UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-Q

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

For the quarterly period ended June 30, 2024

OR

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

For the transition period from to

Commission file number 001-33133

YIELD10 BIOSCIENCE, INC.

Delaware	**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.)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
N/A	N/A	The N/A Capital Market

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

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

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

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒	Smaller reporting company	☒
		Emerging growth company	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

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

The number of shares outstanding of the registrant's common stock as of August 12, 2024 was 657,160.

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Yield10 Bioscience, Inc.
Form 10-Q
For the Quarter Ended June 30, 2024

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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)[1]

	June 30, 2024	December 31, 2023
Assets		
Current Assets:		
Cash and cash equivalents	$ 733	$ 1,068
Prepaid expenses and other current assets	471	332
Total current assets	1,204	1,400
Restricted cash	12	264
Property and equipment, net	432	548
Right-of-use assets, net	1,297	1,653
Other assets	23	42
Total assets	$ 2,968	$ 3,907
Liabilities and Stockholders' Deficit		
Current Liabilities:		
Accounts payable	$ 2,369	$ 1,202
Accrued expenses	1,828	2,010
Deferred revenue	1,800	—
Current portion of lease liabilities	676	669
Convertible note payable, net of issuance costs (Note 8)	996	984
Total current liabilities	7,669	4,865
Lease liabilities, net of current portion	1,087	1,525
Deferred revenue, net of current portion	450	—
Total liabilities	9,206	6,390
Commitments and contingencies (Note 9)		
Stockholders' Deficit:		
Preferred stock ($0.01 par value per share); 5,000,000 shares authorized; no shares issued or outstanding	—	—
Common stock ($0.01 par value per share); 150,000,000 and 60,000,000 shares authorized at June 30, 2024 and December 31, 2023, respectively; 642,497 and 501,357 shares issued and outstanding at June 30, 2024 and December 31, 2023, respectively	6	5
Additional paid-in capital	413,880	411,929
Accumulated other comprehensive loss	(262)	(265)
Accumulated deficit	(419,862)	(414,152)
Total stockholders' deficit	(6,238)	(2,483)
Total liabilities and stockholders' deficit	$ 2,968	$ 3,907

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

[1] All share and per share amounts in the Quarterly Report on Form 10-Q have been adjusted to reflect a 1-for-24 reverse stock split that was effected on May 2, 2024

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

	Three Months Ended June 30,		Six Months Ended June 30,	
	2024	**2023**	**2024**	**2023**
Revenue:				
Grant revenue	$ —	$ —	$ —	$ 60
License revenue	450	—	750	—
Total revenue	450	—	750	60
Expenses:				
Research and development	1,649	1,997	3,015	4,159
General and administrative	2,004	1,670	3,378	3,368
Total expenses	3,653	3,667	6,393	7,527
Loss from operations	(3,203)	(3,667)	(5,643)	(7,467)
Other income (expense):				
Other income (expense), net	(35)	(14)	(67)	4
Total other income (expense)	(35)	(14)	(67)	4
Net loss	$ (3,238)	$ (3,681)	$ (5,710)	$ (7,463)
Basic and diluted net loss per share	$ (5.04)	$ (15.42)	$ (9.84)	$ (33.38)
Number of shares used in per share calculations:				
Basic and diluted	642,444	238,716	580,489	223,603

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

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

	Three Months Ended June 30,		Six Months Ended June 30,	
	2024	**2023**	**2024**	**2023**
Net loss:	$ (3,238)	$ (3,681)	$ (5,710)	$ (7,463)
Other comprehensive loss				
Change in unrealized gain (loss) on investments	—	—	—	1
Change in foreign currency translation adjustment, net of income tax	—	(12)	3	(16)
Total other comprehensive income (loss)	—	(12)	3	(15)
Comprehensive loss	$ (3,238)	$ (3,693)	$ (5,707)	$ (7,478)

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

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

	Six Months Ended June 30,	
	2024	**2023**
Cash flows from operating activities		
Net loss	$ (5,710)	$ (7,463)
Adjustments to reconcile net loss to cash used in operating activities:		
Depreciation and amortization	126	145
Charge for 401(k) company common stock match	26	63
Stock-based compensation	746	830
Non-cash lease expense	250	110
Changes in operating assets and liabilities:		
Unbilled receivables	—	30
Prepaid expenses and other assets	(209)	(48)
Accounts payable	1,162	331
Accrued expenses	207	436
Deferred revenue	2,250	—
Lease liabilities	(325)	(180)
Net cash used in operating activities	(1,477)	(5,746)
Cash flows from investing activities		
Purchase of property and equipment	—	(27)
Proceeds from the maturity of short-term investments	—	1,991
Net cash provided by investing activities	—	1,964
Cash flows from financing activities		
Proceeds from warrant inducement exercise, net of issuance costs	1,174	—
Principal payments on insurance premium financing	(289)	—
Proceeds from issuance of common stock and warrants in equity offering, net of issuance costs	—	2,717
Proceeds from At-the-Market offering, net of issuance costs	—	103
Proceeds from issuance of convertible note	—	1,000
Taxes paid on employees' behalf related to vesting of stock awards	—	(41)
Net cash provided by financing activities	885	3,779
Effect of exchange rate changes on cash, cash equivalents and restricted cash	5	(17)
Net decrease in cash, cash equivalents and restricted cash	(587)	(20)
Cash, cash equivalents and restricted cash at beginning of period	1,332	2,620
Cash, cash equivalents and restricted cash at end of period	$ 745	$ 2,600
Supplemental disclosure of non-cash information:		
Right-of-use assets acquired in exchange for lease liabilities	$ —	$ 100
Financed insurance premiums included in accrued expenses	$ 389	$ —
Right-of-use assets written off due to lease termination	$ 106	$ —

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

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

	Three Months Ended June 30, 2024					
	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Par Value				
Balance, March 31, 2024	641,744	$ 6	$ 413,567	$ (262)	$ (416,624)	$ (3,313)
Stock-based compensation expense	—	—	343	—	—	343
Issuance of common stock for 401(k) match	802	—	7	—	—	7
Issuance of common stock for warrant exercise under inducement, net of offering costs	—	—	(37)	—	—	(37)
Adjustment to common stock post stock split	(49)	—	—	—	—	—
Net loss	—	—	—	—	(3,238)	(3,238)
Balance, June 30, 2024	642,497	$ 6	$ 413,880	$ (262)	$ (419,862)	$ (6,238)

