UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-Q

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

For the quarterly period ended September 30, 2018

OR

o **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	**04-3158289**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
19 Presidential Way Woburn, MA	**01801**
(Address of principal executive offices)	(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.)

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 o

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 o

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 o	Accelerated filer o
Non-accelerated filer ☒	Smaller reporting company ☒
Emerging growth company o	

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. o

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

The number of shares outstanding of the registrant's common stock as of November 6, 2018 was 10,025,811.

Yield10 Bioscience, Inc.
Form 10-Q
For the Quarter Ended September 30, 2018

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PART I. FINANCIAL INFORMATION

ITEM 1. CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

YIELD10 BIOSCIENCE, INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
UNAUDITED

(in thousands, except share and per share data)

	September 30, 2018	December 31, 2017
Assets		
Current Assets:		
Cash and cash equivalents	$ 3,306	$ 14,487
Short-term investments	4,491	—
Accounts receivable	54	54
Unbilled receivables	29	65
Prepaid expenses and other current assets	384	311
Total current assets	8,264	14,917
Restricted cash	332	317
Property and equipment, net	1,435	1,539
Other assets	106	109
Total assets	$ 10,137	$ 16,882
Liabilities and Stockholders' Equity		
Current Liabilities:		
Accounts payable	$ 39	$ 76
Accrued expenses	1,770	2,299
Total current liabilities	1,809	2,375
Other liabilities, net of current portion	1,000	1,005
Total liabilities	2,809	3,380
Commitments and contingencies (Note 8)		
Stockholders' Equity:		
Series A Convertible Preferred Stock ($0.01 par value per share); 5,000,000 shares authorized at September 30, 2018 and December 31, 2017; 0 and 1,826 shares issued and outstanding at September 30, 2018 and December 31, 2017, respectively	—	818
Common stock ($0.01 par value per share); 60,000,000 shares and 40,000,000 shares authorized at September 30, 2018 and December 31, 2017, respectively; 10,011,395 and 9,089,159 shares issued and outstanding at September 30, 2018 and December 31, 2017, respectively	100	91
Additional paid-in capital	357,396	355,431
Accumulated other comprehensive loss	(105)	(85)
Accumulated deficit	(350,063)	(342,753)
Total stockholders' equity	7,328	13,502
Total liabilities and stockholders' equity	$ 10,137	$ 16,882

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

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

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	**2017**	**2018**	**2017**
Revenue:				
Grant revenue	$ 76	$ 223	$ 421	$ 840
Total revenue	76	223	421	840
Expenses:				
Research and development	1,330	1,132	3,677	3,379
General and administrative	1,407	1,073	4,132	4,215
Total expenses	2,737	2,205	7,809	7,594
Loss from operations	(2,661)	(1,982)	(7,388)	(6,754)
Other income (net):				
Interest income, net	43	2	123	5
Other expense, net	(12)	(45)	(45)	(95)
Total other income (expense), net	31	(43)	78	(90)
Net loss	$ (2,630)	$ (2,025)	$ (7,310)	$ (6,844)
Basic and diluted net loss per share	$ (0.26)	$ (0.59)	$ (0.74)	$ (2.25)
Number of shares used in per share calculations:				
Basic & Diluted	10,010,762	3,410,847	9,901,459	3,035,352

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

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

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	**2017**	**2018**	**2017**
Net loss:	$ (2,630)	$ (2,025)	$ (7,310)	$ (6,844)
Other comprehensive loss				
Change in unrealized gain (loss) on investments	(1)	—	(1)	—
Change in foreign currency translation adjustment	(5)	3	(19)	3
Total other comprehensive income (loss)	(6)	3	(20)	3
Comprehensive loss	$ (2,636)	$ (2,022)	$ (7,330)	$ (6,841)

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

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

	Nine Months Ended September 30,	
	2018	**2017**
Cash flows from operating activities		
Net loss	$ (7,310)	$ (6,844)
Adjustments to reconcile net loss to cash used in operating activities:		
Depreciation	146	158
Charge for 401(k) company common stock match	91	68
Stock-based compensation	952	1,063
Changes in operating assets and liabilities:		
Accounts receivable	29	(69)
Due from related party	—	1
Unbilled receivables	36	19
Prepaid expenses and other assets	(70)	715
Accounts payable	(37)	(8)
Accrued expenses	(563)	(828)
Other long-term liabilities	(5)	(584)
Net cash used for operating activities	(6,731)	(6,309)
Cash flows from investing activities		
Purchase of property and equipment	(42)	(6)
Purchase of short-term investments	(9,742)	—
Proceeds from the sale and maturity of short-term investments	5,250	—
Net cash used for investing activities	(4,534)	(6)
Cash flows from financing activities		
Proceeds from warrants exercised	124	—
Taxes paid related to net share settlement upon vesting of stock awards	(6)	(12)
Proceeds from registered direct offering	—	1,966
Net cash provided by financing activities	118	1,954
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(19)	3
Net decrease in cash, cash equivalents and restricted cash	(11,166)	(4,358)
Cash, cash equivalents and restricted cash at beginning of period	14,804	7,741
Cash, cash equivalents and restricted cash at end of period	$ 3,638	$ 3,383
Supplemental disclosure of non-cash information:		
Reversal of deferred financing costs related to Aspire stock purchase agreement	$ —	$ 450

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 Bioscience," "Yield10," or the "Company") is an agricultural bioscience company focusing on the development of new technologies to enable step-change increases in crop yield to enhance global food security. The Company considers 10-20 percent increases in crop yield to be step-change increases. According to a United Nations report, food production must be increased by over 70 percent in the next 35 years to feed the growing global population, which is expected to increase from 7 billion to more than 9.6 billion by 2050. During that time period, there will be a reduction in available arable land as a result of infrastructure growth and increased pressure on scarce water resources. Harvestable food production per acre and per growing season must be increased to meet this demand. At the same time, in light of the increasing focus on health and wellness, food safety and sustainability in developed countries, the Company anticipates a rise in demand for new varieties of food and food ingredients with improved nutritional properties. Further, concerns about food safety have led to the concept of “seed to plate,” or "farm to fork," with a focus on stringent quality control along the entire value chain. If this concept takes hold with consumers, it is likely to require identity preservation from seed to harvest and involve contract farming. This concept has been initially implemented in agricultural biotechnology, in products such as high oleic canola and soybean. Consumer demand for identity preserved specialty ingredients is also expected to rise, and the Company believes that Yield10's crop yield technologies and crop genome-editing platform could be useful in this emerging field.

The Company is currently progressing the development of its lead yield trait genes in canola, soybean, rice and wheat to provide step-change yield solutions for enhancing global food security. Yield10 Bioscience is headquartered in Woburn, Massachusetts and has an additional agricultural science facility with greenhouses in Saskatoon, Saskatchewan, Canada.

The accompanying condensed consolidated financial statements 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 a fair statement of the financial position and results of operations for the interim periods ended September 30, 2018 and September 30, 2017.

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 consolidated financial statements should be read in conjunction with the audited consolidated financial statements for the year ended December 31, 2017, which are contained in the Company’s Annual Report on Form 10-K filed with the SEC on March 12, 2018.

As of September 30, 2018, the Company held unrestricted cash, cash equivalents and short-term investments of $7,797. The Company follows the guidance of 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 and meet its obligations into the third quarter of 2019. 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 has evaluated the guidance of ASC Topic 205-40 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. 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 grant 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 or if the Company is unsuccessful in entering into collaborative arrangements for further research, management will 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 and equipment. Based on its cash forecast, management has determined that the Company's present capital resources are unlikely to be sufficient to fund its planned operations for the twelve months from the date that the financial statements are issued, which raises substantial doubt about the Company's ability to continue as a going concern.

