant liability to equity	957
Reclassification from warrant liability to equity	(15,934)
Warrant liability, June 30, 2020	<u>\$ —</u>

6. ACCRUED EXPENSES

Accrued expenses consisted of the following at:

	June 30, 2021	December 31, 2020
Employee compensation and benefits	\$ 575	\$ 620
Leased facilities	52	188
Professional services	263	235
Field trials and related expenses	186	52
Other	161	202
Total accrued expenses	<u>\$ 1,237</u>	<u>\$ 1,297</u>

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 \$415 and \$739 for the three and six months ended June 30, 2021 and \$160 and \$297 for the three and six months ended June 30, 2020, respectively. At June 30, 2021, there was approximately \$3,915 of pre-tax stock-based compensation expense related to unvested awards not yet recognized.

The compensation expense related to unvested stock awards is expected to be recognized over a remaining weighted average period of 3.11 years.

Stock Options

A summary of option activity for the six months ended June 30, 2021 is as follows:

	Number of Shares	Weighted Average Exercise Price
Outstanding at December 31, 2020	339,108	\$ 32.39
Granted	192,875	\$ 13.93
Exercised	—	\$ —
Forfeited	—	\$ —
Expired	(37)	\$ 19,253.19
Outstanding at June 30, 2021	<u>531,946</u>	\$ 24.36
Options exercisable at June 30, 2021	135,785	\$ 63.01

In accordance with the terms of the Company's 2018 Stock Option and Incentive Plan ("2018 Stock Plan"), effective January 1, 2021, Yield10's Board of Directors approved the addition of 166,702 shares to the 2018 Stock Plan, which represented 5% of the Company's outstanding common stock on the day prior to the increase. At its annual meeting of stockholders on May 24, 2021, stockholders approved an amendment to the 2018 Stock Plan to add 300,000 more shares to the plan. As of June 30, 2021, 258,186 shares remain available to be awarded from the 2018 Plan.

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 from the common stock issuable at the vest date. During the six months ended June 30, 2021, 8,500 employee RSUs vested, of which 2,945 common shares with a total market value of \$67 were withheld to pay employee tax withholding.

A summary of RSU activity for the six months ended June 30, 2021 is as follows:

	Number of RSUs	Weighted Average Remaining Contractual Life (years)
Outstanding at December 31, 2020	8,500	
Awarded	18,862	
Common stock issued upon vesting	(8,500)	
Forfeited	—	
Outstanding at June 30, 2021	<u>18,862</u>	0.42

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 subject to ASC 842 meets 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 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

The Company's Woburn, Massachusetts facility is the only lease included in the Company's right-of-use assets and corresponding lease liabilities. No other active real estate or equipment leases fall within the scope of ASC 842. At June 30, 2021, the Company's lease liability related to its Woburn facility will mature as follows:

Year ended December 31,	Undiscounted Cash Flows
2021 (July to December)	\$ 357
2022	726
2023	749
2024	771
2025	793
Thereafter	747
Total undiscounted future lease payments	<u>4,143</u>
Amount of lease payments representing interest	(743)
Total lease liabilities	<u>\$ 3,400</u>
Short-term lease liability	\$ 485
Long-term lease liability	\$ 2,915

Quantitative Disclosure of Lease Costs

	Three Months Ended June 30,		Six Months Ended June 30,	
	2021	2020	2021	2020
Lease cost:				
Operating lease cost	\$ 151	\$ 183	\$ 303	\$ 386
Short-term lease cost	169	123	326	306
Sublease income	(146)	(142)	(320)	(279)
Total lease cost, net	\$ 174	\$ 164	\$ 309	\$ 413
Other information as of:			June 30, 2021	December 31, 2020
Weighted-average remaining lease term (years)			5.4	5.9
Weighted-average discount rate			7.25%	7.25%

Real Estate Leases

During 2016, the Company entered into a lease agreement, as amended, for its headquarters pursuant to which the Company leases 22,213 square feet of office and research and development space located at 19 Presidential Way, Woburn, Massachusetts. The lease agreement will terminate on November 30, 2026 and does not include options for an early termination or for an extension of the lease. Pursuant to the lease, the Company is required to pay certain pro rata taxes and operating costs associated with the premises throughout the term of the lease. During the initial buildout of the rented space, the landlord paid for certain tenant improvements that resulted in increased rental payments by the Company. As required by ASC 842, these improvements were recorded as a reduction in the valuation of the associated right-of-use asset. The Company has provided the landlord with a security deposit of \$229.

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 coterminous with the Company's master lease and CJ will pay rent and operating expenses proportionate 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 \$4,143 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 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, MOI, located in Saskatoon, Saskatchewan, Canada, leases approximately 7,733 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 2022.

9. CARES ACT LOAN

During April 2020, the Company received \$333 in loan proceeds through the Paycheck Protection Program Flexibility Act ("PPP"), established pursuant to the CARES Act. Under the CARES Act and the PPP, a borrower could apply for and be granted forgiveness for all or a part of its PPP loan. The amount of loan proceeds eligible for forgiveness was based on a formula that took into account a number of factors, including the amount of loan proceeds used by the borrower 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. During the three months ended June 30, 2020, Yield10 utilized the entire PPP Loan amount for qualifying expenses and management of the Company considered it reasonably certain that it would meet the conditions for loan forgiveness. As such, the Company recorded the full amount of the loan, or \$333, within other income (expense) in its condensed consolidated statement of operations for the three and six months ended June 30, 2020. The Company received a favorable determination to its application for loan forgiveness in November 2020 for the full amount of the loan.

10. COMMITMENTS AND CONTINGENCIES

Contractual Commitments

Exclusive Collaboration Agreement with Rothamsted Research ("Rothamsted")

On November 12, 2020, the Company signed an exclusive collaboration agreement with UK-based Rothamsted to support Rothamsted's program to develop omega-3 oils in *Camelina sativa*. Under the agreement, Yield10 is providing Rothamsted with financial support for ongoing research including further DHA+EPA trait improvement, field testing and nutritional studies. The Company will pay Rothamsted quarterly research funding and option fees of \$31 for two years totaling \$250, of which \$188 remains outstanding as of June 30, 2021. As part of the agreement, the Company has an exclusive two-year option to sign a global, exclusive or non-exclusive license agreement to the technology. The current agreement terminates automatically on its second anniversary unless terminated earlier in accordance with the terms of the agreement.

License Agreement with the University of Massachusetts ("UMASS")

Pursuant to a license agreement with UMASS dated as of June 30, 2015 and subsequently amended, the Company has an exclusive, worldwide license under certain patents and patent applications, including issued patents covering the Company's yield trait gene C3003, relating to the manufacture of plants with enhanced photosynthesis. The agreement provides an exclusive, worldwide license to make, have made, use, offer for sale and import any transgenic plant seed or plant grown from transgenic plant material for sale to a farmer or grower that is derived from (in whole or in part) one or more issued or pending claims of the licensed patents or patent applications.

Pursuant to the UMASS license agreement, the Company is required to use diligent efforts to develop licensed products throughout the field of use and to introduce licensed products into the commercial market. The Company's failure to achieve any milestone provided for under the agreement would give UMASS the right to terminate the agreement, following a notice period, unless the Company is able to reach agreement with UMASS as to a potential adjustment to the applicable milestone.

The Company is obligated to pay UMASS milestone payments relating to regulatory filings and approvals covered by the agreement, minimum annual royalties or royalties on any sales of licensed products following regulatory approval, as well as a percentage of any sublicense income, if any, related to the licensed products. The Company or UMASS may terminate the agreement in accordance with the terms of the agreement.

License Agreement with the University of Missouri ("UM")

Pursuant to a license agreement with UM dated as of May 17, 2018, Yield10 has an exclusive, worldwide license to two novel gene technologies to boost oil content in crops. Both technologies are based on significant new discoveries around the function and regulation of ACCase, a key rate-limiting enzyme involved in oil production. The UM license was expanded during May 2019 to include an exclusive worldwide license to a third gene in the ACCase complex, that the Company has designated C3012, that may complement the activity of C3007 to boost oil content in crops.

Pursuant to the UM license agreement, the Company is required to use diligent efforts to develop licensed products throughout the licensed field and to introduce licensed products into the commercial market. The Company's failure to achieve any milestone provided for under the license agreement would give UM the right to terminate the license agreement or render it nonexclusive, unless the Company is able to reach agreement with UM as to the potential adjustment of the applicable milestone.

The Company is obligated to pay UM a license execution payment, milestone payments relating to any regulatory filings and approvals covered by the license agreement, royalties on any sales of licensed products following regulatory approval, as well as a percentage of any sublicense royalties, if any, related to the licensed products. The Company or UM may terminate the license agreement in accordance with the terms of the agreement.

Facility Leases

The Company leases facilities under non-cancelable leases expiring at various dates through November 30, 2026. See Note 8.

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

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 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 June 30, 2021 and December 31, 2020.

11. GEOGRAPHIC INFORMATION

The geographic distribution of the Company's grant revenues and long-lived assets are summarized in the tables below. Foreign revenue is based on the country in which the Company's subsidiary that earned the revenue is domiciled.

	U.S.	Canada	Eliminations	Total
Three Months Ended June 30, 2021				
Grant revenue from external customers	\$ 174	\$ —	\$ —	\$ 174
Inter-geographic revenues	—	539	(539)	—
Revenues	<u>\$ 174</u>	<u>\$ 539</u>	<u>\$ (539)</u>	<u>\$ 174</u>
Three Months Ended June 30, 2020				
Grant revenue from external customers	\$ 154	\$ 67	\$ —	\$ 221
Inter-geographic revenues	—	373	(373)	—
Revenues	<u>\$ 154</u>	<u>\$ 440</u>	<u>\$ (373)</u>	<u>\$ 221</u>
Six Months Ended June 30, 2021				
Grant revenue from external customers	\$ 331	\$ 39	\$ —	\$ 370
Inter-geographic revenues	—	992	(992)	—
Revenues	<u>\$ 331</u>	<u>\$ 1,031</u>	<u>\$ (992)</u>	<u>\$ 370</u>
Six Months Ended June 30, 2020				
Grant revenue from external customers	\$ 333	\$ 67	\$ —	\$ 400
Inter-geographic revenues	—	777	(777)	—
Revenues	<u>\$ 333</u>	<u>\$ 844</u>	<u>\$ (777)</u>	<u>\$ 400</u>

The geographic distribution of the Company's property and equipment is summarized as follows:

	U.S.	Canada	Eliminations	Total
June 30, 2021	\$ 896	\$ 53	\$ —	\$ 949
December 31, 2020	\$ 866	\$ 55	\$ —	\$ 921

12. CAPITAL STOCK AND WARRANTS

Common Stock

Registered Public Offerings

On February 3, 2021, the Company completed a public offering of 1,040,000 shares of its common stock at a public offering price of \$12.25 per share for total gross proceeds of \$12,740 before issuance costs of \$747.