	Three Months Ended June 30, 2023					
	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Par Value				
Balance, March 31, 2023	211,613	$ 2	$ 404,852	$ (232)	$ (403,479)	$ 1,143
Stock-based compensation expense	—	—	381	—	—	381
Issuance of common stock for 401(k) match	393	—	26	—	—	26
Issuance of common stock and warrants in equity offerings, net of issuance costs	41,947	—	2,717	—	—	2,717
Issuance of common stock for director compensation	231	—	13	—	—	13
Effect of foreign currency translation and unrealized loss on investments	—	—	—	(12)	—	(12)
Net loss	—	—	—	—	(3,681)	(3,681)
Balance, June 30, 2023	254,184	$ 2	$ 407,989	$ (244)	$ (407,160)	$ 587

	Six Months Ended June 30, 2024					
	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Par Value				
Balance, December 31, 2023	501,357	$ 5	$ 411,929	$ (265)	$ (414,152)	$ (2,483)
Stock-based compensation expense	—	—	718	—	—	718
Issuance of common stock for 401(k) match	5,158	—	32	—	—	32
Issuance of common stock for director compensation	3,067	—	28	—	—	28
Issuance of common stock and warrants in equity offerings, net of issuance costs	132,964	1	1,173	—	—	1,174
Adjustment to common stock post stock split	(49)	—	—	—	—	—
Effect of foreign currency translation and unrealized loss on investments	—	—	—	3	—	3
Net loss	—	—	—	—	(5,710)	(5,710)
Balance, June 30, 2024	642,497	$ 6	$ 413,880	$ (262)	$ (419,862)	$ (6,238)

	Six Months Ended June 30, 2023					
	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Par Value				
Balance, December 31, 2022	206,015	$ 2	$ 404,324	$ (229)	$ (399,697)	$ 4,400
Stock-based compensation expense	—	—	805	—	—	805
Issuance of common stock for 401(k) match	1,125	—	56	—	—	56
Issuance of common stock under At-the-Market offering, net of issuance costs	3,945	—	103	—	—	103
Issuance of common stock for restricted stock units	735	—	—	—	—	—
Taxes paid on employees' behalf related to vesting of stock awards	—	—	(41)	—	—	(41)
Issuance of common stock and warrants in equity offerings, net of issuance costs	41,947	—	2,717	—	—	2,717
Issuance of common stock for director compensation	417	—	25	—	—	25
Effect of foreign currency translation and unrealized loss on investments	—	—	—	(15)	—	(15)
Net loss	—	—	—	—	(7,463)	(7,463)
Balance, June 30, 2023	254,184	$ 2	$ 407,989	$ (244)	$ (407,160)	$ 587

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

(Amounts in thousands, except share and per share amounts)

1. NATURE OF BUSINESS AND BASIS OF PRESENTATION

Yield10 Bioscience, Inc. ("Yield10" or the "Company") is an agricultural bioscience company focused on commercializing sustainable products using the oilseed *Camelina sativa* ("Camelina") as a platform crop. The features of Camelina, including the availability of winter varieties and a short growth cycle, make it suitable for integration into crop rotations and double cropping on millions of acres in North America. To unlock this potential and make Camelina an attractive option to farmers, the Company has been developing and was planning to commercialize advanced varieties with elite weed control herbicide tolerance traits, improved agronomic performance, and increased crop value. The Company has been pursuing two Camelina seed oil products with different market opportunities, value chains, scale requirements and challenges. The first product, Camelina seed oil is being developed as a low-carbon intensity feedstock oil for biofuels, including biodiesel, renewable diesel and sustainable aviation fuel. The second Camelina product being developed is a seed oil with high levels of the omega-3 fatty acids eicosapentaenoic acid ("EPA" and docosahexaenoic acid ("DHA") produced by a genetically engineered seed." The Company's development was driven by the growing demand for new sources of omega-3 feedstocks and the production constraints and supply volatility of the traditional raw material source which is fish oil extracted from ocean harvested fish and krill. The Company's omega-3 Camelina is designed to address a need for a reliable, scalable supply of omega-3 oils for aquaculture. Yield10 is headquartered in Woburn, Massachusetts and has an Oilseed Center of Excellence in Saskatoon, Saskatchewan, Canada.

The accompanying condensed consolidated financial statements are presented in U.S. dollars, are unaudited, and have been prepared by Yield10 in accordance with generally accepted accounting principles 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 consolidated financial statements but does not include all disclosures required by GAAP. The condensed consolidated financial statements, in the opinion of management, reflect all adjustments (consisting only of normal recurring adjustments) necessary for fair statement of the financial position as of June 30, 2024 and December 31, 2023, and for the results of operations for the interim periods ended June 30, 2024 and June 30, 2023.

The results of operations for the interim periods are not necessarily indicative of the results of operations to be expected for any future period or the entire fiscal year. These interim unaudited condensed consolidated financial statements should be read in conjunction with the audited consolidated financial statements for the year ended December 31, 2023, which are contained in the Company’s Annual Report on Form 10-K filed with the SEC on April 1, 2024.

The accompanying condensed consolidated financial statements have been prepared on a basis which assumes that the Company will continue as a going concern and which contemplates the realization of assets and satisfaction of liabilities and commitments in the normal course of business. With the exception of a single year, the Company has recorded losses since its initial founding, including in the three and six months ended June 30, 2024.

As of June 30, 2024, the Company held unrestricted cash and cash equivalents of $733. Yield10 follows the guidance of Accounting Standards Codification (“ASC”) Topic 205-40, *Presentation of Financial Statements-Going Concern*, in order to determine whether there is substantial doubt about its ability to continue as a going concern for one year after the date its condensed consolidated financial statements are issued. There is substantial doubt that the Company will continue as a going concern beyond 2024.

On July 12, 2024, the Company entered into a Memorandum of Understanding (“MOU”) and License Agreement with Nuseed Nutritional US Inc. (the seed technologies platform of Nufarm Limited) ("Nufarm"), granting Nufarm a commercial license to certain Omega-3 intellectual property assets, materials and know-how for the production of oil in Camelina. Under the License Agreement, Nufarm will pay Yield10 up to $5,000, of which $3,000 was received upon execution of the agreements during July 2024, with the balance of $2,000 due upon the Company's completion of certain near-term milestones. The Company is using the proceeds received from Nufarm for working capital, including the payment of outstanding amounts due to creditors. Nufarm and the Company additionally agreed to negotiate exclusively with each other for the sale of substantially all of Yield10’s remaining assets to Nufarm. The asset sale will require approval from the stockholders of Yield10, and the Company plans to hold a special meeting of shareholders to seek that vote approval following execution of the asset purchase agreement. If the Company's shareholders approve the asset sale to Nufarm, the Company will likely complete the sale of its remaining assets, wind down its affairs and cease operations shortly thereafter.