If the Company issues equity or debt securities to raise additional funds, (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 of 1986 due to ownership changes resulting from equity financing transactions. If the Company raises additional funds through collaboration, licensing or other similar arrangements, it may be necessary to relinquish valuable rights to its potential products or proprietary technologies, or grant licenses on terms that are not favorable to the Company.

2. ACCOUNTING POLICIES

From time to time, new accounting pronouncements are issued by the Financial Accounting Standards Board ("FASB") or other standard setting bodies that the Company adopts as of the specified effective date. During the nine months ended September 30, 2018, the Company adopted the following new accounting guidance.

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers (Topic 606).* The ASU is the result of a joint project by the FASB and the International Accounting Standards Board ("IASB") to clarify the principles for recognizing revenue and to develop a common revenue standard for GAAP and International Financial Reporting Standards ("IFRS") that would: remove inconsistencies and weaknesses in the treatment of this area between GAAP and IFRS, provide a more robust framework for addressing revenue issues, improve comparability of revenue recognition practices across entities, jurisdictions, industries, and capital markets, improve disclosure requirements and resulting financial statements, and simplify the presentation of financial statements. The core principle of the new guidance is that an entity should recognize revenue to depict the transfer of promised goods or services in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The Company adopted the new standard effective January 1, 2018 using the modified retrospective method and determined that its grant revenue, which is its sole source of revenue, does not fall within the guidance of the new standard. The Company will review future customer revenue agreements against the guidance provided by ASU No. 2014-09 to ensure that revenue is recorded appropriately.

In January 2016 the FASB issued ASU No. 2016-01, *Financial Instruments - Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities*. This new standard amended certain aspects of accounting and disclosure requirements for financial instruments, including the requirement that equity investments with readily determinable fair values are to be measured at fair value with any changes in fair value recognized in a company's statements of operations. Prior to adoption of ASU 2016-01, companies recognized changes in fair value in accumulated other comprehensive income (loss), net. Equity investments that do not have readily determinable fair values may be measured at fair value or at cost minus impairment adjusted for changes in observable prices. In addition, a valuation allowance should be evaluated on deferred tax assets related to available-for-sale debt securities in combination with other deferred tax assets. The Company adopted this new standard on January 1, 2018, using the modified retrospective method, and determined that it did not have a material impact on the Company's financial statements.

In August 2016, the FASB issued ASU No. 2016-15, *Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments*. The new standard clarifies certain aspects of the statement of cash flows, including the classification of debt prepayment or debt extinguishment costs, settlement of zero-coupon debt instruments or other debt instruments with coupon interest rates that are insignificant in relation to the effective interest rate of the borrowing, contingent consideration payments made after a business combination, proceeds from the settlement of insurance claims, proceeds from the settlement of corporate-owned life insurance policies, distributions received from equity method investees and beneficial interests in securitization transactions. The new standard also clarifies that an entity should determine each separately identifiable source or use within the cash receipts and cash payments on the basis of the nature of the underlying cash flows. In situations in which cash receipts and payments have aspects of more than one class of cash flows and cannot be separated by source or use, the appropriate classification should depend on the activity that is likely to be the predominant source or use of cash flows for the item. The Company adopted this new standard on January 1, 2018 and determined that it did not have a material impact on the Company's financial statements.

In October 2016, the FASB issued ASU No. 2016-16, *Income Taxes (Topic 740): Intra-Entity Transfer of Assets Other Than Inventory*. This new standard eliminates the deferral of the tax effects of intra-entity asset transfers other than inventory. As a result, the income tax consequences from the intra-entity transfer of an asset other than inventory and associated changes to deferred taxes will be recognized when the transfer occurs. The Company adopted this new standard on January 1, 2018 and determined that it did not have a material impact on the Company's financial statements.

In November 2016, the FASB issued ASU 2016-18, *Statement of Cash Flows (Topic 230): Restricted Cash* ("ASU 2016-18"). The new standard provides uniform guidance for the classification and presentation of changes in restricted cash on the statement of cash flows under Topic 230, *Statement of Cash Flows*. ASU 2016-18 requires that a statement of cash flows explain the change during the period in the total of cash, cash equivalents, and amounts generally described as restricted cash. Therefore, amounts included in restricted cash should be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. ASU 2016-18 was effective for the Company for its fiscal year beginning January 1, 2018, including interim periods, and requires a retrospective presentation of each period presented. As a result, the Company's condensed consolidated statement of cash flows for the nine months ended September 30, 2018 and September 30, 2017 have been prepared in accordance with the new requirements of ASU 2016-18.

In July 2018, the FASB issued ASU 2018-07, *Stock-based Compensation: Improvements to Nonemployee Share-based Payment Accounting*, which amends the existing accounting standards for share-based payments to nonemployees. ASU 2018-07 aligns much of the guidance on measuring and classifying nonemployee awards with that of awards to employees. Under the new guidance, the measurement of nonemployee equity awards is fixed on the grant date. Entities are required to apply ASU 2018-07 by recognizing a cumulative effect adjustment to retained earnings as of the beginning of the annual period of adoption. The ASU becomes effective during the first quarter of 2019 with early adoption permitted. The Company adopted ASU 2018-07 on July 1, 2018 and determined that it did not have a material impact on the Company's financial statements.

Other than the new standards described above, there have been no material changes in accounting policies since the Company’s fiscal year ended December 31, 2017, as described in Note 2 to the consolidated financial statements included in its Annual Report on Form 10-K for the year then ended.

New pronouncements that are not yet effective but may impact the Company's financial statements in the future are described below.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842).* The new standard requires that all lessees recognize the assets and liabilities that arise from leases on the balance sheet and disclose qualitative and quantitative information about its leasing arrangements. The new standard will be adopted using a modified retrospective approach to each lease that existed as of the beginning of the earliest comparative period presented in the financial statements, as well as for leases entered into after that date. Employing the modified retrospective approach will result in a cumulative adjustment to the Company's opening retained earnings on January 1, 2019, which is the effective date for adoption of the new standard by the Company. The Company's balance sheet after adoption of the standard will reflect right-of-use assets and lease liabilities for those leases that are accounted for under the new guidance. The Company is in the process of evaluating the impact of this new guidance.

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*. The new standard changes the impairment model for most financial assets and certain other instruments. Under the new standard, entities holding financial assets and net investment in leases that are not accounted for at fair value through net income are to be presented at the net amount expected to be collected. An allowance for credit losses will be a valuation account that will be deducted from the amortized cost basis of the financial asset to present the net carrying value at the amount expected to be collected on the financial asset. The new standard will be effective for the Company on January 1, 2020. The Company is in the process of evaluating the impact of this new guidance.

Principles of Consolidation

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

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 condensed consolidated balance sheets included herein:

	September 30, 2018	December 31, 2017
Cash and cash equivalents	$ 3,306	$ 14,487
Restricted cash	332	317
Total cash, cash equivalents and restricted cash	$ 3,638	$ 14,804

Amounts included in restricted cash represent those required to be set aside by contractual agreement. Restricted cash of $332 at September 30, 2018 and $317 at December 31, 2017 primarily consists of funds held in connection with the Company's lease agreement for its Woburn, Massachusetts facility.

Investments

The Company considers all investments purchased with an original maturity date of more than ninety days at the date of purchase and a maturity date of one year or less at the balance sheet date to be short-term investments. All other investments are classified as long-term. The Company held no long-term investments at September 30, 2018 and no short or long-term investments at December 31, 2017.