On August 26, 2020, the Company completed a public offering of 951,835 shares of its common stock at a public offering price of \$4.25 per share for total gross proceeds of \$4,045 before issuance costs of \$425.

Private Placement

Concurrent with the registered public offering completed on August 26, 2020, as described above, the Company completed a separate private placement offering of 396,450 shares of its common stock to certain existing shareholders at the same \$4.25 price offered to investors in the public offering. The 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 that included the following: common stock, Series A Convertible Preferred Stock, Series B Convertible Preferred Stock, Series A Warrants and Series B Warrants. Combined cash proceeds from the offerings totaled \$11,500, before issuance costs of \$1,254.

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 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 described above. Upon the filing of the 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.

At the time of their issuance, the Company determined that all of the Series A Warrants and Series B 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. 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 effecting 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 on the date of filing the Charter Amendment.

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. All of the 2,504 shares of the Series A Convertible Preferred Stock converted to 313,000 shares of common stock by April 30, 2020.

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 June 30, 2021:

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	352,703	\$ 8.00	May 19, 2022
November 2019 Public Offering - Series B	395,528	\$ 8.00	May 19, 2021
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, 2021
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	<u>2,361,726</u>		

During the six months ended June 30, 2021, a combined total of 481,973 Series A and Series B warrants issued in the Company's November 2019 securities offering were exercised by warrant holders, providing \$3,856 in cash proceeds.

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:

	June 30, 2021	December 31, 2020
Stock Options	531,946	339,108
RSUs	18,862	8,500
Warrants	2,361,726	2,843,699
Total number of common shares reserved for future issuance	<u>2,912,534</u>	<u>3,191,307</u>

13. SUBSEQUENT EVENT

During 1999, the Company entered into a sublicense agreement with Tepha, Inc. ("Tepha"), a privately held company engaged in the development of medical products. At the time the sublicense was executed, a director of Yield10 was also the president, chief executive officer and a director of Tepha. Three other members of Yield10's board also served on the board of

Tepha, of which one continued to serve until completion of the merger discussed below. Yield10 received 648,149 shares of Series A Convertible Preferred Stock of Tepha ("Tepha Shares") during 2002 as consideration for outstanding license payments due to Yield10 totaling \$700. During 2005, the Company determined the value of the Tepha Shares was impaired resulting in their write off through a charge to other income (expense). The sublicense agreement with Tepha ended in 2016.

In May 2021, the board of directors of Tepha approved and authorized the sale of Tepha to Becton Dickinson Global Holdings, Inc. ("Becton Dickinson"). Completion of the merger was subject to customary regulatory review and approval by the U.S. Federal Trade Commission ("FTC"). The merger was approved by the FTC on July 21, 2021 and Yield10 received cash consideration of \$700 for the surrender of its Tepha Shares when the merger closed on July 26, 2021. The cash receipt will be recorded as a gain on investment in related party within other income (expense) in the Company's condensed consolidated statement of operations during the three months then ended September 30, 2021.

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, 2020 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 is using its differentiated trait gene discovery platform, (the "Trait Factory"), to develop improved Camelina varieties to produce proprietary products, and to produce other high value genetic traits for the agriculture and food industries. We are headquartered in Woburn, Massachusetts and have an Oilseed Center of Excellence in Saskatoon, Saskatchewan, Canada. Our goals are to efficiently develop and commercialize a high value crop products business by developing superior varieties of Camelina for the production of feedstock oils and meal, nutritional oils, and PHA bioplastics, and to license our yield traits to major seed companies for commercialization in major row crops, including corn, soybean and canola.

As of June 30, 2021, we held unrestricted cash, cash equivalents and investments of \$20,562. We follow the guidance of ASC Topic 205-40, *Presentation of Financial Statements-Going Concern*, in order to ascertain 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, into the second quarter of 2023. 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 February 26, 2021, 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 \$39 for payroll costs incurred by MOI during the period December 20, 2020 - March 13, 2021. During the six months ended June 30, 2021, 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 on September 15, 2017. Cumulative funding for this sub-award in the amount of \$2,403 has been appropriated by the U.S. Congress through the fourth contractual year ending in September 2021. 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. During three and six months ended June 30, 2021 we recognized \$174 and \$331, respectively, from the sub-award. During the three and six months ended June 30, 2020, we recognized \$154 and \$333, respectively, from this sub-award.

As of June 30, 2021, proceeds of \$200 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 June 30, 2021	Remaining amount to be recognized as of June 30, 2021	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	\$ 2,203	\$ 200	September 2021
Funding from National Research Council Canada through its Industrial Research Assistance Program (NRC-IRAP) entitled "Innovation Assistance Program - Round 2.5"	National Research Council Canada	39	39	—	March 2021
Total		\$ 2,442	\$ 2,242	\$ 200	

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 six months ended June 30, 2021, were consistent with those discussed in our [Annual Report on Form 10-K](#) for the year ended December 31, 2020, 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 June 30, 2021 and 2020

Revenue

	Three Months Ended June 30,		Change
	2021	2020	
Grant revenue	\$ 174	\$ 221	\$ (47)

Grant revenue was \$174 and \$221 for the three months ended June 30, 2021 and June 30, 2020, respectively. All of the grant revenue recorded during the three months ended June 30, 2021 was derived from the Company's DOE sub-award with MSU. During the three months ended June 30, 2020, \$154 in grant revenue was derived from the MSU sub-award and \$67 was earned from a research grant awarded to MOI through the Canadian Industrial Research Assistance Program administered by NRC.

We anticipate that grant revenue will decrease for the year ended December 31, 2021 in comparison to the year ended December 31, 2020 as a result of varying annual budget appropriations awarded under the five-year MSU sub-award and the timing of our application of company resources to the grant. We currently cannot assess whether additional U.S. or Canadian government grants will be awarded to us during the remainder of 2021. 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 June 30,		Change
	2021	2020	
Research and development expenses	\$ 1,651	\$ 1,179	\$ 472
General and administrative expenses	1,604	1,179	425
Total expenses	\$ 3,255	\$ 2,358	\$ 897

Research and Development Expenses

Research and development expenses increased from \$1,179 during the three months ended June 30, 2020 to \$1,651 during the three months ended June 30, 2021. The \$472, or 40 percent increase, is primarily due to higher employee compensation, field trial and other general expenses. Employee compensation increased by \$209 from \$734 during the three months ended June 30, 2020 to \$943 during the three months ended June 30, 2021, and is primarily the result of a \$81 increase in stock-based compensation expense and a \$32 increase in payroll expense resulting from employee annual compensation merit increases and our hiring of a regulatory director late in the quarter. During the three months ended June 30, 2021, we also recorded \$62 in recruiting and relocation expenses. Crop trial expense increased by \$132 during the three months ended

June 30, 2021 in comparison to the same quarter of the previous year and is the result of the Company's expanded Camelina field trials and other work being conducted in the U.S., Canada and Argentina. During the three months ended June 30, 2021, facility related expenses incurred for research and development and research supplies and services also increased by \$39 and \$26, respectively, in comparison to the three months ended June 30, 2020.

Based on current planning and forecasting, we anticipate that our 2021 research and development expense will continue to remain at levels above expenses incurred during 2020 as we continue towards completion of our 2021 expanded crop trials and continue to prepare our Camelina plant varieties for future commercial launch. Our forecast related to research and development expense is 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 June 30, 2021 and June 30, 2020 increased by \$425 from \$1,179 to \$1,604. The 36 percent increase is primarily due to increases in employee compensation and consulting expenses. Employee compensation expense increased by \$244 from \$469 during the three months ended June 30, 2020 to \$713 during the three months ended June 30, 2021, and is primarily the result of a \$173 increase in stock-based compensation. During the three months ended June 30, 2021, we also recorded \$34 in recruiting and relocation expenses incurred in connection with adding professional staff. Consulting fees increased by \$75 during three months ended June 30, 2021 in comparison to the same quarter last year, primarily as a result of engaging outside parties to assist us with early stage business development efforts for our Camelina plant varieties.

Based on current planning and budgeting, we anticipate that general and administrative expenses will continue to remain at levels above expenses incurred during 2020 as a result of a new hire we recently made for business development as well as for additional senior operations personnel expected to be hired later this year. We also anticipate incurring significant costs during the remainder of 2021 in connection with business development activities for our Camelina plant varieties. Our forecasts related to general and administrative expenses 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 June 30,		Change
	2021	2020	
Loan forgiveness income	\$ —	\$ 333	\$ (333)
Other income (expense), net	—	15	(15)
Total other income (expense), net	\$ —	\$ 348	\$ (348)

Loan Forgiveness Income

During April 2020, we received \$333 in loan proceeds through the Paycheck Protection Program Flexibility Act ("PPP"), established pursuant to the CARES Act. During our fiscal quarter ended June 30, 2020, we utilized the entire PPP Loan amount for expenses that met the qualifications for loan forgiveness and, as a result, we recorded the full amount of the loan within other income (expense) in our condensed consolidated statement of operations. As anticipated, we subsequently received a favorable determination on our loan forgiveness application in November 2020.

Other Income (Expense), net

Other income (expense) for the three months ended June 30, 2020 was derived primarily from investment income earned from the Company's cash equivalents and investments offset by interest expense and investment management fees incurred during the period. No investment income was recorded for the three months ended June 30, 2021 due to the negligible yield currently available with short-term U.S. federal treasury notes.