On March 22, 2024, the Company entered into warrant exercise agreements with certain existing institutional investors, pursuant to which these investors agreed to exercise (i) a portion of the warrants issued to them in May 2023, which were exercisable for 27,964 shares of the Company's common stock and had an exercise price of $71.52 per share, and (ii) a portion of the warrants issued to them in August 2023, which were exercisable for 105,000 shares of common stock and had an exercise price of $15.60 per share. In consideration for their immediate exercise of these 132,964 total warrants for cash, the Company agreed to reduce the exercise price of the May 2023 and August 2023 warrants held by these institutional investors to $10.32 per share, which was equal to the closing price of the Company's common stock on The Nasdaq Stock Market prior to the execution of the agreements. The institutional investors also received in a private placement, new unregistered warrants to purchase up to an aggregate of 265,928 shares of common stock with an exercise price of $10.32 per share, which is equal to 200% of the shares of common stock issued in connection with this current warrant exercise. The Company received net proceeds of approximately $1,174 through June 30, 2024, from the exercise of the warrants, net of transaction expenses of $198 incurred in completing the arrangement.

On February 14, 2024, the Company granted VISION Bioenergy Oilseeds, LLC ("VISION") a global non-exclusive commercial license to certain proprietary herbicide tolerant traits and herbicide tolerant Camelina varieties for use in any field except omega-3 oils and bioplastics. Under the terms of the license, VISION has a three-year exclusivity period to commercialize the licensed traits and varieties for biofuels. During this period, Yield10 has the right to continue developing these technologies up to a limited scale and form partnerships with other biofuel players. Yield10 has no restrictions on the commercialization of the herbicide tolerance technologies outside of the biofuels field including for omega-3 oils production. In consideration for the license and the Company's completion of certain near-term deliverables, VISION made cash payments to the Company totaling $3,000, all of which was received as of June 30, 2024.

On August 15, 2023, the Company closed on a public offering of 239,583 units at a public offering price of $15.60 per unit. Each unit consisted of one share of common stock and one warrant to purchase one share of common stock. The warrants, when issued, were immediately exercisable at an exercise price of $15.60 per share and expire five years from the date of issuance. The shares of common stock and accompanying warrants could only be purchased together during the offering but were immediately separable upon issuance. The Company received cash proceeds of $3,125 from the offering, net of $613 in issuance costs.

On May 5, 2023, the Company raised $3,000 in gross proceeds through the issuance of the Company's common stock and pre-funded warrants in a registered direct offering and warrants in a concurrent private placement with investors. Under the terms of the securities purchase agreement, Yield10 agreed to sell 38,817 shares of common stock and 3,130 pre-funded warrants that were exercised and converted to common stock shortly after completion of the offering. The Company also agreed to issue unregistered warrants to purchase 41,946 shares of common stock. The combined effective offering price for one share of common stock (or pre-funded warrants in lieu thereof) and accompanying warrant was $71.52. The Company received proceeds of $2,717, from the offering, net of $283 in issuance costs.

On April 27, 2023, the Company signed a non-binding letter of intent ("LOI") with Marathon Petroleum Corporation for a potential investment in Yield10 by Marathon and for an offtake agreement for low-carbon intensity Camelina feedstock oil to be used in renewable fuels production. In connection with signing the LOI, the Company sold and issued to MPC Investment LLC, ("MPC") an affiliate of Marathon, a senior unsecured convertible note in the original principal amount of $1,000 (the "Convertible Note") which was convertible into shares of the Company's common stock at a conversion price equal to $73.68 per share. On July 23, 2024, the Company and MPC mutually agreed to terminate the Convertible Note with the Company completing a one-time payment to MPC of $500 in full satisfaction of the $1,000 Convertible Note and unpaid interest of $101.

2. ACCOUNTING POLICIES

Basis of Presentation and Principles of Consolidation

The accompanying unaudited condensed consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States of America, including accounting standards set by the Financial Accounting Standards Board ("FASB̂"). The FASB sets GAAP that the Company follows to ensure its financial condition, results of operations, and cash flows are consistently reported. References to GAAP issued by the FASB in these notes to the unaudited condensed consolidated financial statements are to the ASC. The unaudited condensed consolidated financial statements include the accounts of the Company and its wholly owned subsidiaries. All intercompany transactions were eliminated, including transactions with its subsidiaries, Yield10 Oilseeds Inc. ("YOI") and Yield10 Bioscience Securities Corp.

Reverse Stock Split

On May 2, 2024, the Company effected a 1-for-24 reverse stock split of its common stock. Unless otherwise indicated, all share amounts, per share data, share prices, and conversion rates set forth in these notes and the accompanying consolidated condensed financial statements have, where applicable, been adjusted retroactively to reflect this reverse stock split.

Cash, Cash Equivalents and Restricted Cash

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

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the Company's unaudited condensed consolidated balance sheets included herein:

	June 30, 2024	December 31, 2023
Cash and cash equivalents	$ 733	$ 1,068
Restricted cash	12	264
Total cash, cash equivalents and restricted cash	$ 745	$ 1,332

Amounts included in restricted cash represent those required to be set aside by contractual agreement. Restricted cash of $12 and $264 at June 30, 2024 and December 31, 2023, respectively, consisted of funds held through an irrevocable letter of credit in connection with the Company's lease agreement for its Woburn, Massachusetts facility and funds held as collateral for the Company's corporate credit card program. In December 2023, the Company notified the Woburn landlord that it was deferring monthly rental payments, beginning with the December 2023 rent, until such time that the Company was able to raise additional working capital. The landlord notified the Company that it was in default under the terms of the lease and subsequently drew down funds held under the letter of credit to cover rent for the months of December 2023 through February 2024, leaving a balance in the letter of credit of $12 as of June 30, 2024. The Company reinitiated payment of its monthly rent beginning with the month of March 2024.

Investments

The Company classifies investments purchased with an original maturity date of more than ninety days at the date of purchase and a maturity date of one year or less at the balance sheet date to be short-term investments. The Company classifies investments with a maturity date of greater than one year from the balance sheet date as long-term investments.

Other-than-temporary impairments of equity investments are recognized in the Company's unaudited condensed consolidated 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) within the Company's condensed consolidated statements of operations. Any premium or discount arising at purchase is amortized and/or accreted to interest income.

Use of Estimates

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

Foreign Currency Translation

The functional currency for YOI is the Canadian dollar. Foreign denominated assets and liabilities of YOI 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 unaudited condensed consolidated balance sheet. When the Company dissolves, sells all or substantially all of the assets of a consolidated foreign subsidiary, the cumulative translation gain or loss of that subsidiary is released from accumulated and other comprehensive income (loss) and included within its unaudited condensed consolidated statement of operations during the fiscal period when the dissolution or sale occurs.

Comprehensive Loss

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

Income Taxes

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

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

Concentration of Credit Risk

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

Fair Value Measurements

The carrying amounts of the Company's financial instruments as of June 30, 2024 and December 31, 2023, which include cash equivalents, restricted cash, accounts payable, and accrued expenses, approximate their fair values due to the short-term nature of these instruments. See Note 4 for further discussion on fair value measurements.