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.

Restructuring

The Company records estimated restructuring charges for employee severance and contract termination costs as a current period expense as those costs become contractually fixed, probable and estimable. Obligations associated with these charges are reduced or adjusted as payments are made or the Company's estimates are revised.

Use of Estimates

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

Foreign Currency Translation

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

Income Taxes

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

In December 2017, the Tax Cuts and Jobs Act, or the Tax Act ("TCJA"), was signed into law. Among other things, the Tax Act permanently lowers the corporate federal income tax rate to 21% effective for tax years including or commencing January 1, 2018. As a result of the reduction of the corporate federal income tax rate, GAAP requires companies to revalue their deferred tax assets and deferred tax liabilities as of the date of enactment, with the resulting tax effects accounted for in the reporting period of enactment. The Company's preliminary estimate of the TCJA and the remeasurement of its deferred tax assets and liabilities is subject to change as additional information becomes available, but no later than one year from the enactment of the TCJA.

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 equivalents in highly rated money market funds, corporate debt, federal agency notes and U.S. treasury notes. Investments, when purchased, are acquired in accordance with the Company's investment policy which establishes a concentration limit per issuer.

At September 30, 2018, 95% of the Company's total accounts and unbilled receivables of $83 are due from the Company's government grant with the Department of Energy ("DOE") or from its DOE sub-award contract with Michigan State University ("MSU").

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

Basic net income (loss) per share is computed by dividing net income (loss) by the weighted-average number of common shares outstanding. Diluted net income (loss) per share is computed by dividing net income (loss) by the weighted-average number of dilutive common shares outstanding during the period. Diluted shares outstanding is calculated by adding to the weighted shares outstanding any potential (unissued) shares of common stock from outstanding stock options and warrants based on the treasury stock method, as well as weighted shares outstanding of any potential (unissued) shares of common stock from restricted stock units. In periods when a net loss is reported, all common stock equivalents are excluded from the calculation because they would have an anti-dilutive effect, meaning the loss per share would be reduced. Therefore, in periods when a loss is reported, there is no difference in basic and dilutive loss per share. Common stock equivalents include stock options, restricted stock awards and warrants.

On May 26, 2017, the Company effected a 1-for-10 reverse stock split of its common stock. The calculation of basic and diluted net loss per share, as presented in the accompanying condensed consolidated statement of operations, have been determined based on a retroactive adjustment of weighted average shares outstanding for all periods presented.

The number of shares of potentially dilutive common stock related to options, restricted stock units and warrants (prior to consideration of the treasury stock method) that were excluded from the calculation of dilutive shares since the inclusion of such shares would be anti-dilutive for the three and nine months ended September 30, 2018 and September 30, 2017, respectively, are shown below. Issued and outstanding warrants shown in the table below are described in greater detail in Note 10, contained herein.

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Options	1,661,853	626,263	1,163,493	621,030
Restricted stock units	7,101	14,367	9,461	16,770
Warrants	7,433,084	920,655	7,433,084	571,017
Total	9,102,038	1,561,285	8,606,038	1,208,817

4. INVESTMENTS

The Company's investments consist of the following:

	Accumulated Cost at September 30, 2018	Unrealized Gain	Unrealized (Loss)	Market Value at September 30, 2018
Short-term investments				
Government securities	$ 4,492	$ —	$ (1)	$ 4,491
Total	$ 4,492	$ —	$ (1)	$ 4,491

5. FAIR VALUE MEASUREMENTS

The Company has certain financial assets recorded at fair value which have been classified as either Level 1 or 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. 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. At September 30, 2018 and December 31, 2017, the Company did not own any Level 3 financial assets.

The Company’s financial assets classified as Level 2 at September 30, 2018, 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 September 30, 2018.

The tables below present information about the Company’s assets that are measured at fair value on a recurring basis as of September 30, 2018 and December 31, 2017 and indicate the fair value hierarchy of the valuation techniques utilized to determine such fair value.

	Fair value measurements at reporting date using			
Description	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Balance as of September 30, 2018
Cash equivalents:				
Money market funds	$ 2,623	$ —	$ —	$ 2,623
Short-term investments:				
U.S. government and agency securities	—	4,491	—	4,491
Total	$ 2,623	$ 4,491	$ —	$ 7,114

	Fair value measurements at reporting date using			
Description	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Balance as of December 31, 2017
Cash equivalents:				
Money market funds	$ 11,025	$ —	$ —	$ 11,025
Total	$ 11,025	$ —	$ —	$ 11,025

6. ACCRUED EXPENSES

Accrued expenses consisted of the following at:

	September 30, 2018	December 31, 2017
Employee compensation and benefits	$ 492	$ 646
Leased facilities	740	585
Commercial manufacturing	—	489
Professional services	248	335
Other	290	244
Total accrued expenses	$ 1,770	$ 2,299

Accrued commercial manufacturing expense at December 31, 2017, is related to the Company's terminated biopolymer manufacturing contract obligation. See Note 11.

7. STOCK-BASED COMPENSATION

2018 Stock Option and Incentive Plan

On May 23, 2018, the Company held its 2018 annual meeting of stockholders (the "Annual Meeting"), at which the stockholders approved the adoption of the Company's 2018 Stock Option and Incentive Plan ("2018 Stock Plan"). The 2018 Stock Plan reserves for issuance 1,300,000 shares of the Company's common stock for grants of incentive stock options, nonqualified stock options, stock grants and stock-based awards. Shares available under the 2018 Stock Plan will be increased on the first day of January 2019 and 2020 in an amount equal to 5% of the outstanding shares of common stock on the day prior to the increase in each respective year or such smaller number of shares of common stock as determined by the Board of Directors.

Expense Information for 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 $356 and $952 for the three and nine months ended September 30, 2018, respectively. The Company recognized stock-based compensation expense related to stock awards of $400 and $1,063 for the three and nine months ended September 30, 2017, respectively. At September 30, 2018, there was approximately $1,374 of pre-tax stock-based compensation expense related to unvested awards not yet recognized.

The compensation expense related to unvested stock options is expected to be recognized over a remaining weighted average period of 3.10 years.

Stock Options

A summary of option activity for the nine months ended September 30, 2018 is as follows:

	Number of Shares	Weighted Average Exercise Price
Outstanding at December 31, 2017	702,033	$ 16.21
Granted	1,006,929	$ 1.64
Exercised	—	—
Forfeited	(2,041)	$ 6.17
Expired	(3,727)	$ 487.57
Outstanding at September 30, 2018	1,703,194	$ 6.58
Options vested and expected to vest at September 30, 2018	1,703,194	$ 6.58
Options exercisable at September 30, 2018	678,060	$ 13.40

Restricted Stock Units

Restricted Stock Units ("RSUs") awarded to employees generally vest in four equal annual installments beginning one year after the date of grant, subject to service conditions. RSUs awarded to non-employee directors generally vest one year after the date of grant, with the exception of RSUs granted in lieu of cash compensation, which vest immediately. The Company records stock compensation expense for RSUs on a straight line basis over their vesting period based on each RSU's award date market value.

The Company pays minimum required income tax withholding associated with RSUs for its employees. As the RSUs vest, the Company withholds a number of shares with an aggregate fair market value equal to the minimum tax withholding amount (unless the employee makes other arrangements for payment of the tax withholding) from the common stock issuable at the vest date. During the nine months ended September 30, 2018 and September 30, 2017, the Company paid $6 and $12, respectively, for income tax withholdings associated with RSUs that vested during these periods.