Comparison of the Six Months Ended June 30, 2021 and 2020

Revenue

	Six Months Ended June 30,		Change
	2021	2020	
Grant revenue	\$ 370	\$ 400	\$ (30)

Grant revenue was \$370 and \$400 for the six months ended June 30, 2021 and June 30, 2020. During the six months ended June 30, 2021 and June 30, 2020, we recognized \$331 and \$333, respectively, from the Company's DOE sub-award with MSU and \$39 and \$67, respectively, from research grants awarded to MOI through the Canadian Industrial Research Assistance Program administered by NRC.

Expenses

	Six Months Ended June 30,		Change
	2021	2020	
Research and development expenses	\$ 2,967	\$ 2,639	\$ 328
General and administrative expenses	3,036	2,566	470
Total expenses	\$ 6,003	\$ 5,205	\$ 798

Research and Development Expenses

Research and development expenses increased from \$2,639 during the six months ended June 30, 2020 to \$2,967 during the six months ended June 30, 2021. The \$328, or 12 percent increase, is primarily due to higher employee compensation and crop field trial expenses of \$297 and \$141, respectively. The increase in employee compensation expense is primarily the result of a \$152 increase in stock-based compensation expense and the increase in crop trial expense is due to our expanded Camelina trials and other related work being conducted in the U.S., Canada and Argentina. During the six months ended June 30, 2020, we recorded a non-recurring write off of \$141 in leasehold improvements and office furniture used in our research and development activities as a result of an amendment to our Woburn, Massachusetts lease that returned excess space to the landlord.

General and Administrative Expenses

General and administrative expenses for the six months ended June 30, 2021 and June 30, 2020 increased by \$470 from \$2,566 to \$3,036. The 18 percent increase is primarily due to increases in employee compensation expense of \$389, including an increase in stock-based compensation of \$290, and recruiting and relocation expenses of \$44. Consulting fees also increased by \$129 during the six months ended June 30, 2021 in comparison to the six months ended June 30, 2020, primarily as a result of engaging outside parties to assist us with early stage business development activities for our Camelina plant varieties. During the six months ended June 30, 2020, we recorded a non-recurring write off of \$64 in leasehold improvements and office furniture used in our general and administrative activities as a result of the amendment to our Woburn facility lease.

Other Income (Expense), Net

	Six Months Ended June 30,		Change
	2021	2020	
Change in fair value of warrants	\$ —	\$ (957)	\$ 957
Loan forgiveness income	—	333	(333)
Other income (expense), net	(1)	48	(49)
Total other income (expense), net	(1)	(576)	\$ 575

Change in Fair Value of Warrants

The fair value of the liability classified warrants issued in our November 2019 securities offerings was subject to mark-to-market adjustment on subsequent balance sheet dates. On January 15, 2020, we remeasured the fair value of the warrant liability in connection with the Company's 1-for-40 reverse stock split, recording a loss from the change in fair value of \$957. The reverse stock split increased the number of shares of common stock available for issuance resulting in reclassification of the warrant liability to equity.

Loan Forgiveness Income

During April 2020, we received \$333 in loan proceeds through the Paycheck Protection Program Flexibility Act ("PPP"), established pursuant to the CARES Act. During our fiscal quarter ended June 30, 2020 we utilized the entire PPP Loan amount for expenses that met the qualifications for loan forgiveness and recorded the full amount of the loan within other income (expense) in our condensed consolidated statement of operations.

Other Income (Expense), net

Other income (expense) for the six months ended June 30, 2021 and June 30, 2020 was derived primarily from investment income earned from the Company's cash equivalents and investments offset by interest expense and investment management fees incurred during the period. Investment income recorded from U.S. federal treasury notes was negligible during the six months ended June 30, 2021 due to their insignificant yield rates.

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 funded research grants and income earned on cash and investments.

Since our inception, we have incurred significant expenses related to our research, development and commercialization efforts. With the exception of 2012, we have recorded losses since our initial founding, including the three and six months ended June 30, 2021. As of June 30, 2021, we had an accumulated deficit of \$380,753. Our unrestricted cash, cash equivalents and investments are held primarily for working capital purposes and as of June 30, 2021, were \$20,562 as compared to cash, cash equivalents and investments of \$9,702 at December 31, 2020. As of June 30, 2021, we had restricted cash of \$264, consisting of \$229 held in connection with the lease agreement for our Woburn, Massachusetts facility and \$35 held in connection with our corporate credit card program. As of June 30, 2021, we continued 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 June 30, 2021, we were in compliance with this policy.

We anticipate net cash usage during 2021 within a range of \$10,000 to \$11,000 and estimate that our current cash resources will be sufficient to fund operations and meet our obligations, when due, into the second quarter of 2023. 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 March 28, 2021, we filed a shelf registration statement on Form S-3 (File No. 333-254830) with the SEC, which was declared effective on April 2, 2021 (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

\$100,000 of our common stock, preferred stock, warrants and subscription rights, which securities may be sold either individually or in units.

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 six months ended June 30, 2021 was \$4,776, compared to net cash used for operating activities during the six months ended June 30, 2020 of \$4,612. Net cash used for operating activities during the six months ended June 30, 2021 primarily reflects the net loss of \$5,653, cash payments made to reduce the Company's lease liabilities of \$220 and our payment of 2020 bonus compensation of \$460. Non-cash charges offsetting a portion of the net loss include depreciation and amortization expense of \$108, the Company's 401(k) matching contribution in common stock of \$69, stock-based compensation expense of \$739, and non-cash lease expense of \$175. Net cash used for operating activities during the six months ended June 30, 2020 was \$4,612 and primarily reflects the net loss of \$5,396 and cash payments made to reduce the Company's lease liabilities and to pay 2019 bonus compensation of \$391 and \$344, respectively. Non-cash expenses included in the net loss, included the loss recorded from the revaluation of its warrant liability of \$957, losses from the disposal of fixed assets of \$206, stock-based compensation expense of \$297, and non-cash lease expense of \$262.

Net cash of \$1,223 was provided by investing activities during the six months ended June 30, 2021, primarily as a result of our receiving proceeds of \$5,250 from investments reaching maturity and converting into cash, partially offset by our purchase of \$3,891 in new investments. During the six months ended June 30, 2021, we also purchased \$136 in laboratory equipment, including new plant growth chambers. During the six months ended June 30, 2020, \$464 in net cash was provided from investing activities.

Net cash of \$15,766 was provided by financing activities during the six months ended June 30, 2021, compared to net cash of \$1,991 provided by financing activities during the six months ended June 30, 2020. During the six months ended June 30, 2021, the Company completed a public offering of 1,040,000 shares of its common stock at a price of \$12.25 per share, receiving proceeds of \$11,993 net of issuance costs of \$747. Also during the six months ended June 30, 2021, a total of 481,973 Series A and Series B warrants issued in the Company's November 2019 securities offering were exercised by warrant holders, providing \$3,856 in cash proceeds. During the six months ended June 30, 2020, we recorded cash proceeds of \$1,658 from the exercise of warrants.

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 June 30, 2021. 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 June 30, 2021 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, 2020, filed with the SEC on March 16, 2021.

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

Recent Sales of Unregistered Securities

On April 5, 2021, we issued 3,131 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.

Issuer Purchases of Equity Securities

During the three months ended June 30, 2021, 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.

- [10.1](#) Amended and Restated 2018 Stock Option and Incentive Plan† (filed herewith).
- [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 June 30, 2021 formatted in XBRL: (i) Condensed Consolidated Balance Sheets, June 30, 2021 and December 31, 2020; (ii) Condensed Consolidated Statements of Operations, Three and Six Months Ended June 30, 2021 and 2020; (iii) Condensed Consolidated Statements of Comprehensive Loss, Three and Six Months Ended June 30, 2021 and 2020; (iv) Condensed Consolidated Statements of Cash Flows, Six Months Ended June 30, 2021 and 2020; (v) Condensed Consolidated Statements of Series B Convertible Preferred Stock and Stockholders' Equity, Three and Six Months Ended June 30, 2021 and 2020; and (vi) Notes to Consolidated Financial Statements.

† Indicates a management contract or any compensatory plan, contract or arrangement

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.

August 11, 2021

By: /s/ OLIVER PEOPLES

Oliver Peoples
President and Chief Executive Officer
(Principal Executive Officer)

August 11, 2021

By: /s/ CHARLES B. HAASER

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

YIELD10 BIOSCIENCE, INC.

AMENDED AND RESTATED 2018 STOCK OPTION AND INCENTIVE PLAN

1. DEFINITIONS.

Unless otherwise specified or unless the context otherwise requires, the following terms, as used in this Yield10 Bioscience, Inc. 2018 Stock Option and Incentive Plan, have the following meanings:

Administrator means the Board of Directors, unless it has delegated power to act on its behalf to the Committee, in which case the term Administrator means the Committee.

Affiliate means a corporation which, for purposes of Section 424 of the Code, is a parent or subsidiary of the Company, direct or indirect.

Agreement means a written or electronic document setting forth the terms of a Stock Right delivered pursuant to the Plan in such form as the Administrator shall approve.

Board of Directors means the Board of Directors of the Company.

Cause means, with respect to a Participant (a) dishonesty with respect to the Company or any Affiliate, (b) insubordination, substantial malfeasance or non-feasance of duty, (c) unauthorized disclosure of confidential information, (d) breach by a Participant of any provision of any employment, consulting, advisory, nondisclosure, non-competition or similar agreement between the Participant and the Company or any Affiliate, and (e) conduct substantially prejudicial to the business of the Company or any Affiliate; provided, however, that any provision in an agreement between a Participant and the Company or an Affiliate, which contains a conflicting definition of Cause for termination and which is in effect at the time of such termination, shall supersede this definition with respect to that Participant. The determination of the Administrator as to the existence of Cause will be conclusive on the Participant and the Company.