Segment Information

The accounting guidance for segment reporting establishes standards for reporting information on operating segments in financial statements. The Company is an agricultural bioscience company operating in one segment, which is the development of improved Camelina plant varieties to produce proprietary products, and to produce other high value genetic traits for the agriculture and food industries. The Company's chief operating decision-maker does not manage any part of the Company separately, and the allocation of resources and assessment of performance are based on the Company's consolidated operating results.

Property and Equipment

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

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

Lease Accounting

As a lessee, the Company follows the lease accounting guidance codified in ASC 842. A lease is classified as a finance lease if any of five criteria described in the guidance apply to the lease and any lease not classified as a finance lease is classified as an operating lease with expense recognition occurring on a straight-line basis over the term of the lease. Under ASC 842, the Company records a lease liability on the commencement date of a lease calculated as the present value of the lease payments, using the interest rate implicit in the lease, or if that rate is not readily determinable, using the Company's incremental borrowing rate. A right-of-use asset equal to the lease liability is also recorded with adjustments made, as necessary, for lease prepayments, lease accruals, initial direct costs and lessor lease incentives that may be present within the terms of the lease.

Yield10 has adopted the short-term lease exception that permits lessees to omit leases with terms of twelve months or less from the accounting requirements of ASC 842. When applying the short-term lease exception, the Company evaluates new leases for renewal options or evergreen provisions that automatically renew the lease until one of the parties terminates the lease contract. The Company includes renewal options and evergreen periods when assessing a lease term if the Company is reasonably certain the lease will be extended into option and evergreen periods. None of the Company's current lease agreements contain evergreen provisions or options to extend the lease.

Impairment of Long-Lived Assets

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

Revenue

For consideration of $3,000 paid to the Company, on February 14, 2024, the Company granted VISION a global non-exclusive commercial license to certain proprietary herbicide tolerant traits and herbicide tolerant Camelina varieties for use in any field except omega-3 oils and bioplastics. Under the terms of the license, VISION has a three-year exclusivity period to commercialize the licensed traits and varieties for biofuels. During this period, Yield10 has the right to continue developing these technologies up to a limited scale and form partnerships with other biofuel players. Yield10 has no restrictions on the commercialization of the herbicide tolerance technologies outside the biofuels field including for omega-3 oils production.

Yield10 reviewed the accounting guidance provided by ASC 606, *Revenue from Contracts with Customers* ("ASC 606"). As required by ASC 606, the Company determined the license agreement included several significant contractual performance obligations that are expected to be completed throughout the period ending in September 2025. None of these performance obligations represent distinct, ongoing activities that the Company provides for under other third-party agreements. As a result, the Company has determined the license and performance deliverables should be bundled and recorded under a single unit of accounting with the revenue recognized on a straightline basis through September 2025. During the three and six months ended June 30, 2024, the Company recognized license revenue of $450 and $750, respectively, from the VISION agreement with the remaining balance of $2,250 recorded within the Company's condensed consolidated balance sheet as current and long-term deferred revenue of $1,800 and $450, respectively.

The Company has historically earned revenue from government research grants, in which it served as either the primary contractor or as a subcontractor. These grants were considered a central operation of the Company's business. The Company recognizes grant revenue as research expenses related to the grants are incurred. Revenue earned on government grants, but not yet invoiced as of the balance sheet date, are recorded as unbilled receivables and funds received from government grants in advance of work being performed are recorded as deferred revenue until earned.

Research and Development

All costs associated with internal research and development are expensed as incurred. Research and development expenses include, among others, direct costs for salaries, employee benefits, subcontractors, crop trials, regulatory activities, facility related expenses, depreciation, and stock-based compensation. Costs incurred for seed multiplication and processing and the cost of harvested Camelina grain purchased from growers under grain production contracts are included within research and development expense until the Company completes its transition to established commercial operations, at which time these costs are expected to be recorded within inventory. Costs incurred in connection with government research grants are recorded as research and development expense.

Before beginning to recognize Camelina product revenue, Yield10 will need to more fully establish its commercial Camelina operations, demonstrate the profitable economics of its biofuel feedstock and Omega-3 Camelina products and validate grower acceptance through larger scale acreage adoption.

General and Administrative Expenses

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

Intellectual Property Costs

The Company includes all costs associated with the prosecution and maintenance of patents within general and administrative expenses in the Company's unaudited condensed consolidated statements of operations.

Stock-Based Compensation

All share-based payments to employees, members of the Board of Directors and non-employees are recognized within operating expenses based on the straight-line recognition of their grant date fair value over the period during which the recipient is required to provide service in exchange for the award. See Note 6 for a description of the types of stock-based awards granted, the compensation expense related to such awards and detail of equity-based awards outstanding.

Recent Accounting Standards

From time to time, new accounting pronouncements are issued by the FASB or other standard setting bodies that the Company adopts as of the specified effective date.

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments-Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments.* The FASB subsequently issued amendments to ASU 2016-13, which have the same effective date and transition date as the initial pronouncement. This standard requires entities to estimate an expected lifetime credit loss on financial assets ranging from short-term trade accounts receivable to long-term financings and report credit losses using an expected losses model rather than the incurred losses model that was previously used, and establishes additional disclosures related to credit risks. For available-for-sale debt securities with unrealized losses, this standard now requires allowances to be recorded instead of reducing the amortized cost of the investment. This standard limits the amount of credit losses to be recognized for available-for-sale debt securities to the amount by which carrying value exceeds fair value and requires the reversal of previously recognized credit losses if fair value increases. The guidance is effective for annual periods beginning after December 15, 2022 for SEC filers that are eligible to be smaller reporting companies and interim periods within those fiscal years. The adoption of this standard has not materially impacted the Company’s condensed consolidated financial statements.

In November 2023 the FASB issued ASU No. 2023-07, *Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosure*. This standard requires disclosure of significant segment expenses that are regularly provided to a company's Chief Operating Decision Maker (“CODM”) and included within each reported measure of segment profit or loss, an amount and description of its composition for other segment items to reconcile to segment profit or loss and the title and position of the entity's CODM. The amendments in this update also expand the interim segment disclosure requirements. All disclosure requirements under this standard are also required for public entities with a single reportable segment. This standard is effective for fiscal years beginning after December 15, 2023, and interim periods within fiscal years beginning after December 15, 2024. Early adoption is permitted and the amendments in this update are required to be applied on a retrospective basis. The adoption of this standard has not materially impacted the Company’s condensed consolidated financial statements.

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

In March 2024 the SEC issued a final rule under SEC Release No. 33-11275, *The Enhancement and Standardization of Climate-Related Disclosures for Investors*. This new rule will require smaller company filers to disclose material climate-related risks that are reasonably likely to have a material impact on their business, results of operations or financial condition. The final rule, as adopted, includes a phased-in compliance period which will begin phasing in with the Company's annual report for the year ending December 31, 2027. In April 2024, the SEC voluntarily stayed implementation of the new climate-related disclosure requirements pending judicial review. Once the litigation is resolved, and if the rule remains in effect, the SEC will announce a new effective date.