A summary of RSU activity for the nine months ended September 30, 2018 is as follows:

	Number of RSUs	Weighted Average Remaining Contractual Life (years)
Outstanding at December 31, 2017	14,367	
Awarded	—	
Common stock issued upon vesting	(7,104)	
Forfeited	(162)	
Outstanding at September 30, 2018	7,101	0.50
Weighted average remaining recognition period	0.50	

8. COMMITMENTS AND CONTINGENCIES

Leases

The Company rents its facilities under operating leases, which expire at various dates through December 2026. Rent expense for the three and nine months ended September 30, 2018 was $486 and $998, respectively. Rent expense for the three and nine months ended September 30, 2017, was $252 and $700, respectively.

At September 30, 2018, the Company's future minimum payments required under operating leases are as follows:

Year ended December 31,		Minimum lease payments
2018 (October to December)	$	242
2019		970
2020		779
2021		654
2022		676
Thereafter		2,832
Total	$	6,153

Lease Commitments

During 2016, the Company entered into a lease agreement, pursuant to which the Company leases approximately 29,622 square feet of office and research and development space located at 19 Presidential Way, Woburn, Massachusetts. The lease began on June 1, 2016 and will end on November 30, 2026. The Company provided the landlord with a security deposit in the form of a letter of credit in the amount of $307 which is included within restricted cash in the Company's condensed consolidated balance sheets included herein. Pursuant to the lease, the Company will also pay certain taxes and operating costs associated with the premises during the term of the lease. During the buildout of the rented space, the landlord paid $889 for tenant improvements to the facility and an additional $444 for tenant improvements that result in increased rental payments by the Company. The current and non-current portions of the lease incentive obligations related to the landlord’s contributions toward the cost of tenant improvements are recorded within accrued expenses and other liabilities, net of current portion, respectively, in the Company's condensed consolidated balance sheets contained herein.

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 as a result of its strategic shift to Yield10 Bioscience and the related restructuring of its operations. The sublease term is coterminous with the Company's master lease. CJ pays rent and operating expenses equal to approximately one-third of the amounts payable to the landlord by the Company, as adjusted from time-to-time in accordance with the terms of the master lease. Total future minimum operating lease payments of $6,153 shown above are net of the CJ sublease payments. CJ has provided the Company with a security deposit of $103 in the form of an irrevocable letter of credit.

The Company also leases approximately 13,702 square feet of office and laboratory space at 650 Suffolk Street, Lowell, Massachusetts. The lease for this facility expires in May 2020. During July 2018, the Company discontinued further use of the Lowell space, and as a result, the Company recorded a non-cash lease exit charge of $249 during the three months ended September 30, 2018 for this facility in accordance with ASC Topic 420-10, *Exit or Disposal Obligations*. The current and long-term portions of the associated lease liability for this exit charge are included within accrued expenses and other liabilities, net of current portion, in the Company's condensed consolidated balance sheets included herein. The Company will continue to make monthly rental payments for the Lowell facility through its expiration in May 2020.

The Company's wholly owned subsidiary, Metabolix Oilseeds, Inc. ("MOI"), located in Saskatoon, Saskatchewan, Canada, leases approximately 4,100 square feet of office, laboratory and greenhouse space. MOI's leases for its various facilities expire between September 30, 2018 and May 31, 2020. Leases that were set to expire on September 30, 2018 are in the process of being amended to extend their termination dates.

Litigation

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

Guarantees

As of September 30, 2018 and December 31, 2017, the Company did not have significant liabilities recorded for guarantees.

The Company enters into indemnification provisions under various agreements with other companies in the ordinary course of business, typically with business partners, contractors, and customers. Under these provisions, the Company generally indemnifies and holds harmless the indemnified party for losses suffered or incurred by the indemnified party as a result of its activities. These indemnification provisions generally survive termination of the underlying agreement. The maximum potential amount of future payments the Company could be required to make under these indemnification provisions is unlimited. However, to date Yield10 Bioscience has not incurred material costs to defend lawsuits or settle claims related to these indemnification provisions. As a result, the estimated fair value of the indemnifications under these agreements is believed to be minimal. Accordingly, the Company has no liabilities recorded for these agreements as of September 30, 2018 and December 31, 2017.

9. GEOGRAPHIC INFORMATION

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

	U.S.	Canada	Eliminations	Total
Three Months Ended September 30, 2018:				
Grant revenue from external customers	$ 76	$ —	$ —	$ 76
Inter-geographic revenues	—	410	(410)	—
Revenues	$ 76	$ 410	$ (410)	$ 76
Three Months Ended September 30, 2017:				
Grant revenue from external customers	$ 223	$ —	$ —	$ 223
Inter-geographic revenues	—	324	(324)	—
Revenues	$ 223	$ 324	$ (324)	$ 223
Nine Months Ended September 30, 2018:				
Grant revenue from external customers	$ 421	$ —	$ —	$ 421
Inter-geographic revenues	—	1,050	(1,050)	—
Revenues	$ 421	$ 1,050	$ (1,050)	$ 421
Nine Months Ended September 30, 2017:				
Grant revenue from external customers	$ 840	$ —	$ —	$ 840
Inter-geographic revenues	—	857	(857)	—
Revenues	$ 840	$ 857	$ (857)	$ 840

Foreign revenue is based on the country in which the Company's subsidiary that earned the revenue is domiciled. During the three and nine months ended September 30, 2018, revenue earned from the Company's Camelina grant with the U.S. Department of Energy totaled $0 and $109, respectively, and represented 0% and 26% of total revenue. During the three and nine months ended September 30, 2017, revenue earned from the Company's Camelina grants totaled $223 and $810, respectively, and represented 100% and 96%, respectively, of total grant revenue. During the three and nine months ended September 30, 2018, revenue earned from the Company's new sub-award with MSU totaled $76 and $312, respectively, and represented 100% and 74%, respectively, of total grant revenue.

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

	U.S.	Canada	Eliminations	Total
September 30, 2018	$ 1,420	$ 15	$ —	$ 1,435
December 31, 2017	$ 1,533	$ 6	$ —	$ 1,539

10. CAPITAL STOCK

Common Stock

On May 23, 2018, the Company held its Annual Meeting, at which stockholders approved an amendment to the Certificate of Incorporation to increase from 40,000,000 shares to 60,000,000 shares the aggregate number of shares of common stock that are authorized to be issued. As a result of this vote, on May 23, 2018, the Company filed a Certificate of Amendment to its Certificate of Incorporation with the Secretary of State of the State of Delaware to increase the number of authorized shares. Also at the Annual Meeting, stockholders approved the adoption of the Company's 2018 Stock Plan. The 2018 Stock Plan reserves for issuance 1,300,000 shares of the Company's common stock for grants of incentive stock options, nonqualified stock options, stock grants and stock-based awards. Shares available under the 2018 Stock Plan will be increased on the first day of January 2019 and 2020 in an amount equal to 5% of the outstanding shares of common stock on the day prior to the increase in each respective year or such smaller number of shares of common stock as determined by the Board of Directors.

On December 27, 2017, the Company held a special meeting of its stockholders, at which the stockholders approved an amendment to the Certificate of Incorporation to decrease from 250,000,000 shares to 40,000,000 shares the aggregate number of shares of common stock that are authorized to be issued. As a result of this vote, the Company filed a Certificate of Amendment to its Certificate of Incorporation with the Secretary of State of the State of Delaware on December 27, 2017 to decrease the number of authorized shares.