Change of Control means the occurrence of any of the following events:

Ownership. Any "Person" (as such term is used in Sections 13(d) and 14(d) of the Exchange Act) becomes the "Beneficial Owner" (as defined in Rule 13d-3 under the Exchange Act), directly or indirectly, of securities of the Company representing 50% or more of the total voting power represented by the Company's then outstanding voting securities (excluding for this purpose any such voting securities held by the Company or its Affiliates or by any employee benefit plan of the Company) pursuant to a transaction or a series of related transactions which the Board of Directors does not approve; or

Merger/Sale of Assets. (A) A merger or consolidation of the Company whether or not approved by the Board of Directors, other than a merger or consolidation which would result in the voting securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into

voting securities of the surviving entity or the parent of such corporation) more than 50% of the total voting power represented by the voting securities of the Company or such surviving entity or parent of such corporation, as the case may be, outstanding immediately after such merger or consolidation; or (B) the sale or disposition by the Company of all or substantially all of the Company's assets in a transaction requiring stockholder approval; or

Change in Board Composition. A change in the composition of the Board of Directors, as a result of which fewer than a majority of the directors are Incumbent Directors. "Incumbent Directors" shall mean directors who either (A) are directors of the Company as of May 23, 2018, or (B) are elected, or nominated for election, to the Board of Directors with the affirmative votes of at least a majority of the Incumbent Directors at the time of such election or nomination (but shall not include an individual whose election or nomination is in connection with an actual or threatened proxy contest relating to the election of directors to the Company);

provided, that if any payment or benefit payable hereunder upon or following a Change of Control would be required to comply with the limitations of Section 409A(a)(2)(A)(v) of the Code in order to avoid an additional tax under Section 409A of the Code, such payment or benefit shall be made only if such Change in Control constitutes a change in ownership or control of the Company, or a change in ownership of the Company's assets in accordance with Section 409A of the Code.

Code means the United States Internal Revenue Code of 1986, as amended including any successor statute, regulation and guidance thereto.

Committee means the committee of the Board of Directors to which the Board of Directors has delegated power to act under or pursuant to the provisions of the Plan.

Common Stock means shares of the Company's common stock, \$0.01 par value per share.

Company means Yield10 Bioscience, Inc., a Delaware corporation.

Consultant means any natural person who is an advisor or consultant who provides bona fide services to the Company or its Affiliates, provided that such services are not in connection with the offer or sale of securities in a capital raising transaction, and do not directly or indirectly promote or maintain a market for the Company's or its Affiliates' securities.

Disability or Disabled means permanent and total disability as defined in Section 22(e)(3) of the Code.

Employee means any employee of the Company or of an Affiliate (including, without limitation, an employee who is also serving as an officer or director of the Company or of an Affiliate), designated by the Administrator to be eligible to be granted one or more Stock Rights under the Plan.

Exchange Act means the United States Securities Exchange Act of 1934, as amended.

Fair Market Value of a Share of Common Stock means:

If the Common Stock is listed on a national securities exchange or traded in the over-the-counter market and sales prices are regularly reported for the Common Stock, the closing or, if not applicable, the last price of the Common Stock on the composite tape or other comparable reporting system for the trading day on the applicable date and if such applicable date is not a trading day, the last market trading day prior to such date;

If the Common Stock is not traded on a national securities exchange but is traded on the over-the-counter market, if sales prices are not regularly reported for the Common Stock for the trading day referred to in clause (1), and if bid and asked prices for the Common Stock are regularly reported, the mean between the bid and the asked price for the Common Stock at the close of trading in the over-the-counter market for the trading day on which Common Stock was traded on the applicable date and if such applicable date is not a trading day, the last market trading day prior to such date; and

If the Common Stock is neither listed on a national securities exchange nor traded in the over-the-counter market, such value as the Administrator, in good faith, shall determine in compliance with applicable laws.

ISO means a stock option intended to qualify as an incentive stock option under Section 422 of the Code.

Non-Qualified Option means a stock option which is not intended to qualify as an ISO.

Option means an ISO or Non-Qualified Option granted under the Plan.

Participant means an Employee, director or Consultant of the Company or an Affiliate to whom one or more Stock Rights are granted under the Plan. As used herein, "Participant" shall include "Participant's Survivors" where the context requires.

Performance-Based Award means a Stock Grant or Stock-Based Award which vests based on the attainment of written Performance Goals as set forth in Paragraph 9 hereof.

Performance Goals means performance goals determined by the Committee in its sole discretion and set forth in an Agreement. The satisfaction of Performance Goals shall be subject to certification by the Committee. The Committee has the authority to take appropriate action with respect to the Performance Goals (including, without limitation, making adjustments to the Performance Goals or determining the satisfaction of the Performance Goals, in each case, in connection with a Corporate Transaction) provided that any such action does not otherwise violate the terms of the Plan.

Plan means this Yield10 Bioscience, Inc. 2018 Stock Option and Incentive Plan as amended and restated.

Securities Act means the Securities Act of 1933, as amended.

Shares means shares of the Common Stock as to which Stock Rights have been or may be granted under the Plan or any shares of capital stock into which the Shares are changed or

for which they are exchanged within the provisions of Paragraph 3 of the Plan. The Shares issued under the Plan may be authorized and unissued shares or shares held by the Company in its treasury, or both.

Stock-Based Award means a grant by the Company under the Plan of an equity award or an equity based award which is not an Option or a Stock Grant.

Stock Grant means a grant by the Company of Shares under the Plan.

Stock Right means a right to Shares or the value of Shares of the Company granted pursuant to the Plan -- an ISO, a Non-Qualified Option, a Stock Grant or a Stock-Based Award.

Survivor means a deceased Participant's legal representatives and/or any person or persons who acquired the Participant's rights to a Stock Right by will or by the laws of descent and distribution.

2. PURPOSES OF THE PLAN.

The Plan is intended to encourage ownership of Shares by Employees and directors of and certain Consultants to the Company and its Affiliates in order to attract and retain such people, to induce them to work for the benefit of the Company or of an Affiliate and to provide additional incentive for them to promote the success of the Company or of an Affiliate. The Plan provides for the granting of ISOs, Non-Qualified Options, Stock Grants and Stock-Based Awards.

3. SHARES SUBJECT TO THE PLAN.

(a) Commencing on May 24, 2021, the number of Shares which may be issued from time to time pursuant to this Plan shall be the sum of: (i) 320,761 shares of Common Stock and (ii) any shares of Common Stock that are represented by awards granted under the Company's 2006 Stock Option and Incentive Plan and 2014 Stock Option and Incentive Plan that are forfeited, expire or are canceled without delivery of shares of Common Stock or which result in the forfeiture of shares of Common Stock back to the Company on or after May 24, 2021, or the equivalent of such number of Shares after the Administrator, in its sole discretion, has interpreted the effect of any stock split, stock dividend, combination, recapitalization or similar transaction in accordance with Paragraph 25 of this Plan; provided, however, that as of May 24, 2021 no more than 16,332 shares shall be added to the Plan pursuant to subsection (ii).

(b) Notwithstanding Subparagraph (a) above, the number of Shares issuable pursuant to this Plan shall be increased, on the first day of each of the Company's 2021, 2022, 2023, 2024 and 2025 fiscal years, by an amount equal to the lesser of (A) five percent (5%) of the outstanding shares of the Company's Common Stock on the last day of the immediately preceding fiscal year and (B) such smaller number of Shares as determined by the Board; provided, however, no more than 5,000,000 Shares may be issued upon the exercise of Incentive Stock Options.

(c) If an Option ceases to be "outstanding", in whole or in part (other than by exercise), or if the Company shall reacquire (at not more than its original issuance price) any

Shares issued pursuant to a Stock Grant or Stock-Based Award, or if any Stock Right expires or is forfeited, cancelled, or otherwise terminated or results in any Shares not being issued, the unissued or reacquired Shares which were subject to such Stock Right shall again be available for issuance from time to time pursuant to this Plan. Notwithstanding the foregoing, if a Stock Right is exercised, in whole or in part, by tender of Shares or if the Company or an Affiliate's tax withholding obligation is satisfied by withholding Shares, the number of Shares deemed to have been issued under the Plan for purposes of the limitation set forth in Paragraph 3(a) above shall be the number of Shares that were subject to the Stock Right or portion thereof, and not the net number of Shares actually issued. In addition, Shares repurchased by the Company with the proceeds of the option exercise price may not be reissued under the Plan. However, in the case of ISOs, the foregoing provisions shall be subject to any limitations under the Code.

4. ADMINISTRATION OF THE PLAN.

The Administrator of the Plan will be the Board of Directors, except to the extent the Board of Directors delegates its authority to the Committee, in which case the Committee shall be the Administrator. Subject to the provisions of the Plan, the Administrator is authorized to:

(a) Interpret the provisions of the Plan and all Stock Rights and to make all rules and determinations which it deems necessary or advisable for the administration of the Plan;

(b) Determine which Employees, directors and Consultants shall be granted Stock Rights;

(c) Determine the number of Shares for which a Stock Right or Stock Rights shall be granted, provided however that in no event shall Stock Rights to be granted to any non-employee director under the Plan in any calendar year exceed an aggregate grant date fair value of \$250,000 except that the foregoing limitation shall not apply to Stock Rights made pursuant to an election by a non-employee director to receive the Stock Rights in lieu of cash for all or a portion of cash fees to be received for service on the Board or any Committee thereof;

(d) Specify the terms and conditions upon which a Stock Right or Stock Rights may be granted;

(e) Make any adjustments in the Performance Goals included in the Performance-Based Awards;

(f) Amend any term or condition of any outstanding Stock Right, other than reducing the exercise price or purchase price or extending the expiration date of an Option, provided that (i) such term or condition as amended is not prohibited by the Plan; (ii) any such amendment shall not impair the rights of a Participant under any Stock Right previously granted without such Participant's consent or in the event of death of the Participant the Participant's Survivors; and (iii) any such amendment shall be made only after the Administrator determines whether such amendment would cause any adverse tax consequences to the Participant, including, but not limited to, the annual vesting limitation contained in Section 422(d) of the Code and described in Paragraph 6(b)(iv) below with respect to ISOs and pursuant to Section 409A of the Code;

(g) Make any adjustments in the Performance Goals included in any Performance-Based Awards; and

(h) Adopt any sub-plans applicable to residents of any specified jurisdiction as it deems necessary or appropriate in order to comply with or take advantage of any tax or other laws applicable to the Company, any Affiliate or to Participants or to otherwise facilitate the administration of the Plan, which sub-plans may include additional restrictions or conditions applicable to Stock Rights or Shares issuable pursuant to a Stock Right;

provided, however, that all such interpretations, rules, determinations, terms and conditions shall be made and prescribed in the context of potential tax consequences under Section 409A of the Code and preserving the tax status under Section 422 of the Code of those Options which are designated as ISOs. Subject to the foregoing, the interpretation and construction by the Administrator of any provisions of the Plan or of any Stock Right granted under it shall be final, unless otherwise determined by the Board of Directors, if the Administrator is the Committee. In addition, if the Administrator is the Committee, the Board of Directors may take any action under the Plan that would otherwise be the responsibility of the Committee.