3. BASIC AND DILUTED NET LOSS PER SHARE

Basic net loss per share is computed by dividing net loss available to common stockholders by the weighted-average number of common shares outstanding. Diluted net loss per share is computed by dividing net loss available to common stockholders by the weighted-average number of dilutive common shares outstanding during the period. Diluted shares outstanding is calculated by adding to the weighted shares outstanding any potential (unissued) shares of common stock from outstanding stock options and warrants based on the treasury stock method, as well as weighted shares outstanding of any potential (unissued) shares of common stock from restricted stock units. In periods when a net loss is reported, all common stock equivalents are excluded from the calculation because they would have an anti-dilutive effect, meaning the loss per share would be reduced. Therefore, in periods when a loss is reported, basic and dilutive loss per share are the same. Common stock equivalents include stock options, restricted stock awards and warrants.

The following potentially dilutive securities were excluded from the calculation of diluted net loss per share due to their antidilutive effect:

	As of June 30,	
	2024	**2023**
Options	52,600	48,234
Restricted Stock Awards	25,001	—
Warrants	460,953	88,999
Total	538,554	137,233

4. FAIR VALUE MEASUREMENTS

The Company had certain financial assets at December 31, 2023 recorded at fair value which have been classified as Level 1 within the fair value hierarchy as described in the accounting standards for fair value measurements. Fair value is the price that would be received from the sale of an asset, or the price paid to transfer a liability in an orderly transaction between independent market participants at the measurement date. Fair values determined by Level 1 inputs utilize observable data such as quoted prices in active markets for identical instruments. Fair values determined by Level 2 inputs utilize data points other than quoted prices in active markets that are observable either directly or indirectly. Fair values determined by Level 3 inputs utilize unobservable data points in which there is little or no market data, which require the reporting entity to develop its own assumptions. The fair value hierarchy level is determined by the lowest level of significant input.

The Company’s financial assets classified as Level 1 at December 31, 2023 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 December 31, 2023.

The table below present information about the Company’s assets that are measured at fair value on a recurring basis as of December 31, 2023, and indicate the fair value hierarchy of the valuation techniques utilized to determine such fair value.

Description	Fair value measurements at reporting date using			
	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, 2023
Cash equivalents:				
Money market funds	$ 673	$ —	$ —	$ 673
Total assets	$ 673	$ —	$ —	$ 673

The Company held no assets subject to fair value measurement at June 30, 2024. There were no transfers of financial assets between category levels during the three and six months ended June 30, 2024 and the three and six months ended June 30, 2023.

5. ACCRUED EXPENSES

Accrued expenses consisted of the following at June 30, 2024 and December 31, 2023:

	June 30, 2024	December 31, 2023
Employee compensation and benefits	$ 647	$ 103
Leased facilities	29	27
Professional services	212	452
Field trials and related expenses	252	1,032
Financed insurance premiums	100	—
IP licenses	267	5
Other	321	391
Total accrued expenses	$ 1,828	$ 2,010

6. STOCK-BASED COMPENSATION

Expense Information for Employee and Non-Employee Stock Awards

The Company recognizes stock-based compensation expense related to stock awards, including awards to non-employees and members of the Board of Directors. For the three months ended June 30, 2024 and 2023, approximately $123 and $136, respectively, of stock-based compensation expense was included in research and development expenses and approximately $220 and $270, respectively, was included in general and administrative expenses. For the six months ended June 30, 2024 and 2023, approximately $247 and $275, respectively, of stock-based compensation expense was included in research and development expenses and approximately $499 and $555, respectively, was included in general and administrative expenses.

The compensation expense related to unvested stock awards is expected to be recognized over a remaining weighted average period of 2.22 years.

Stock Options

A summary of option activity for the six months ended June 30, 2024 is as follows:

	Number of Shares		Weighted Average Exercise Price
Outstanding at December 31, 2023	55,790	$	212.79
Granted	—		—
Exercised	—		—
Forfeited	(2,039)		42.61
Expired	(1,151)		422.42
Outstanding at June 30, 2024	52,600	$	214.80
Options exercisable at June 30, 2024	32,820	$	293.40

2018 Stock Plan

In accordance with the terms of the Company's 2018 Stock Option and Incentive Plan (“2018 Stock Plan”), Yield10's Board of Directors approved the addition of 25,068 and 10,300 shares to the 2018 Stock Plan, on the first day of 2024 and 2023, respectively, each of which represented 5% of the Company's outstanding common stock on the day prior to each increase. At the Company's 2024 annual meeting of stockholders held on June 7, 2024, stockholders approved an amendment to the Company's 2018 Stock Plan to add 10,416 shares of common stock for issuance under the 2018 Stock Plan and at the Company's earlier 2023 annual meeting of stockholders held on May 25, 2023, stockholders approved an amendment and restatement of the 2018 Stock Plan to increase the aggregate number of shares of the Company’s common stock that may be issued under the 2018 Plan by 20,833 shares. As of June 30, 2024, 29,815 shares remain available to be awarded from the 2018 Stock Plan.

Restricted Stock Units

The Company records stock compensation expense for restricted stock units ("RSUs”) on a straight-line basis over their requisite service period, which approximates the vesting period, based on each RSU's award date fair market value. As RSUs vest, the Company withholds a number of shares from its employees with an aggregate fair market value equal to the minimum tax withholding amount from the common stock issuable at the vest date. During the three and six months ended June 30, 2024, no employee RSUs vested.

A summary of RSUs activity for the six months ended June 30, 2024, is as follows:

	Number of RSUs	Weighted Average Remaining Contractual Life (years)
Outstanding at December 31, 2023	—	
Awarded	25,001	
Released	—	
Outstanding at June 30, 2024	25,001	0.38

The 25,001 RSUs awarded by the Company's Board of Directors during February 2024 were to certain officers, senior staff and outside consultants. These RSUs will vest in 50% increments 6 and 12 months from the date the awards were granted.

7. LEASES

Maturity Analysis of Lease Liabilities

The Company's right-of-use assets and corresponding lease liabilities recorded under ASC 842 is related to its facility lease for its headquarters located in Woburn, Massachusetts. As of June 30, 2024, the Company's lease liability related to its Woburn facility will mature as follows:

Year ended December 31,		Undiscounted Cash Flows
2024 (July to December)	$	390
2025		793
2026		746
Total undiscounted future lease payments		1,929
Amount of lease payments representing interest		(166)
Total lease liabilities	$	1,763
Short-term lease liability	$	676
Long-term lease liability	$	1,087

During the three months ended June 30, 2024, the Company discontinued leasing the vehicles used by its field operations personnel in Canada and initiated early termination of the individual leases. The vehicles were returned to the lessor for disposal through an auctioning process. Yield10 will remain responsible for monthly lease payments until the vehicles are sold and will also be responsible for reimbursing the lessor for any loss in value incurred by the lessor as a result of the terminations. At June 30, 2024, the Company's right-of-use assets and lease liabilities shown in the condensed consolidated balance sheet included herein have been reduced to reflect the termination of the vehicle leases. As of June 30, 2024, the real estate lease for the Company's Woburn facility represented 100% of the Company's undiscounted lease liabilities of $1,929 reflected in the table above.