During December 2017, the Company closed on a public offering of its securities, receiving cash proceeds of $13,097, net of issuance costs of $1,392 that were paid through January 31, 2018. The offering included 4,667,000 Class A Units, priced at a public offering price of $2.25 per unit, with each unit consisting of one share of common stock, a Series A five-year warrant to purchase one share of common stock at an exercise price of $2.25 per share, and a Series B nine-month warrant to purchase 0.5 share of common stock at an exercise price of $2.25 per share, and 3,987 Class B Units, priced at a public offering price of $1,000 per unit, with each unit consisting of one share of preferred stock, having a conversion price of $2.25, Series A 5-year warrants to purchase 445 shares of common stock at an exercise price of $2.25 per share, and Series B nine-month warrants to purchase 223 shares of common stock with an exercise price of $2.25 per share. The Company determined that both the preferred stock and the warrants should be recorded within stockholders' equity.

Proceeds received from the offering were allocated to the various elements of the offering based on their relative fair values. The fair value of the common stock was its closing market price on December 21, 2017, the closing date of the offering. The Series A Convertible Preferred Stock was valued on an as-if-converted basis based on the underlying common stock and the Series A and Series B warrants were valued using the Black-Scholes model with the following weighted-average input at the time of issuance:

- an expected term of 5.0 years and 0.75 years for the Series A and Series B warrants, respectively,
- risk free rates of 2.2% and 1.7% for the Series A and Series B warrants, respectively, based on the published rates of U.S. treasury bills with similar terms, and
- volatility of 125% based on the Company’s historical volatility.

After allocation of the proceeds, the effective conversion price of the Series A Convertible Preferred Stock was determined to be beneficial and, as a result, the Company recorded a one-time non-cash deemed dividend of $1,427 equal to the intrinsic value of the beneficial conversion feature during its three months ended December 31, 2017. The Series A Convertible Preferred Stock did not have a stated redemption date, and as a consequence, accounting guidance required immediate recognition of the beneficial conversion feature rather than amortization of the benefit over time. As of March 19, 2018, preferred shareholders had converted all 3,987 of the preferred shares into an aggregate of 1,772,000 shares of common stock.

On September 12, 2017, the Company issued warrants to purchase up to 30,000 shares of common stock to the Company's investor relations consultant, in consideration for services rendered and to be rendered by the consultant. These warrants have an exercise price of $2.90 per share and are exercisable in whole or part at any time during the period commencing on September 12, 2017 and ending on September 11, 2024. The Company reviewed the accounting guidance for warrants and determined that these warrants should be recorded as equity within additional paid-in capital.

On July 7, 2017, the Company completed an offering of its securities. Proceeds from the transaction were approximately $1,966, net of issuance costs of $317. Investors participating in the transaction purchased a total of 570,784 shares of common stock at a price of $4.00 per share and an equal number of warrants with an exercise price of $5.04 per share, exercisable beginning on January 7, 2018 and until their expiration on January 7, 2024. In accordance with accounting guidance, these warrants were also recorded as equity within additional paid-in capital.

On May 26, 2017, the Company effected a 1-for-10 reverse stock split of its common stock. The ratio for the reverse stock split was determined by the Company's board of directors following approval by stockholders at the Company's annual meeting held on May 24, 2017. The reverse stock split reduced the number of shares of the Company's common stock outstanding at the time of the reverse stock split from approximately 28.7 million shares to approximately 2.9 million shares. Proportional adjustments were made to the Company's outstanding stock options and restricted stock units and to the number of shares issued and issuable under the Company's equity compensation plans.

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.

As discussed above, during December 2017 the Company closed on a public offering of its securities that included issuance of 3,987 shares of Series A Convertible Preferred Stock. Each preferred share was convertible, at the holder's option, into 445 shares of common stock at a conversion price of $2.25 per share, subject to adjustments as a result of stock dividends and stock splits. The Company determined the Series A Convertible Preferred Stock should be classified as equity since it was not mandatorily redeemable, there were no unconditional obligations requiring the Company to settle in a variable number of common shares or settle through the transfer of assets and the monetary value of the preferred shares was fixed. As of March 19, 2018, all of the 3,987 preferred shares had been converted to an aggregate of 1,772,000 shares of common stock. When converted, the shares of converted Series A Convertible Preferred Stock were restored to the status of authorized but unissued shares of preferred stock, subject to reissuance by the Board of Directors.

Warrants

The following table summarizes information with regard to outstanding warrants to purchase common stock as of September 30, 2018:

Issuance	Number of Shares Issuable Upon Exercise of Outstanding Warrants	Exercise Price	Expiration Date
June 2015 Private Placement	393,300	$ 39.80	June 15, 2019
July 2017 Registered Direct Offering	570,784	$ 5.04	January 7, 2024
December 2017 Public Offering - Series A	6,439,000	$ 2.25	December 21, 2022
Consultant	30,000	$ 2.90	September 11, 2024
Total	7,433,084		

During the nine months ended September 30, 2018, a total of 55,100 Series B warrants from the December 2017 public offering were exercised resulting in the issuance of 55,100 shares of common stock and the Company's receipt of $124 in cash proceeds. On September 21, 2018, the remaining unexercised Series B warrants expired in accordance with their terms.

Reserved Shares

The following shares of common stock were reserved for future issuance upon exercise of stock options, release of RSUs, conversion of Series A Convertible Preferred Stock and conversion of warrants:

	September 30, 2018	December 31, 2017
Stock Options	1,703,194	702,033
RSUs	7,101	14,367
Series A Convertible Preferred Stock	—	811,555
Warrants	7,433,084	10,652,586
Total number of common shares reserved for future issuance	9,143,379	12,180,541

11. RESTRUCTURING

During 2016, the Company initiated a strategic restructuring under which Yield10 Bioscience became its core business and its biopolymer operations were discontinued. As part of its strategic restructuring, the Company significantly reduced staffing levels and in January 2017, the Company formally changed its name to Yield10 Bioscience, Inc.

In connection with the wind down of its biopolymer operations, the Company ceased pilot production of biopolymer materials and reached agreements with the owner-operators of its biopolymer production facilities regarding the termination of their services. Through May 2018, the Company made cash payments of $3,317, issued 27,500 shares of common stock with a fair value of $85 and transferred certain biopolymer-related production equipment with a net book value of $111 to settle these agreements and other restructuring activities. At September 30, 2018, the Company has no further restructuring obligations outstanding.

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 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. 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, the 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; the expected results of our strategic restructuring to focus on Yield10 Bioscience as our core business; expected future financial results and cash requirements; 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 its year ended December 31, 2017 and in our other filings with the Securities and Exchange Commission.

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 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. ("Yield10 Bioscience," "Yield10," or the "Company") is an agricultural bioscience company focusing on the development of new technologies to enable step-change increases in crop yield to enhance global food security. We consider 10-20 percent increases in crop yield to be step-change increases. According to a United Nations report, food production must be increased by over 70 percent in the next 35 years to feed the growing global population, which is expected to increase from 7 billion to more than 9.6 billion by 2050. During that time period, there will be a reduction in available arable land as a result of infrastructure growth and increased pressure on scarce water resources. Harvestable food production per acre and per growing season must be increased to meet this demand. At the same time, in light of the increasing focus on health and wellness, food safety and sustainability in developed countries, we anticipate a rise in demand for new varieties of food and food ingredients with improved nutritional properties. Further, concerns about food safety have led to the concept of "seed to plate," or "farm to fork," with a focus on stringent quality control along the entire value chain. If this concept takes hold with consumers, it is likely to require identity preservation from seed to harvest and involve contract farming. This concept has been initially implemented in agricultural biotechnology, in products such as high oleic canola and soybean. Consumer demand for identity preserved specialty ingredients is also expected to rise, and we believe that Yield10's crop yield technologies and crop genome-editing platform could be useful in this emerging field.