To the extent permitted under applicable law, the Board of Directors or the Committee may allocate all or any portion of its responsibilities and powers to any one or more of its members and may delegate all or any portion of its responsibilities and powers to any other person selected by it. The Board of Directors or the Committee may revoke any such allocation or delegation at any time. Notwithstanding the foregoing, only the Board of Directors or the Committee shall be authorized to grant a Stock Right to any director of the Company or to any "officer" of the Company as defined by Rule 16a-1 under the Exchange Act.

5. ELIGIBILITY FOR PARTICIPATION.

The Administrator will, in its sole discretion, name the Participants in the Plan; provided, however, that each Participant must be an Employee, director or Consultant of the Company or of an Affiliate at the time a Stock Right is granted. Notwithstanding the foregoing, the Administrator may authorize the grant of a Stock Right to a person not then an Employee, director or Consultant of the Company or of an Affiliate; provided, however, that the actual grant of such Stock Right shall be conditioned upon such person becoming eligible to become a Participant at or prior to the time of the execution of the Agreement evidencing such Stock Right. ISOs may be granted only to Employees who are deemed to be residents of the United States for tax purposes. Non-Qualified Options, Stock Grants and Stock-Based Awards may be granted to any Employee, director or Consultant of the Company or an Affiliate. The granting of any Stock Right to any individual shall neither entitle that individual to, nor disqualify him or her from, participation in any other grant of Stock Rights or any grant under any other benefit plan established by the Company or any Affiliate for Employees, directors or Consultants.

6. TERMS AND CONDITIONS OF OPTIONS.

Each Option shall be set forth in an Option Agreement, duly executed by the Company and, to the extent required by law or requested by the Company, by the Participant. The Administrator may provide that Options be granted subject to such terms and conditions, consistent with the terms and conditions specifically required under this Plan, as the Administrator may deem appropriate including, without limitation, subsequent approval by the shareholders of the Company of this Plan or any amendments thereto. The Option Agreements shall be subject to at least the following terms and conditions:

(a) Non-Qualified Options: Each Option intended to be a Non-Qualified Option shall be subject to the terms and conditions which the Administrator determines to be appropriate and in the best interest of the Company, subject to the following minimum standards for any such Non-Qualified Option:

- (i) Exercise Price: Each Option Agreement shall state the exercise price (per share) of the Shares covered by each Option, which exercise price shall be determined by the Administrator and shall be at least equal to the Fair Market Value per share of the Common Stock on the date of grant of the Option.
- (ii) Number of Shares: Each Option Agreement shall state the number of Shares to which it pertains.
- (iii) Vesting: Each Option Agreement shall state the date or dates on which it first is exercisable and the date after which it may no longer be exercised, and may provide that the Option rights accrue or become exercisable in installments over a period of months or years, or upon the occurrence of certain performance conditions or the attainment of stated goals or events.
- (iv) Additional Conditions: Exercise of any Option may be conditioned upon the Participant's execution of a shareholder's agreement in a form satisfactory to the Administrator providing for certain protections for the Company and its other shareholders, including requirements that:
 - A. The Participant's or the Participant's Survivors' right to sell or transfer the Shares may be restricted; and
 - B. The Participant or the Participant's Survivors may be required to execute letters of investment intent and must also acknowledge that the Shares will bear legends noting any applicable restrictions.
- (v) Term of Option: Each Option shall terminate not more than ten years from the date of the grant or at such earlier time as the Option Agreement may provide.

(b) ISOs: Each Option intended to be an ISO shall be issued only to an Employee who is deemed to be a resident of the United States for tax purposes, and shall be subject to the following terms and conditions, with such additional restrictions or changes as the Administrator determines are appropriate but not in conflict with Section 422 of the Code and relevant regulations and rulings of the Internal Revenue Service:

- (i) Minimum standards: The ISO shall meet the minimum standards required of Non-Qualified Options, as described in Paragraph 6(a) above, except clause (i) and (v) thereunder.
- (ii) Exercise Price: Immediately before the ISO is granted, if the Participant owns, directly or by reason of the applicable attribution rules in Section 424(d) of the Code:

- A. 10% or less of the total combined voting power of all classes of stock of the Company or an Affiliate, the exercise price per share of the Shares covered by each ISO shall not be less than 100% of the Fair Market Value per share of the Common Stock on the date of grant of the Option; or
 - B. More than 10% of the total combined voting power of all classes of stock of the Company or an Affiliate, the exercise price per share of the Shares covered by each ISO shall not be less than 110% of the Fair Market Value per share of the Common Stock on the date of grant of the Option.
- (iii) Term of Option: For Participants who own:
- A. 10% or less of the total combined voting power of all classes of stock of the Company or an Affiliate, each ISO shall terminate not more than ten years from the date of the grant or at such earlier time as the Option Agreement may provide; or
 - B. More than 10% of the total combined voting power of all classes of stock of the Company or an Affiliate, each ISO shall terminate not more than five years from the date of the grant or at such earlier time as the Option Agreement may provide.
- (iv) Limitation on Yearly Exercise: The Option Agreements shall restrict the amount of ISOs which may become exercisable in any calendar year (under this or any other ISO plan of the Company or an Affiliate) so that the aggregate Fair Market Value (determined on the date each ISO is granted) of the stock with respect to which ISOs are exercisable for the first time by the Participant in any calendar year does not exceed \$100,000.

7. TERMS AND CONDITIONS OF STOCK GRANTS.

Each Stock Grant to a Participant shall state the principal terms in an Agreement duly executed by the Company and, to the extent required by law or requested by the Company, by the Participant. The Agreement shall be in a form approved by the Administrator and shall contain terms and conditions which the Administrator determines to be appropriate and in the best interest of the Company, subject to the following minimum standards:

(a) Each Agreement shall state the purchase price per share, if any, of the Shares covered by each Stock Grant, which purchase price shall be determined by the Administrator but shall not be less than the minimum consideration required by the Delaware General Corporation Law, if any, on the date of the grant of the Stock Grant;

(b) Each Agreement shall state the number of Shares to which the Stock Grant pertains;

(c) Each Agreement shall include the terms of any right of the Company to restrict or reacquire the Shares subject to the Stock Grant, including the time period or attainment of Performance Goals or such other performance criteria upon which such rights shall accrue and the purchase price therefor, if any; and

(d) Dividends (other than stock dividends to be issued pursuant to Section 25 of the Plan) may accrue but shall not be paid prior to the time, and only to the extent that, the restrictions or rights to reacquire the Shares subject to the Stock Grant lapse.

8. TERMS AND CONDITIONS OF OTHER STOCK-BASED AWARDS.

The Administrator shall have the right to grant other Stock-Based Awards based upon the Common Stock having such terms and conditions as the Administrator may determine, including, without limitation, the grant of Shares based upon certain conditions, the grant of securities convertible into Shares and the grant of stock appreciation rights, phantom stock awards or stock units. The principal terms of each Stock-Based Award shall be set forth in an Agreement, duly executed by the Company and, to the extent required by law or requested by the Company, by the Participant. The Agreement shall be in a form approved by the Administrator and shall contain terms and conditions which the Administrator determines to be appropriate and in the best interest of the Company. Each Agreement shall include the terms of any right of the Company including the right to terminate the Stock-Based Award without the issuance of Shares, the terms of any vesting conditions, Performance Goals or events upon which Shares shall be issued provided that dividends (other than stock dividends to be issued pursuant to Section 25 of the Plan) or dividend equivalents may accrue but shall not be paid prior to and only to the extent that, the Shares subject to the Stock-Based Award vest. Under no circumstances may the Agreement covering stock appreciation rights (a) have a base price (per share) that is less than the Fair Market Value per share of Common Stock on the date of grant or (b) expire more than ten years following the date of grant.

The Company intends that the Plan and any Stock-Based Awards granted hereunder be exempt from the application of Section 409A of the Code or meet the requirements of paragraphs (2), (3) and (4) of subsection (a) of Section 409A of the Code, to the extent applicable, and be operated in accordance with Section 409A so that any compensation deferred under any Stock-Based Award (and applicable investment earnings) shall not be included in income under Section 409A of the Code. Any ambiguities in the Plan shall be construed to effect the intent as described in this Paragraph 8.

9. PERFORMANCE-BASED AWARDS.

The Committee shall determine whether, with respect to a performance period, the applicable Performance Goals have been met with respect to a given Participant and, if they have, to so certify and ascertain the amount of the applicable Performance-Based Award. No Performance-Based Awards will be issued for such performance period until such certification is made by the Committee. The number of Shares issued in respect of a Performance-Based Award determined by the Committee for a performance period shall be paid to the Participant at such time as determined by the Committee in its sole discretion after the end of such performance period and any dividends (other than stock dividends to be issued pursuant to Section 25 of the Plan) or dividend equivalents that accrue shall only be paid in respect of the number of Shares earned in respect of a Performance-Based Award.