Quantitative Disclosure of Lease Costs

	Three Months Ended June 30,				Six Months Ended June 30,			
	2024		2023		2024		2023	
Lease cost:								
Operating lease cost	$	152	$	150	$	303	$	301
Short-term lease cost		231		181		406		398
Sublease income		(162)		(177)		(323)		(336)
Total lease cost, net	$	221	$	154	$	386	$	363

Other information as of:	June 30, 2024	December 31, 2023
Weighted-average remaining lease term (years)	2.4	3.0
Weighted-average discount rate	7.25%	7.53%

Real Estate Leases

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

The Company provided the Woburn landlord with a security deposit at the commencement of the lease of $229 in the form of an irrevocable letter of credit. In December 2023, the Company notified the landlord that it was deferring monthly rental payments, beginning with the December 2023 rent, until such time that the Company was able to raise sufficient additional working capital. The landlord notified the Company that it was in payment default under the terms of the lease and subsequently withdrew funds held under the irrevocable letter of credit to cover rent for the months of December 2023 through February 2024, leaving a remaining balance in the letter of credit of $12.

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 CJ sublease is coterminous with the Company's master lease and CJ will pay rent and operating expenses proportionate to the amounts payable to the landlord by the Company, as adjusted from time to time in accordance with the terms of the master lease. Future CJ sublease payments have not been presented as an offset to total undiscounted future lease payments of $1,929 shown in the lease maturity analysis table above. CJ provided the Company with a security deposit of $103 in the form of an irrevocable letter of credit.

The Company's wholly owned subsidiary, YOI, located in Saskatoon, Saskatchewan, Canada, leases approximately 9,600 square feet of office, laboratory and greenhouse space located within Innovation Place at 410 Downey Road and within the research facility of National Research Council Canada located at 110 Gymnasium Place. None of the leases contain renewal or early termination options. YOI's lease agreements for these facilities have expired and are now being leased on a month-to-month basis until such time as the lessor provides the Company with written amendments or new lease agreements for longer periods of time.

8. CONVERTIBLE NOTE PAYABLE, NET

On April 27, 2023, the Company signed an LOI with Marathon Petroleum Corporation for a potential investment in Yield10 by Marathon and for an offtake agreement for low-carbon intensity Camelina feedstock oil to be used in renewable fuels production. In connection with signing the LOI, the Company sold and issued to MPC, an affiliate of Marathon, a senior unsecured convertible note in the original principal amount of $1,000 which was convertible into shares of the Company's common stock at a conversion price equal to $73.68 per share. The Convertible Note was due and payable in full in cash on the expected maturity date of August 24, 2024. However, on July 23, 2024, the Company and MPC mutually agreed to terminate the Convertible Note with the Company completing a one-time payment to MPC of $500 in full satisfaction of the $1,000 Convertible Note and unpaid interest of $101. Settlement of the Convertible Note and accrued interest will be recorded in the Company's financial statements during its fiscal quarter ending September 30, 2024.

The Convertible Note accrued interest at 8.0% per annum, payable semi-annually in arrears. The Company elected its option prior to interest payment dates, to pay the interest due on such interest payment date in kind ("PIK Interest"), in which case such PIK Interest was capitalized and added to the unpaid principal amount of the Convertible Note. Interest expense accrued on the Convertible Note through June 30, 2024, is included in other income (expense), net, in the Company's condensed consolidated statements of operations included herein.

The issuance costs of $33 are being amortized as interest expense, using the effective interest rate method, through its original expected maturity date, resulting in an effective interest rate of 10.7%. As of June 30, 2024, $4 in issuance costs remained to be amortized.

9. COMMITMENTS AND CONTINGENCIES

Contractual Commitments

Exclusive Collaboration Agreement with Rothamsted Research ("Rothamsted")

In November 2020, the Company signed an exclusive collaboration agreement with UK-based Rothamsted to support Rothamsted's program to develop omega-3 oils in Camelina sativa. Under the agreement, Yield10 provided Rothamsted with financial support of $250 for ongoing research including further EPA, DHA+EPA trait improvement, field testing and nutritional studies. Included within the agreement, the Company had an exclusive two-year option, as subsequently amended, to sign a global, exclusive or non-exclusive license agreement to the technology. During July 2024, the Company executed a global exclusive license agreement with Rothamsted.

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

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

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

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

Guaranteed Minimum Payments to Growers and Seed Producers

As an incentive for growers located in Canada and the U.S. to enter into Camelina commercial grain production contracts with the Company for the winter 2022/2023 and spring 2023 growing seasons, Yield10 offered minimum guaranteed payments per acre that reduced growers´ risk of financial loss. The cost of these minimum payments was generally accrued on a straight-line basis over the expected growing season. Payment of minimum guarantees was conditional upon each grower fulfilling their contractual responsibilities and were offset by the purchase price of Yield10's Camelina planting seed provided to the growers and the contractual price that the Company pays for the quantity of grain that is harvested. At June 30, 2024 and December 31, 2023, remaining payments outstanding due to growers for the completed 2022/2023 winter and 2023 spring growing seasons totaled $75 and $204, respectively, net of the growers' obligation to pay for the planting seed. Beginning with the winter 2023/2024 winter growing season, the Company discontinued the grower minimum payment incentive program.

Insurance Premium Financing Agreement

In December 2023, the Company renewed various corporate insurance policies with annual premiums totaling $549. The Company executed a finance agreement with AFCO Premium Credit LLC over a term of eight months, with an annual interest rate of 8.7% percent, that finances the payment of the total premiums owed. The financing agreement required a down payment of $159, with the remaining $390, plus interest, paid over eight months. These monthly payments started on January 10, 2024, and as of June 30, 2024, the unpaid balance is $100, and is included within accrued expenses in the Company's condensed consolidated balance sheet included herein.

Facility Leases

The Company leases facilities under non-cancelable leases expiring at various dates through November 30, 2026. See Note 7.

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 aggregate, a material adverse effect on its business, financial condition or results of operations.

Guarantees

As of June 30, 2024 and December 31, 2023, the Company did not have significant liabilities recorded for guarantees.