The foundation technology of Yield10 is based on using two proprietary advanced biotechnology trait gene discovery platforms to improve fundamental crop yield through enhanced photosynthetic carbon capture and increased carbon utilization efficiency to increase seed yield. These platforms are based on the principle that plants which capture and utilize carbon more efficiently will enable more robust crops capable of increased seed yield. We are working to develop, translate and demonstrate the commercial value of a number of novel yield trait genes from these discovery platforms in major crops. Our "Smart Carbon Grid for Crops" metabolic engineering platform has already proven useful in identifying a number of our C3000 series of traits, including the novel yield trait gene C3003 which is being field tested in Camelina and canola in the 2018 growing season. Our "T3 Platform," is based on mining transcription factor network data sets and led to the identification of our C4001, C4002 and C4003 global transcription factor gene traits. These gene traits enabled us to engineer switchgrass plants with high rates of photosynthesis and increased biomass yield. We are currently repeating our work with C4001 and C4003 in rice and wheat and plan to do so in corn.

We are currently combining the two trait gene discovery platforms to create an integrated system for identifying key plant gene combinations for modification using genome editing to improve crop performance. Advanced metabolic flux analysis forms the foundation of the GRAIN platform we are developing based on Yield10 scientists' unique 20-plus years of experience successfully deploying advanced metabolic flux analysis to address critical bottlenecks in carbon metabolism. Based on elements of the GRAIN platform that we are already working on, we have identified the C4004 through C4027 series of transcription factor genes that are down-regulated in our high-photosynthesis engineered switchgrass plants as well as a number of new gene targets related to our lead C3003 yield trait. New tools for genome-editing continue to develop at a fast pace and be deployed against known targets which for the most part are focused on changing seed or seed oil composition. However, identifying gene combinations remain an unmet need.

On May 17, 2018, we entered into an exclusive worldwide license from the University of Missouri 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 first technology, named C3007, is a gene for a negative controller that inhibits the enzyme activity of Acetyl-CoA carboxylase, or ACCase. The second technology, named C3010, is a gene which, if over-expressed, results in increased activity of ACCase. We are required to use reasonable efforts to develop licensed products throughout the licensed field and to introduce licensed products into the commercial market. In that regard, we are obligated to fulfill certain research, development and regulatory milestones relating to C3007 and C3010, including completion of multi-site field demonstrations of a crop species in which C3007 and C3010 have been introduced, and filing for regulatory approval of a crop species in which C3007 and C3010 have been introduced within a specified period.

During July 2018, the we also entered into a non-exclusive research license agreement jointly with the Broad Institute of MIT and Harvard and Pioneer, part of Corteva Agriscience™, Agriculture Division of DowDuPont Inc., for the use of CRISPR-Cas9 genome-editing technology for crops. The joint license covers intellectual property consisting of approximately 48 patents and patent applications on CRISPR-Cas9 technology controlled by the Broad Institute and Corteva Agriscience. Under the agreement, we have the option to renew the license on an annual basis and the right to convert the research license to a commercial license in the future, subject to conditions specified in the agreement. CRISPR technology is uniquely suited to agricultural applications as it enables precise changes to plant DNA without the use of foreign DNA to incorporate new traits. Plants developed using CRISPR genome-editing technology have the potential to be designated as "non-regulated" by USDA-APHIS for development and commercialization in the U.S., which could result in shorter developmental timelines and lower costs associated with commercialization of new traits in the U.S. as compared to regulated crops.

During the past twelve months, we have entered into two non-exclusive licensing agreements with third parties for the evaluation of our yield trait genes. In December 2017, we granted a license to Monsanto Company, which was subsequently acquired by Bayer AG, ("Bayer") to evaluate our novel C3003 and C3004 yield traits in soybean. Under this license, Bayer has the non-exclusive right to begin work with C3003 in its soybean program as a strategy to improve seed yield. Bayer may also conduct research with our C3004 yield trait, a trait accessible through genome editing, in combination with C3003 to evaluate the effectiveness of the combination in improving seed yield in soybean. In September 2018, we granted a non-exclusive license to Forage Genetics International, LLC ("Forage Genetics"), a subsidiary of Land O'Lakes, Inc., to evaluate five of our novel yield traits in forage sorghum. The traits included in the research license include C3003 as well as four traits from our GRAIN platform, C4001, C4002, C4003 and C4029. The C4000 series traits have been shown to significantly increase photosynthesis and biomass in research conducted by us. The key objective of the licensing agreement is to provide Forage Genetics with novel traits to test alone and/or in any combination in sorghum that may lead to the identification of new yield traits for potential future licensing from Yield10 for development and commercial deployment.

We are currently progressing the development of our lead yield trait genes in canola, soybean, rice and wheat to provide step-change yield solutions for enhancing global food security. Yield10 Bioscience is headquartered in Woburn, Massachusetts and has an additional agricultural science facility with greenhouses in Saskatoon, Saskatchewan, Canada.

As of September 30, 2018, we held unrestricted cash, cash equivalents and short-term investments of $7,797. We follow the guidance of ASC Topic 205-40, *Presentation of Financial Statements-Going Concern*, in order to determine whether there is substantial doubt about our ability to continue as a going concern for one year after the date our financial statements are issued. Based on our current cash forecast, we expect that our present capital resources will be sufficient to fund our planned operations and meet our obligations into the third quarter of 2019. 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. We have evaluated the guidance of ASC Topic 205-40 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. 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 our outstanding warrants, additional government grant or collaborative arrangements with third parties, as to which no assurance 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 or if we are unsuccessful in entering into collaborative arrangements for further research, we will be forced to curtail our research efforts, explore strategic alternatives and/or wind down our operations and pursue options for liquidating the Company's remaining assets, including intellectual property and equipment. Based on our cash forecast, we have determined that our present capital resources are unlikely to be sufficient to fund our planned operations for the twelve months from the date that our financial statements are issued, which raises substantial doubt about the Company's ability to continue as a going concern.

If we issue equity or debt securities to raise additional funds, (i) we may incur fees associated with such issuance, (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 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 our 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 of 1986 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 the Company's potential products or proprietary technologies, or grant licenses on terms that are not favorable to the Company.

Government Grants

Our principal source of revenue is government research grants. As of September 30, 2018, $979 remains available under our U.S. government grants. This includes amounts for reimbursement to our subcontractors, as well as reimbursement for our employees’ time, benefits and other expenses related to future performance.

On April 17, 2018 we entered into a sub-award with Michigan State University ("MSU") to support a Department of Energy funded grant entitled "A Systems Approach to Increasing Carbon Flux to Seed Oil." Our participation under this grant commenced on September 15, 2017 and through September 30, 2018, the first two years of the sub-award totaling $1,212 have been authorized. We anticipate that additional option years will be awarded annually to Yield10 through September 14, 2022 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.

The status of our government grants is as follows:

Program Title	**Funding Agency**	**Total Government Funds**	**Total received through September 30, 2018**	**Remaining amount available as of September 30, 2018**	**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	$ 1,212	$ 261	$ 951	September 2019
Production of High Oil, Transgene Free Camelina Sativa Plants through Genome Editing ("Camelina")	Department of Energy	1,997	1,969	28	September 2018
Total		$ 3,209	$ 2,230	$ 979	

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 accounting principles generally accepted in the United States of America 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 compensation and strategic restructuring charges. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates. The critical accounting policies and the significant judgments and estimates used in the preparation of our condensed consolidated financial statements for the three and nine months ended September 30, 2018, are consistent with those discussed in our Annual Report on Form 10-K for the year ended December 31, 2017, in the section captioned “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Critical Accounting Estimates and Judgments.”