10. EXERCISE OF OPTIONS AND ISSUE OF SHARES.

An Option (or any part or installment thereof) shall be exercised by giving written notice to the Company or its designee (in a form acceptable to the Administrator, which may include electronic notice), together with provision for payment of the aggregate exercise price in accordance with this Paragraph for the Shares as to which the Option is being exercised, and upon compliance with any other condition(s) set forth in the Option Agreement. Such notice shall be signed by the person exercising the Option (which signature may be provided electronically in a form acceptable to the Administrator), shall state the number of Shares with respect to which the Option is being exercised and shall contain any representation required by the Plan or the Option Agreement. Payment of the exercise price for the Shares as to which such Option is being exercised shall be made (a) in United States dollars in cash or by check; or (b) at the discretion of the Administrator, through delivery of shares of Common Stock held for at least six months (if required to avoid negative accounting treatment) having a Fair Market Value equal as of the date of the exercise to the aggregate cash exercise price for the number of Shares as to which the Option is being exercised; or (c) at the discretion of the Administrator, by having the Company retain from the Shares otherwise issuable upon exercise of the Option, a number of Shares having a Fair Market Value equal as of the date of exercise to the aggregate exercise price for the number of Shares as to which the Option is being exercised; or (d) at the discretion of the Administrator, in accordance with a cashless exercise program established with a securities brokerage firm, and approved by the Administrator; or (e) at the discretion of the Administrator, by any combination of (a), (b), (c) and (d) above or (f) at the discretion of the Administrator, by payment of such other lawful consideration as the Administrator may determine. Notwithstanding the foregoing, the Administrator shall accept only such payment on exercise of an ISO as is permitted by Section 422 of the Code.

The Company shall then reasonably promptly deliver the Shares as to which such Option was exercised to the Participant (or to the Participant's Survivors, as the case may be). In determining what constitutes "reasonably promptly," it is expressly understood that the issuance and delivery of the Shares may be delayed by the Company in order to comply with any law or regulation (including, without limitation, state securities or "blue sky" laws) which requires the Company to take any action with respect to the Shares prior to their issuance. The Shares shall, upon delivery, be fully paid, non-assessable Shares.

11. PAYMENT IN CONNECTION WITH THE ISSUANCE OF STOCK GRANTS AND STOCK-BASED AWARDS AND ISSUE OF SHARES.

Any Stock Grant or Stock-Based Award requiring payment of a purchase price for the Shares as to which such Stock Grant or Stock-Based Award is being granted shall be made (a) in United States dollars in cash or by check; or (b) at the discretion of the Administrator, through delivery of shares of Common Stock held for at least six months (if required to avoid negative accounting treatment) and having a Fair Market Value equal as of the date of payment to the purchase price of the Stock Grant or Stock-Based Award; or (c) at the discretion of the Administrator, by any combination of (a) and (b) above; or (d) at the discretion of the Administrator, by payment of such other lawful consideration as the Administrator may determine.

The Company shall when required by the applicable Agreement, reasonably promptly deliver the Shares as to which such Stock Grant or Stock-Based Award was made to the Participant (or to the Participant's Survivors, as the case may be), subject to any escrow provision set forth in the applicable Agreement. In determining what constitutes "reasonably promptly," it is expressly understood that the issuance and delivery of the Shares may be delayed by the Company in order to comply with any law or regulation (including, without limitation, state securities or "blue sky" laws) which requires the Company to take any action with respect to the Shares prior to their issuance.

12. RIGHTS AS A SHAREHOLDER.

No Participant to whom a Stock Right has been granted shall have rights as a shareholder with respect to any Shares covered by such Stock Right except after due exercise of an Option or issuance of Shares as set forth in any Agreement, tender of the aggregate exercise or purchase price, if any, for the Shares being purchased and registration of the Shares in the Company's share register in the name of the Participant.

13. ASSIGNABILITY AND TRANSFERABILITY OF STOCK RIGHTS.

By its terms, a Stock Right granted to a Participant shall not be transferable by the Participant other than (i) by will or by the laws of descent and distribution, or (ii) as approved by the Administrator in its discretion and set forth in the applicable Agreement provided that no Stock Right may be transferred by a Participant for value. Notwithstanding the foregoing, an ISO transferred except in compliance with clause (i) above shall no longer qualify as an ISO. The designation of a beneficiary of a Stock Right by a Participant, with the prior approval of the Administrator and in such form as the Administrator shall prescribe, shall not be deemed a transfer prohibited by this Paragraph. Except as provided above during the Participant's lifetime a Stock Right shall only be exercisable by or issued to such Participant (or his or her legal representative) and shall not be assigned, pledged or hypothecated in any way (whether by operation of law or otherwise) and shall not be subject to execution, attachment or similar process. Any attempted transfer, assignment, pledge, hypothecation or other disposition of any Stock Right or of any rights granted thereunder contrary to the provisions of this Plan, or the levy of any attachment or similar process upon a Stock Right, shall be null and void.

14. EFFECT ON OPTIONS OF TERMINATION OF SERVICE OTHER THAN FOR CAUSE OR DEATH OR DISABILITY.

Except as otherwise provided in a Participant's Option Agreement, in the event of a termination of service (whether as an Employee, director or Consultant) with the Company or an Affiliate before the Participant has exercised an Option, the following rules apply:

(a) A Participant who ceases to be an Employee, director or Consultant of the Company or of an Affiliate (for any reason other than termination for Cause, Disability, or death for which events there are special rules in Paragraphs 15, 16, and 17, respectively), may exercise any Option granted to him or her to the extent that the Option is exercisable on the date of such termination of service, but only within such term as the Administrator has designated in a Participant's Option Agreement.

(b) Except as provided in Subparagraph (c) below, or Paragraph 16 or 17, in no event may an Option intended to be an ISO, be exercised later than three months after the Participant's termination of employment.

(c) The provisions of this Paragraph, and not the provisions of Paragraph 16 or 17, shall apply to a Participant who subsequently becomes Disabled or dies after the termination of employment, director status or consultancy; provided, however, in the case of a Participant's Disability or death within three months after the termination of employment, director status or consultancy, the Participant or the Participant's Survivors may exercise the Option within one year after the date of the Participant's termination of service, but in no event after the date of expiration of the term of the Option.

(d) Notwithstanding anything herein to the contrary, if subsequent to a Participant's termination of employment, termination of director status or termination of consultancy, but prior to the exercise of an Option, the Administrator determines that, either prior or subsequent to the Participant's termination, the Participant engaged in conduct which would constitute Cause, then such Participant shall forthwith cease to have any right to exercise any Option.

(e) A Participant to whom an Option has been granted under the Plan who is absent from the Company or an Affiliate because of temporary disability (any disability other than a Disability as defined in Paragraph 1 hereof), or who is on leave of absence for any purpose, shall not, during the period of any such absence, be deemed, by virtue of such absence alone, to have terminated such Participant's employment, director status or consultancy with the Company or with an Affiliate, except as the Administrator may otherwise expressly provide; provided, however, that, for ISOs, any leave of absence granted by the Administrator of greater than three months, unless pursuant to a contract or statute that guarantees the right to reemployment, shall cause such ISO to become a Non-Qualified Option on the date that is six months following the commencement of such leave of absence.

(f) Except as required by law or as set forth in a Participant's Option Agreement, Options granted under the Plan shall not be affected by any change of a Participant's status within or among the Company and any Affiliates, so long as the Participant continues to be an Employee, director or Consultant of the Company or any Affiliate.

15. EFFECT ON OPTIONS OF TERMINATION OF SERVICE FOR CAUSE.

Except as otherwise provided in a Participant's Option Agreement, the following rules apply if the Participant's service (whether as an Employee, director or Consultant) with the Company or an Affiliate is terminated for Cause prior to the time that all his or her outstanding Options have been exercised:

(a) All outstanding and unexercised Options as of the time the Participant is notified his or her service is terminated for Cause will immediately be forfeited.

(b) Cause is not limited to events which have occurred prior to a Participant's termination of service, nor is it necessary that the Administrator's finding of Cause occur prior to termination. If the Administrator determines, subsequent to a Participant's termination of service but prior to the exercise of an Option, that either prior or subsequent to the Participant's

termination the Participant engaged in conduct which would constitute Cause, then the right to exercise any Option is forfeited.

16. EFFECT ON OPTIONS OF TERMINATION OF SERVICE FOR DISABILITY.

Except as otherwise provided in a Participant's Option Agreement:

(a) A Participant who ceases to be an Employee, director or Consultant of the Company or of an Affiliate by reason of Disability may exercise any Option granted to such Participant to the extent that the Option has become exercisable but has not been exercised on the date of the Participant's termination of service due to Disability; and in the event rights to exercise the Option accrue periodically, to the extent of a pro rata portion through the date of the Participant's termination of service due to Disability of any additional vesting rights that would have accrued on the next vesting date had the Participant not become Disabled. The proration shall be based upon the number of days accrued in the current vesting period prior to the date of the Participant's termination of service due to Disability.

(b) A Disabled Participant may exercise the Option only within the period ending one year after the date of the Participant's termination of service due to Disability, notwithstanding that the Participant might have been able to exercise the Option as to some or all of the Shares on a later date if the Participant had not been terminated due to Disability and had continued to be an Employee, director or Consultant or, if earlier, within the originally prescribed term of the Option.

(c) The Administrator shall make the determination both of whether Disability has occurred and the date of its occurrence (unless a procedure for such determination is set forth in another agreement between the Company and such Participant, in which case such procedure shall be used for such determination). If requested, the Participant shall be examined by a physician selected or approved by the Administrator, the cost of which examination shall be paid for by the Company.

17. EFFECT ON OPTIONS OF DEATH WHILE AN EMPLOYEE, DIRECTOR OR CONSULTANT.

Except as otherwise provided in a Participant's Option Agreement:

(a) In the event of the death of a Participant while the Participant is an Employee, director or Consultant of the Company or of an Affiliate, such Option may be exercised by the Participant's Survivors to the extent that the Option has become exercisable but has not been exercised on the date of death; and in the event rights to exercise the Option accrue periodically, to the extent of a pro rata portion through the date of death of any additional vesting rights that would have accrued on the next vesting date had the Participant not died. The proration shall be based upon the number of days accrued in the current vesting period prior to the Participant's date of death.

(b) If the Participant's Survivors wish to exercise the Option, they must take all necessary steps to exercise the Option within one year after the date of death of such Participant, notwithstanding that the decedent might have been able to exercise the Option as to some or all

of the Shares on a later date if he or she had not died and had continued to be an Employee, director or Consultant or, if earlier, within the originally prescribed term of the Option.