The Company enters into indemnification provisions under various agreements with other companies in the ordinary course of business, typically with business partners and contractors. Under these provisions, the Company generally indemnifies and holds harmless the indemnified party for losses suffered or incurred by the indemnified party as a result of its activities. These indemnification provisions generally survive termination of the underlying agreement. The maximum amount of potential future payments the Company could be required to make under these indemnification provisions is unlimited. However, to date the Company has not incurred material costs to defend lawsuits or settle claims related to these indemnification provisions. As a result, the estimated fair value of these agreements is minimal. Accordingly, the Company has no liabilities recorded for these agreements as of June 30, 2024 and December 31, 2023.

10. LICENSE AGREEMENTS

VISION Bioenergy Oilseeds LLC

On February 14, 2024, the Company granted VISION a global non-exclusive commercial license to certain proprietary herbicide tolerant traits and herbicide tolerant Camelina varieties for use in any field except omega-3 oils and bioplastics. Under the terms of the license, VISION has a three-year exclusivity period to commercialize the licensed traits and varieties for biofuels. During this period, Yield10 has the right to continue developing these technologies up to a limited scale and form partnerships with other biofuel players. Yield10 has no restrictions on the commercialization of the herbicide tolerance technologies outside the biofuels field including for omega-3 oils production. As of June 30, 2024, the Company has received the full $3,000 in consideration due under the license agreement.

Yield10 reviewed the accounting guidance provided by ASC 606. As required by ASC 606, the Company determined the license agreement included several significant contractual performance obligations that are expected to be completed throughout the period ending in September 2025. None of these performance obligations represent distinct, ongoing activities that the Company provides for under other third-party agreements. As a result, the Company has determined the license and performance deliverables should be bundled and recorded as a single unit of accounting with the revenue recognized on a straightline basis through September 2025. During the three and six months ended June 30, 2024, the Company recognized license revenue of $450 and $750, respectively, from the VISION agreement with the remaining balance of $2,250 recorded within the Company's condensed consolidated balance sheet as current and long-term deferred revenue of $1,800 and $450, respectively.

GDM

In August 2020, the Company entered into a non-exclusive research agreement with GDM, a company specializing in plant genetics, to evaluate novel yield traits in soybean. Under the terms of the agreement, GDM is working with the Company's yield traits within its research and development program as a strategy to improve soybean yield performance and sustainability. The research agreement includes three novel yield traits in the first phase with the potential to expand the program to more traits in the future. In September 2023, the Company and GDM amended the research agreement to extend the term of the agreement through August 2025, in order to allow GDM more time to complete its evaluations.

The GDM research arrangement does not provide licensing revenue to the Company while GDM performs its trait evaluations.

11. GEOGRAPHIC INFORMATION

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

	U.S.	Canada	Total
Three Months Ended June 30, 2024			
Revenue	$ 450	$ —	$ 450
Three Months Ended June 30, 2023			
Revenue	$ —	$ —	$ —
Six Months Ended June 30, 2024			
Revenue	$ 750	$ —	$ 750
Six Months Ended June 30, 2023			
Revenue	$ 60	$ —	$ 60
Identifiable long-lived assets			
June 30, 2024	$ 395	$ 37	$ 432
December 31, 2023	$ 484	$ 64	$ 548

12. CAPITAL STOCK AND WARRANTS

Common Stock

Reverse Stock Split

On May 2, 2024, the Company completed a 1-for-24 reverse stock split of its common stock by filing a certificate of amendment with the State of Delaware to amend its certificate of incorporation. The ratio for the reverse stock split was determined by the Company's board of directors following approval by stockholders at the Company's special meeting held on April 26, 2024. The reverse stock split had the effect of increasing the Company's common shares available for issuance by reducing issued and outstanding common shares by a divisible factor of 24 while its authorized shares remained at its then 60 million. Proportional adjustments were made to the Company's outstanding stock options and to the number of shares issued and issuable under the Company's equity compensation plans.

Increase in Authorized Shares of Common Stock

On June 7, 2024, the Company held its 2024 Annual Meeting, at which stockholders approved an amendment to the Certificate of Incorporation to increase from 60 million shares to 150 million shares the aggregate number of shares of common stock that are authorized to be issued. As a result of this vote, on June 12, 2024, the Company filed a Certificate of Amendment to its amended and restated Certificate of Incorporation with the Secretary of the State of Delaware to increase the number of authorized shares. Also, at the 2024 Annual Meeting, stockholders approved an amendment to the Company's 2018 Plan to add 10,416 shares of common stock for issuance under the 2018 Stock Plan.

Notice of Nasdaq Delisting

On May 14, 2024, Yield10 received notice from The Nasdaq Stock Market LLC that the Nasdaq Hearings Panel had determined to delist the Company's common stock. Suspension of trading in our common stock on Nasdaq became effective at the open of trading on May 16, 2024. Following the delisting of the Company's common stock from the Nasdaq Capital Market, it continued to be a reporting company under the Securities Exchange Act of 1934. Yield10's common stock began trading on the OTC Markets Group ("OTC") platform at the open of trading on May 16, 2024, under the symbol "YTEN." On July 19, 2024, the Company's common stock began trading on the OTC-QB market.

Warrant Exercise Inducement

On March 22, 2024, the Company entered into warrant exercise agreements with certain existing institutional investors, pursuant to which these investors agreed to exercise (i) a portion of the warrants issued to them in the May 2023 R*egistered Direct Offering and Private Placement* (described below), which were exercisable for 27,964 shares of the Company's common stock and had an exercise price of $71.52 per share, and (ii) a portion of the warrants issued to them in August 2023 *Public Offering* (also described below), which were exercisable for 105,000 shares of common stock and had an exercise price of $15.60 per share. In consideration for their immediate exercise of these 132,964 total warrants for cash, the Company agreed to reduce the exercise price of the May 2023 and August 2023 warrants held by these institutional investors, to $10.32 per share, which was equal to the closing price of the Company's common stock on The Nasdaq Stock Market prior to the execution of the agreements. The institutional investors also received in a private placement, new unregistered warrants to purchase up to an aggregate of 265,928 shares of common stock with an exercise price of $10.32 per share, which is equal to 200% of the shares of common stock issued in connection with this current warrant exercise. These new warrants will have an expiration date equal to the fifth anniversary from the date of stockholder approval of the warrants. The Company filed an S-1 registration statement, (File Number 333-278930) with the SEC on April 25, 2024, in order to register the shares of common stock issuable upon the exercise of the new warrants, which registration was declared effective by the SEC on July 24, 2024. The Company received net proceeds of approximately $1,174 during the six months ended June 30, 2024, from the exercise of the warrants, net of transaction expenses of $198 incurred in completing the arrangement.