Results of Operations

Comparison of the Three Months Ended September 30, 2018 and 2017

Revenue

	Three Months Ended September 30,		
	2018	**2017**	**Change**
Grant revenue	$ 76	$ 223	$ (147)

Grant revenue was $76 and $223 for the three months ended September 30, 2018 and 2017, respectively. Grant revenue for the three months ended September 30, 2018 was earned from the Company's subcontract with MSU. During the three months ended September 30, 2017, grant revenue of $223 was earned from the Company's Camelina grant with DOE which is currently in the process of winding down with only $28 remaining to be recognized.

We anticipate grant revenue will continue to remain lower during 2018 and 2019 in comparison to 2017 as we complete the Company's Camelina grant with the DOE. Our new DOE sub-award through MSU is not expected to generate quarterly revenue at the same rate as the expiring Camelina grant.

Expenses

	Three Months Ended September 30,		
	2018	**2017**	**Change**
Research and development expenses	$ 1,330	$ 1,132	$ 198
General and administrative expenses	1,407	1,073	334
Total expenses	$ 2,737	$ 2,205	$ 532

Research and Development Expenses

Research and development expenses were $1,330 and $1,132 for the three months ended September 30, 2018 and September 30, 2017, respectively. The increase of $198 is primarily the result of an increase in employee compensation and benefits of $131 in comparison to the three months ended September 30, 2017 and is due to our hiring new research personnel during 2018 and the recording of a three-month proportional accrual for 2018 employee bonuses that are expected to be paid during Q1 2019. During the three months ended September 30, 2018 research supplies and equipment increased by $50, primarily as a result of purchasing new computer equipment.

We anticipate that research and development expenses will continue to remain above 2017 expenditure levels during the remainder of 2018 and into 2019 as a result of our expanded field testing for crops across multiple locations and our plans to hire additional research staff to support our research activities.

General and Administrative Expenses

General and administrative expenses increased $334 from $1,073 during the three months ended September 30, 2017 to $1,407 during the three months ended September 30, 2018. During the three months ended September 30, 2018 we recorded a lease impairment charge of $249 in accordance with ASC Topic 420-10, *Exit or Disposal Obligations*, as a result of discontinuing further use of our facility located in Lowell, Massachusetts.

We anticipate that our general and administrative expenses, net of the one-time lease impairment charge noted above, will remain relatively consistent during the remainder of 2018 and into 2019 as we continue to carefully monitor our use of cash resources.

Other Income (Expense), Net

	Three Months Ended September 30,		
	2018	**2017**	**Change**
Other income, net	$ 43	$ 2	$ 41
Other expense, net	(12)	(45)	33
Total other income (expense), net	$ 31	$ (43)	$ 74

Other income (expense), net, reflects net income of $31 and net expense of $43 for the three months ended September 30, 2018 and September 30, 2017, respectively. Net income during the third quarter of 2018 is primarily the result of $43 of investment income earned from the Company's short-term investments and higher average cash balances held during the quarter. Other expense, net, of $45 for the three months ended September 30, 2017 includes interest charges recorded in connection with installment payments made by the Company related to the early termination of a third party manufacturing agreement that ended in 2016.

Comparison of the Nine Months Ended September 30, 2018 and 2017

Revenue

	Nine Months Ended September 30,		
	2018	**2017**	**Change**
Grant revenue	$ 421	$ 840	$ (419)

Grant revenue was $421 and $840 for the nine months ended September 30, 2018 and September 30, 2017, respectively. Grant revenue for the nine months ended September 30, 2018 was derived primarily from $312 in revenue recognized for work performed on the Company's subcontract with MSU. During the nine months ended September 30, 2017, grant revenue of $810 was earned from the DOE Camelina grant.

Expenses

	Nine Months Ended September 30,		
	2018	**2017**	**Change**
Research and development expenses	$ 3,677	$ 3,379	$ 298
General and administrative expenses	4,132	4,215	(83)
Total expenses	$ 7,809	$ 7,594	$ 215

Research and Development Expenses

Research and development expenses increased by $298 from $3,379 during the nine months ended September 30, 2017 to $3,677 during the nine months ended September 30, 2018. During the nine months ended September 30, 2018 employee compensation and benefit expense increased by $341, primarily as a result of hiring new research personnel during 2018 and our recording of a nine-month proportional accrual for 2018 employee bonuses. Research consulting and service fees, primarily in support of our plant field trials, also increased by $85 during the nine months ended September 30, 2018 in comparison to the same period last year. Research service expense decreased by $153 during the nine months ended September 30, 2018, primarily as a result of $171 in research services performed by North Carolina State University ("NCSU") for us as a sub-awardee under our DOE Camelina grant during the first nine months of 2017. NCSU did not perform similar services for us during 2018.

General and Administrative Expenses

General and administrative expenses decreased by $83 from $4,215 during the nine months ended September 30, 2017 to $4,132 during the nine months ended September 30, 2018. During the nine months ended September 30, 2017 we recognized $622 of previously deferred equity offering costs related to a common stock purchase agreement with Aspire Capital Fund, LLC ("Aspire") that terminated before any shares were sold. Partially offsetting the decrease in Aspire-related expenses were a net increase in employee compensation and benefits expense of $118, patent-related expense of $181 and the lease impairment charge of $249 related to our Lowell, Massachusetts facility. The net increase in employee compensation expense is primarily the result of our recording a nine-month proportional accrual for 2018 employee bonuses of $223 partially offset by a reduction in stock compensation expense of $140.

Other Income (Expense), Net

	Nine Months Ended September 30, 2018	Nine Months Ended September 30, 2017	Change
Other income, net	$ 123	$ 5	$ 118
Other expense, net	(45)	(95)	50
Total other income (expense), net	$ 78	$ (90)	$ 168

Other income (expense), net, reflects net income of $78 and net expense of $90 for the nine months ended September 30, 2018 and September 30, 2017, respectively. Net income during the nine months ended December 31, 2018 is primarily the result of $123 of investment income earned from the Company's short-term investments and higher average cash balances held during the nine month period. Other expense, net, of $45 and $95 for the nine months ended September 30, 2018 and September 30, 2017, respectively, includes interest charges recorded in connection with installment payments made by the Company related to the early termination of a third party manufacturing agreement that ended in 2016.

Liquidity and Capital Resources

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

Since our inception, we have incurred significant expenses related to our research, development and commercialization efforts. With the exception of a single year, we have recorded losses annually since our initial founding, including the three and nine months ended September 30, 2018. As of September 30, 2018, we had an accumulated deficit of $350,063. Our total unrestricted cash, cash equivalents and short-term investments as of September 30, 2018, were $7,797 as compared to $14,487 at December 31, 2017. As of September 30, 2018, we had no outstanding debt.

Our cash and cash equivalents are held primarily for working capital purposes. As of September 30, 2018, we had restricted cash of $332. Restricted cash consists of $307 held in connection with the lease agreement for our Woburn, Massachusetts facility and $25 held in connection with corporate credit cards used for incidental purchases.

Investments are made in accordance with our corporate investment policy, as approved by our Board of Directors. The primary objective of this policy is to preserve principal and investments are limited to high quality corporate debt, U.S. Treasury bills and notes, money market funds, bank debt obligations, municipal debt obligations and asset-backed securities. The policy establishes maturity limits, concentration limits, and liquidity requirements. As of September 30, 2018, we were in compliance with this policy.