18. EFFECT OF TERMINATION OF SERVICE ON UNACCEPTED STOCK GRANTS AND STOCK-BASED AWARDS.

In the event of a termination of service (whether as an Employee, director or Consultant) with the Company or an Affiliate for any reason before the Participant has accepted a Stock Grant or a Stock-Based Award and paid the purchase price, if required, such grant shall terminate.

For purposes of this Paragraph 18 and Paragraph 19 below, a Participant to whom a Stock Grant or a Stock-Based Award has been issued under the Plan who is absent from work with the Company or with an Affiliate because of temporary disability (any disability other than a Disability as defined in Paragraph 1 hereof), or who is on leave of absence for any purpose, shall not, during the period of any such absence, be deemed, by virtue of such absence alone, to have terminated such Participant's employment, director status or consultancy with the Company or with an Affiliate, except as the Administrator may otherwise expressly provide.

In addition, for purposes of this Paragraph 18 and Paragraph 19 below, any change of employment or other service within or among the Company and any Affiliates shall not be treated as a termination of employment, director status or consultancy so long as the Participant continues to be an Employee, director or Consultant of the Company or any Affiliate.

19. EFFECT ON STOCK GRANTS AND STOCK-BASED AWARDS OF TERMINATION OF SERVICE OTHER THAN FOR CAUSE, DEATH OR DISABILITY.

Except as otherwise provided in a Participant's Agreement, in the event of a termination of service for any reason (whether as an Employee, director or Consultant), other than termination for Cause, death or Disability for which there are special rules in Paragraphs 20, 21, and 22 below, before all forfeiture provisions or Company rights of repurchase shall have lapsed, then the Company shall have the right to cancel or repurchase that number of Shares subject to a Stock Grant or Stock-Based Award as to which the Company's forfeiture or repurchase rights have not lapsed.

20. EFFECT ON STOCK GRANTS AND STOCK-BASED AWARDS OF TERMINATION OF SERVICE FOR CAUSE.

Except as otherwise provided in a Participant's Agreement, the following rules apply if the Participant's service (whether as an Employee, director or Consultant) with the Company or an Affiliate is terminated for Cause:

(a) All Shares subject to any Stock Grant or Stock-Based Award that remain subject to forfeiture provisions or as to which the Company shall have a repurchase right shall be immediately forfeited to the Company as of the time the Participant is notified his or her service is terminated for Cause.

(b) Cause is not limited to events which have occurred prior to a Participant's termination of service, nor is it necessary that the Administrator's finding of Cause occur prior to termination. If the Administrator determines, subsequent to a Participant's termination of service, that either prior or subsequent to the Participant's termination the Participant engaged in conduct which would constitute Cause, then all Shares subject to any Stock Grant or Stock-Based Award that remained subject to forfeiture provisions or as to which the Company had a repurchase right on the date of termination shall be immediately forfeited to the Company.

21. EFFECT ON STOCK GRANTS AND STOCK-BASED AWARDS OF TERMINATION OF SERVICE FOR DISABILITY.

Except as otherwise provided in a Participant's Agreement, the following rules apply if a Participant ceases to be an Employee, director or Consultant of the Company or of an Affiliate by reason of Disability: to the extent the forfeiture provisions or the Company's rights of repurchase have not lapsed on the date of Disability, they shall be exercisable; provided, however, that in the event such forfeiture provisions or rights of repurchase lapse periodically, such provisions or rights shall lapse to the extent of a pro rata portion of the Shares subject to such Stock Grant or Stock-Based Award through the date of Disability as would have lapsed had the Participant not become Disabled. The proration shall be based upon the number of days accrued prior to the date of Disability.

The Administrator shall make the determination both as to whether Disability has occurred and the date of its occurrence (unless a procedure for such determination is set forth in another agreement between the Company and such Participant, in which case such procedure shall be used for such determination). If requested, the Participant shall be examined by a physician selected or approved by the Administrator, the cost of which examination shall be paid for by the Company.

22. EFFECT ON STOCK GRANTS AND STOCK-BASED AWARDS OF DEATH WHILE AN EMPLOYEE, DIRECTOR OR CONSULTANT.

Except as otherwise provided in a Participant's Agreement, the following rules apply in the event of the death of a Participant while the Participant is an Employee, director or Consultant of the Company or of an Affiliate: to the extent the forfeiture provisions or the Company's rights of repurchase have not lapsed on the date of death, they shall be exercisable; provided, however, that in the event such forfeiture provisions or rights of repurchase lapse periodically, such provisions or rights shall lapse to the extent of a pro rata portion of the Shares subject to such Stock Grant or Stock-Based Award through the date of death as would have lapsed had the Participant not died. The proration shall be based upon the number of days accrued prior to the Participant's date of death.

23. PURCHASE FOR INVESTMENT.

Unless the offering and sale of the Shares shall have been effectively registered under the Securities Act, the Company shall be under no obligation to issue Shares under the Plan unless and until the following conditions have been fulfilled:

(a) The person who receives a Stock Right shall warrant to the Company, prior to the receipt of Shares, that such person is acquiring such Shares for his or her own account, for

investment, and not with a view to, or for sale in connection with, the distribution of any such Shares, in which event the person acquiring such Shares shall be bound by the provisions of the following legend (or a legend in substantially similar form) which shall be endorsed upon the certificate evidencing the Shares issued pursuant to such exercise or such grant of a Stock Right:

“The shares represented by this certificate have been taken for investment and they may not be sold or otherwise transferred by any person, including a pledgee, unless (1) either (a) a Registration Statement with respect to such shares shall be effective under the Securities Act of 1933, as amended, or (b) the Company shall have received an opinion of counsel satisfactory to it that an exemption from registration under such Act is then available, and (2) there shall have been compliance with all applicable state securities laws.”

(b) At the discretion of the Administrator, the Company shall have received an opinion of its counsel that the Shares may be issued in compliance with the Securities Act without registration thereunder.

24. DISSOLUTION OR LIQUIDATION OF THE COMPANY.

Upon the dissolution or liquidation of the Company, all Options granted under this Plan which as of such date shall not have been exercised and all Stock Grants and Stock-Based Awards which have not been accepted, to the extent required under the applicable Agreement, will terminate and become null and void; provided, however, that if the rights of a Participant or a Participant's Survivors have not otherwise terminated and expired, the Participant or the Participant's Survivors will have the right immediately prior to such dissolution or liquidation to exercise or accept any Stock Right to the extent that the Stock Right is exercisable or subject to acceptance as of the date immediately prior to such dissolution or liquidation. Upon the dissolution or liquidation of the Company, any outstanding Stock-Based Awards shall immediately terminate unless otherwise determined by the Administrator or specifically provided in the applicable Agreement.

25. ADJUSTMENTS.

Upon the occurrence of any of the following events, a Participant's rights with respect to any Stock Right granted to him or her hereunder shall be adjusted as hereinafter provided, unless otherwise specifically provided in a Participant's Agreement.

(a) Stock Dividends and Stock Splits. If (i) the shares of Common Stock shall be subdivided or combined into a greater or smaller number of shares or if the Company shall issue any shares of Common Stock as a stock dividend on its outstanding Common Stock, or (ii) additional shares or new or different shares or other securities of the Company or other non-cash assets are distributed with respect to such shares of Common Stock, each Stock Right and the number of shares of Common Stock deliverable thereunder shall be appropriately increased or decreased proportionately, and appropriate adjustments shall be made including, in the exercise, base or purchase price per share, and the Performance Goals applicable to outstanding Performance-Based Awards to reflect such events. The number of Shares subject to the limitations in Paragraph 3(a), 3(b) and 4(c) shall also be proportionately adjusted upon the occurrence of such events.

(b) Corporate Transactions. If the Company is to be consolidated with or acquired by another entity in a merger, consolidation, or sale of all or substantially all of the Company's assets or the acquisition of all of the outstanding voting stock of the Company in a single transaction or a series of related transactions by a single entity other than a transaction to merely change the state of incorporation (a "Corporate Transaction"), the Administrator or the board of directors of any entity assuming the obligations of the Company hereunder (the "Successor Board"), shall, as to outstanding Options, either (i) make appropriate provision for the continuation of such Options by substituting on an equitable basis for the Shares then subject to such Options either the consideration payable with respect to the outstanding shares of Common Stock in connection with the Corporate Transaction or securities of any successor or acquiring entity; or (ii) upon written notice to the Participants, provide that such Options must be exercised (either (A) to the extent then exercisable or, (B) at the discretion of the Administrator, any such Options being made partially or fully exercisable for purposes of this Subparagraph), within a specified number of days of the date of such notice, at the end of which period such Options which have not been exercised shall terminate; or (iii) terminate such Options in exchange for payment of an amount equal to the consideration payable upon consummation of such Corporate Transaction to a holder of the number of shares of Common Stock into which such Option would have been exercisable (either (A) to the extent then exercisable or, (B) at the discretion of the Administrator, any such Options being made partially or fully exercisable for purposes of this Subparagraph) less the aggregate exercise price thereof. For purposes of determining the payments to be made pursuant to Subclause (iii) above, in the case of a Corporate Transaction the consideration for which, in whole or in part, is other than cash, the consideration other than cash shall be valued at the fair value thereof as determined in good faith by the Board of Directors.

Notwithstanding the foregoing, in the event the Corporate Transaction also constitutes a Change of Control, and the Change of Control does not provide for the continuation of such Options as set forth in clause (i) above, then on the date of the Corporate Transaction all Options outstanding shall become fully exercisable as of the effective time of the Corporate Transaction, all other Stock Rights with time-based vesting, conditions or restrictions shall become fully vested and nonforfeitable as of the effective time of the Corporate Transaction, and all Performance-Based Awards may become vested and nonforfeitable in connection with the Corporate Transaction in the Administrator's discretion or to the extent specified in the relevant Agreement.