We believe that our existing funds, when combined with cash generated from government grants and our access to additional financing sources, if needed, will be sufficient to fund operations and meet our obligations when due, into the third quarter of 2019. 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 the Company's ability to continue as a going concern for one year after the date its financial statements are issued. Based on our current cash forecast, we have determined that our present capital resources will not be sufficient to fund our planned operations for the twelve months from the date that our financial statements are issued, which raises substantial doubt about the Company's ability to continue as a going concern.

We have filed a shelf registration statement on Form S-3 with the SEC, covering the sale from time to time of shares of our common stock and other securities, which may provide us the opportunity to raise funds when we consider it necessary or appropriate, at prices and terms to be determined at the time of any such offering. However, pursuant to the instructions on Form S-3, we only have the ability to sell shares under the shelf registration statement, during any 12-month period, in an amount less than or equal to one-third of the aggregate market value of our common stock held by non-affiliates.

During 2016, we completed a strategic restructuring of our operations to focus on the Yield10 Bioscience business. We significantly reduced staffing levels and incurred restructuring costs for contract termination and employee post-termination benefits of approximately $3,513. During May 2018 the final payment was made related to our contract termination obligation and as of September 30, 2018, no further restructuring charges remain outstanding. We currently anticipate that we will use approximately $9,000 to $9,500 of cash during 2018, including the final payments we made for restructuring costs.

We will need additional capital to fully implement our business, operating and development plans and to support our capital needs. The timing, structure and vehicles for obtaining future financing are under consideration, but there can be no assurance that such financing efforts will be successful. If we do not receive additional funding by mid-2019, we will be forced to wind down our business, or have to delay, scale back or otherwise modify our business plans, research and development activities and other operations, and/or seek strategic alternatives.

If we issue equity or debt securities to raise additional funds, (i) we may incur fees associated with such issuance, (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 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 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 of 1986 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 was $6,731 during the nine months ended September 30, 2018, compared to net cash used for operating activities during the nine months ended September 30, 2017 of $6,309. Net cash used for operations during the nine months ended September 30, 2018 primarily reflects the net loss of $7,310, payment of 2017 employee bonuses of approximately $529 and payment of final obligations totaling $500 related to the Company's strategic restructuring initiated during 2016, partially offset by certain non-cash expenses, including stock-based compensation expense of $952, depreciation expense of $146, a 401(k) stock matching contribution expense of $91 and a facility lease impairment charge of $249.

Net cash of $4,534 was used by investing activities during the nine months ended September 30, 2018. During the nine months ended September 30, 2018, we purchased $9,742 in short-term investments, including U.S. Treasury notes and federal agency bonds. During that period $5,250 of short-term investments matured and converted to cash.

Net cash of $118 was provided by financing activities during the nine months ended September 30, 2018, primarily from investor exercises of warrants during the period.

Off-Balance Sheet Arrangements

As of September 30, 2018, we had no off-balance sheet arrangements as defined in Item 303(a)(4) of the Securities and Exchange Commission’s Regulation S-K.

Recent Accounting Pronouncements

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

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

Not applicable.

ITEM 4. CONTROLS AND PROCEDURES.

Evaluation of Disclosure Controls and Procedures

Our management (with the participation of our Principal Executive Officer and Principal Accounting Officer) evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act")), as of September 30, 2018. Disclosure controls and procedures are designed to ensure that information required to be disclosed by the Company in the reports it files or submits under the Exchange Act is recorded, processed, summarized and reported on a timely basis and that such information is accumulated and communicated to management, including the Principal Executive Officer and the Principal Accounting Officer, as appropriate, to allow timely decisions regarding disclosure. Based on this evaluation, our Principal Executive Officer and Principal Accounting Officer concluded that these disclosure controls and procedures are effective.

Changes in Internal Control over Financial Reporting

There have been no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) under the Exchange Act) during the quarter ended September 30, 2018 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 results of operations.

ITEM 1A. RISK FACTORS.

There have been no material changes in information regarding our risk factors as described in Item 1A of our Annual Report on Form 10-K for the year ended December 31, 2017. Our business is subject to numerous risks. We caution you that the important factors annotated within our risk factors, among others, could cause our actual results to differ materially from those expressed in forward-looking statements made by us or on our behalf in filings with the Securities and Exchange Commission, press releases, communications with investors and oral statements. Any or all of our forward-looking statements in this Quarterly Report on Form 10-Q and any other public statements we make may turn out to be wrong. They can be affected by inaccurate assumptions we might make or by known or unknown risks and uncertainties. Many factors discussed in our risk factors will be important in determining future results. Consequently, no forward-looking statement can be guaranteed. Actual future results may differ materially from those anticipated in forward-looking statements. We undertake no obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise, other than as required under the federal securities laws. You are advised, however, to consult any further disclosure we make in our reports filed with the Securities and Exchange Commission.

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

Recent Sales of Unregistered Securities

On July 3, 2018, we issued 19,418 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 of 1933, as amended as exempted securities.

Issuer Purchases of Equity Securities

During the three months ended September 30, 2018, 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.

31.1	Certification Pursuant to Rule 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934 of the Principal Executive Officer (filed herewith).
31.2	Certification Pursuant to Rule 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934 of the Principal Financial Officer (filed herewith).
32.1	Section 1350 Certification (furnished herewith).
101.1	The following financial information from the Yield10 Bioscience, Inc. Quarterly Report on Form 10-Q for the quarter ended September 30, 2018 formatted in XBRL: (i) Condensed Consolidated Balance Sheets, September 30, 2018 and December 31, 2017; (ii) Condensed Consolidated Statements of Operations, Three and Nine Months Ended September 30, 2018 and 2017; (iii) Condensed Consolidated Statements of Comprehensive Loss, Three and Nine Months Ended September 30, 2018 and 2017; (iv) Condensed Consolidated Statements of Cash Flows, Nine Months Ended September 30, 2018 and 2017; and (v) Notes to Consolidated Financial Statements.

SIGNATURES

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

YIELD10 BIOSCIENCE, INC.

November 8, 2018	By:	/s/ OLIVER PEOPLES
		Oliver Peoples
		President and Chief Executive Officer
		(Principal Executive Officer)
November 8, 2018	By:	/s/ CHARLES B. HAASER
		Charles B. Haaser
		Chief Accounting Officer
		(Principal Financial and Accounting Officer)

EXHIBIT 31.1

CERTIFICATION

I, Oliver Peoples, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Yield10 Bioscience, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Dated: November 8, 2018

/s/ OLIVER PEOPLES

Name:	Oliver Peoples
Title:	*President and Chief Executive Officer* *(Principal Executive Officer)*

EXHIBIT 31.2

CERTIFICATION

I, Charles B. Haaser, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Yield10 Bioscience, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Dated: November 8, 2018	/s/ CHARLES B. HAASER	
	Name:	Charles B. Haaser
	Title:	*Chief Accounting Officer* *(Principal Financial and Accounting Officer)*

EXHIBIT 32.1

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

In connection with the Quarterly Report on Form 10-Q of Yield10 Bioscience, Inc. (the “Company”) for the quarter ended September 30, 2018 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), we, Oliver Peoples, President, Chief Executive Officer and Principal Executive Officer of the Company and Charles B. Haaser, Chief Accounting Officer and Principal Financial and Accounting Officer of the Company, certify, pursuant to 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, to our knowledge that:

1. The Report fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934, as amended; and

2. The information in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

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

Dated: November 8, 2018

/s/ OLIVER PEOPLES
President and Chief Executive Officer
(Principal Executive Officer)

Dated: November 8, 2018

/s/ CHARLES B. HAASER
Chief Accounting Officer
(Principal Financial and Accounting Officer)