With respect to outstanding Stock Grants, the Administrator or the Successor Board, shall make appropriate provision for the continuation of such Stock Grants on the same terms and conditions by substituting on an equitable basis for the Shares then subject to such Stock Grants either the consideration payable with respect to the outstanding Shares of Common Stock in connection with the Corporate Transaction or securities of any successor or acquiring entity. In lieu of the foregoing, in connection with any Corporate Transaction, the Administrator may provide that, upon consummation of the Corporate Transaction, each outstanding Stock Grant shall be terminated in exchange for payment of an amount equal to the consideration payable upon consummation of such Corporate Transaction to a holder of the number of shares of Common Stock comprising such Stock Grant (to the extent such Stock Grant is no longer subject to any forfeiture or repurchase rights then in effect or, at the discretion of the Administrator, all forfeiture and repurchase rights being waived upon such Corporate Transaction).

In taking any of the actions permitted under this Paragraph 25(b), the Administrator shall not be obligated by the Plan to treat all Stock Rights, all Stock Rights held by a Participant, or all Stock Rights of the same type, identically.

(c) Recapitalization or Reorganization. In the event of a recapitalization or reorganization of the Company other than a Corporate Transaction pursuant to which securities of the Company or of another corporation are issued with respect to the outstanding shares of Common Stock, a Participant upon exercising an Option or accepting a Stock Grant after the recapitalization or reorganization shall be entitled to receive for the price paid upon such exercise or acceptance if any, the number of replacement securities which would have been received if such Option had been exercised or Stock Grant accepted prior to such recapitalization or reorganization.

(d) Adjustments to Stock-Based Awards. Upon the happening of any of the events described in Subparagraphs (a), (b) or (c) above, any outstanding Stock-Based Award shall be appropriately adjusted to reflect the events described in such Subparagraphs. The Administrator or the Successor Board shall determine the specific adjustments to be made under this Paragraph 25, including, but not limited to the effect of any, Corporate Transaction and Change of Control and, subject to Paragraph 4, its determination shall be conclusive.

(e) Modification of Options. Notwithstanding the foregoing, any adjustments made pursuant to Subparagraph (a), (b) or (c) above with respect to Options shall be made only after the Administrator determines whether such adjustments would (i) constitute a “modification” of any ISOs (as that term is defined in Section 424(h) of the Code) or (ii) cause any adverse tax consequences for the holders of Options, including, but not limited to, pursuant to Section 409A of the Code. If the Administrator determines that such adjustments made with respect to Options would constitute a modification or other adverse tax consequence, it may in its discretion refrain from making such adjustments, unless the holder of an Option specifically agrees in writing that such adjustment be made and such writing indicates that the holder has full knowledge of the consequences of such “modification” on his or her income tax treatment with respect to the Option. This paragraph shall not apply to the acceleration of the vesting of any ISO that would cause any portion of the ISO to violate the annual vesting limitation contained in Section 422(d) of the Code, as described in Paragraph 6(b)(iv).

26. ISSUANCES OF SECURITIES.

Except as expressly provided herein, no issuance by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, shall affect, and no adjustment by reason thereof shall be made with respect to, the number or price of shares subject to Stock Rights. Except as expressly provided herein, no adjustments shall be made for dividends paid in cash or in property (including without limitation, securities) of the Company prior to any issuance of Shares pursuant to a Stock Right.

27. FRACTIONAL SHARES.

No fractional shares shall be issued under the Plan and the person exercising a Stock Right shall receive from the Company cash in lieu of such fractional shares equal to the Fair Market Value thereof.

28. WITHHOLDING.

In the event that any federal, state, or local income taxes, employment taxes, Federal Insurance Contributions Act withholdings or other amounts are required by applicable law or governmental regulation to be withheld from the Participant's salary, wages or other remuneration in connection with the issuance of a Stock Right or Shares under the Plan or for any other reason required by law, the Company may withhold from the Participant's compensation, if any, or may require that the Participant advance in cash to the Company, or to any Affiliate of the Company which employs or employed the Participant, the statutory minimum amount of such withholdings unless a different withholding arrangement, including the use of shares of the Company's Common Stock or a promissory note, is authorized by the Administrator (and permitted by law). For purposes hereof, the fair market value of the shares withheld for purposes of payroll withholding shall be determined in the manner set forth under the definition of Fair Market Value provided in Paragraph 1 above, as of the most recent practicable date prior to the date of exercise. If the Fair Market Value of the shares withheld is less than the amount of payroll withholdings required, the Participant may be required to advance the difference in cash to the Company or the Affiliate employer.

29. NOTICE TO COMPANY OF DISQUALIFYING DISPOSITION.

Each Employee who receives an ISO must agree to notify the Company in writing immediately after the Employee makes a Disqualifying Disposition of any Shares acquired pursuant to the exercise of an ISO. A Disqualifying Disposition is defined in Section 424(c) of the Code and includes any disposition (including any sale or gift) of such Shares before the later of (a) two years after the date the Employee was granted the ISO, or (b) one year after the date the Employee acquired Shares by exercising the ISO, except as otherwise provided in Section 424(c) of the Code. If the Employee has died before such Shares are sold, these holding period requirements do not apply and no Disqualifying Disposition can occur thereafter.

30. TERMINATION OF THE PLAN.

The Plan will terminate on April 4, 2028, the date which is ten years from the earlier of the date of its adoption by the Board of Directors and the date of its approval by the shareholders of the Company. The Plan may be terminated at an earlier date by vote of the shareholders or the Board of Directors of the Company; provided, however, that any such earlier termination shall not affect any Agreements executed prior to the effective date of such termination. Termination of the Plan shall not affect any Stock Rights theretofore granted.

31. AMENDMENT OF THE PLAN AND AGREEMENTS.

The Plan may be amended by the shareholders of the Company. The Plan may also be amended by the Administrator; provided that any amendment approved by the Administrator which the Administrator determines is of a scope that requires shareholder approval shall be subject to obtaining such shareholder approval including, without limitation, to the extent necessary to qualify any or all outstanding Stock Rights granted under the Plan or Stock Rights to be granted under the Plan for favorable federal income tax treatment as may be afforded ISOs under Section 422 of the Code and to the extent necessary to qualify the Shares issuable under the Plan for listing on any national securities exchange or quotation in any national automated quotation system of securities dealers. Other than as set forth in Paragraph 25 of the Plan, the

Administrator may not without shareholder approval reduce the exercise price of an Option or cancel any outstanding Option in exchange for a replacement option having a lower exercise price, any Stock Grant, any other Stock-Based Award or for cash. In addition, the Administrator not take any other action that is considered a direct or indirect “repricing” for purposes of the shareholder approval rules of the applicable securities exchange or inter-dealer quotation system on which the Shares are listed, including any other action that is treated as a repricing under generally accepted accounting principles. Any modification or amendment of the Plan shall not, without the consent of a Participant, adversely affect his or her rights under a Stock Right previously granted to him or her, unless such amendment is required by applicable law or necessary to preserve the economic value of such Stock Right. With the consent of the Participant affected, the Administrator may amend outstanding Agreements in a manner which may be adverse to the Participant but which is not inconsistent with the Plan. In the discretion of the Administrator, outstanding Agreements may be amended by the Administrator in a manner which is not adverse to the Participant. Nothing in this Paragraph 31 shall limit the Administrator’s authority to take any action permitted pursuant to Paragraph 25.

32. EMPLOYMENT OR OTHER RELATIONSHIP.

Nothing in this Plan or any Agreement shall be deemed to prevent the Company or an Affiliate from terminating the employment, consultancy or director status of a Participant, nor to prevent a Participant from terminating his or her own employment, consultancy or director status or to give any Participant a right to be retained in employment or other service by the Company or any Affiliate for any period of time.

33. SECTION 409A.

If a Participant is a “specified employee” as defined in Section 409A of the Code (and as applied according to procedures of the Company and its Affiliates) as of his separation from service, to the extent any payment under this Plan or pursuant to the grant of a Stock-Based Award constitutes deferred compensation (after taking into account any applicable exemptions from Section 409A of the Code), and to the extent required by Section 409A of the Code, no payments due under this Plan or pursuant to a Stock-Based Award may be made until the earlier of: (i) the first day of the seventh month following the Participant’s separation from service, or (ii) the Participant’s date of death; provided, however, that any payments delayed during this six-month period shall be paid in the aggregate in a lump sum, without interest, on the first day of the seventh month following the Participant’s separation from service.

The Administrator shall administer the Plan with a view toward ensuring that Stock Rights under the Plan that are subject to Section 409A of the Code comply with the requirements thereof and that Options under the Plan be exempt from the requirements of Section 409A of the Code, but neither the Administrator nor any member of the Board, nor the Company nor any of its Affiliates, nor any other person acting hereunder on behalf of the Company, the Administrator or the Board shall be liable to a Participant or any Survivor by reason of the acceleration of any income, or the imposition of any additional tax or penalty, with respect to a Stock Right, whether by reason of a failure to satisfy the requirements of Section 409A of the Code or otherwise.

34. INDEMNITY.

Neither the Board nor the Administrator, nor any members of either, nor any employees of the Company or any parent, subsidiary, or other Affiliate, shall be liable for any act, omission, interpretation, construction or determination made in good faith in connection with their responsibilities with respect to this Plan, and the Company hereby agrees to indemnify the members of the Board, the members of the Committee, and the employees of the Company and its parent or subsidiaries in respect of any claim, loss, damage, or expense (including reasonable counsel fees) arising from any such act, omission, interpretation, construction or determination to the full extent permitted by law.

35. CLAWBACK.

Notwithstanding anything to the contrary contained in this Plan, the Company may recover from a Participant any compensation received from any Stock Right (whether or not settled) or cause a Participant to forfeit any Stock Right (whether or not vested) in the event that the Company's Clawback Policy then in effect is triggered.

36. GOVERNING LAW.

This Plan shall be construed and enforced in accordance with the law of the State of Delaware.

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: August 11, 2021

/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: August 11, 2021

/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 June 30, 2021 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: August 11, 2021

/s/ OLIVER PEOPLES

Oliver Peoples
President and Chief Executive Officer
(Principal Executive Officer)

Dated: August 11, 2021

/s/ CHARLES B. HAASER

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