Public Offering

On August 15, 2023, the Company closed on a public offering of 239,583 units at a public offering price of $15.60 per unit. Each unit consisted of one share of common stock and one warrant to purchase one share of common stock. The warrants, when issued, were immediately exercisable at an exercise price of $15.60 per share and expire five years from the date of issuance. The shares of common stock and accompanying warrants could only be purchased together during the offering but were immediately separable upon issuance. The Company received cash proceeds of $3,125 from the offering, net of $613 in issuance costs.

Registered Direct Offering and Private Placement

On May 3, 2023, the Company entered into a securities purchase agreement (the "Purchase Agreement") with an institutional investor and an existing investor, pursuant to which the Company agreed to issue and sell (i) an aggregate of 38,817 shares (the "Shares") of the Company's common stock, par value $0.01 per share, (ii) a pre-funded warrant (the "Pre-Funded Warrant") to purchase 3,130 shares of common stock, and (iii) private placement warrants (the "Private Warrants") to purchase an aggregate of 41,946 shares of common stock. The Shares, Pre-Funded Warrant and Private Warrants were sold on a combined basis for consideration equating to $71.52 for one Share and a Private Warrant to purchase one underlying share of common stock (or in lieu thereof, $71.52 for a Pre-Funded Warrant to purchase one underlying share of common stock and a Private Warrant to purchase one underlying share of common stock). The exercise price of the Pre-Funded Warrant was $0.0024 per underlying share. The exercise price of the Private Warrant is $71.52 per underlying share.

The Shares and the Pre-Funded Warrant were offered pursuant to an effective registration statement on Form S-3 (File No. 333-254830), as initially filed with the SEC on March 29, 2021, and declared effective by the SEC on April 2, 2021. The

Pre-Funded Warrant was fully exercised on May 12, 2023, and converted to 3,130 shares of the Company's common stock. The Private Warrant was sold in a concurrent private placement, exempt from registration pursuant to Section 4(a)(2) and/or Rule 506 of the Securities Act of 1933, as amended (the "Securities Act"). The Private Warrants became exercisable beginning six months from the date of issuance, on November 6, 2023, and will terminate on the fifth anniversary of that date.

Combined proceeds from the registered direct offering and private placement were $3,000 before issuance costs of $283.

At-The-Market ("ATM") Program

On January 24, 2023, the Company entered into an Equity Distribution Agreement (the "Sales Agreement") with Maxim Group LLC ("Maxim") under which the Company could offer and sell shares of its common stock, $0.01 par value per share, having an aggregate offering price of up to $4,200 from time to time through Maxim, acting exclusively as the Company's sales agent. Maxim was entitled to compensation at a fixed commission rate of 2.75% of the gross sales price for each share sold. Effective May 3, 2023, the Company terminated the Sales Agreement after issuing a total of 3,945 shares of common stock, all within the three months ended March 31, 2023, at per share prices between $72.72 and $97.92, resulting in gross proceeds to the Company of $299 before offering costs and sales commissions totaling $196.

Board of Director Stock Issuances

During the six months ended June 30, 2024, certain members of the Company's Board of Directors elected to receive 3,067 shares of Yield10 common stock in lieu of receiving $28 in cash compensation payments for their services to the board and board committees.

Preferred Stock

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

Warrants

The following table summarizes information regarding outstanding warrants to purchase common stock as of June 30, 2024:

Issuance	Number of Shares Issuable Upon Exercise of Outstanding Warrants	Exercise Price Per Share of Common Stock	Expiration Date
Warrants Issued in March 2024 Warrant Inducement	265,928	$ 10.32	June 7, 2029
August 2023 Public Offering	134,583	$ 15.60	August 15, 2028
May 2023 Registered Direct and Concurrent Private Placement	13,982	$ 71.52	November 6, 2028
November 2019 Public Offering - Series B	16,480	$ 192.00	May 19, 2027
November 2019 Private Placement - Series B	29,949	$ 192.00	May 19, 2027
Consultant	31	$ 2,784.00	September 11, 2024
Total outstanding warrants	460,953		

On March 22, 2024, certain investors holding warrants from the August 2023 and May 2023 securities offerings described above, exercised a total of 132,964 warrants at an exercise price of $10.32 per share in a warrant exercise inducement offering. In addition to receiving one share of common stock for each surrendered warrant, these investors received new unregistered warrants to purchase up to an aggregate of 265,928 shares of common stock with an exercise price of $10.32 per share, which is equal to 200% of the shares of common stock issued in connection with this current warrant exercise. See the *Warrant Exercise Inducement* disclosure above.

On January 7, 2024, 593 warrants issued by the Company in July 2017 under a registered direct offering expired in accordance with their terms.

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

	June 30, 2024	December 31, 2023
Stock Options	52,600	55,790
RSUs	25,001	—
Warrants	460,953	328,582
Total number of common shares reserved for future issuance	538,554	384,372

13. SUBSEQUENT EVENTS

Termination of MPC Convertible Note

On April 27, 2023, the Company signed a non-binding letter LOI with Marathon Petroleum Corporation for a potential investment in Yield10 by Marathon and for an offtake agreement for low-carbon intensity Camelina feedstock oil to be used in renewable fuels production. In connection with signing the LOI, the Company sold and issued to MPC, an affiliate of Marathon, a senior unsecured convertible note in the original principal amount of $1,000 which was convertible into shares of the Company's common stock at a conversion price equal to $73.68 per share. On July 23, 2024, the Company and MPC mutually agreed to terminate the Convertible Note with the Company completing a one-time payment to MPC of $500 in full satisfaction of the $1,000 Convertible Note and unpaid interest of $101.

Proposed Sale of Assets to Nufarm Limited

On July 12, 2024, the Company entered into an MOU and License Agreement with Nuseed Nutritional US Inc. (the seed technologies platform of Nufarm Limited), ("Nufarm") granting Nufarm a commercial license to certain Omega-3 intellectual property assets, materials and know-how for the production of oil in Camelina. Under the License Agreement, Nufarm will pay Yield10 up to $5,000, of which $3,000 was received upon execution of the agreements with the balance of $2,000 due upon the Company's completion of certain near-term milestones. The Company is using the proceeds received from Nufarm for working capital, including the payment of outstanding amounts due to creditors. Nufarm and the Company additionally agreed to negotiate exclusively with each other for the sale of substantially all of Yield10's remaining assets to Nufarm. The asset sale will require an approval from the stockholders of Yield10, and the Company plans to hold a special meeting of stockholders to seek that vote approval following execution of the asset purchase agreement. The Company cannot provide any assurance that the asset purchase agreement will be completed on favorable terms, or at all.

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

(All dollar amounts are stated in thousands)

Forward-Looking Statements

The following discussion and analysis should be read in conjunction with the Condensed Consolidated Financial Statements and Notes thereto included in this Quarterly Report on Form 10-Q. All dollar amounts are stated in thousands. On May 2, 2024, the Company effected a 1-for-24 reverse stock split of its common stock. Unless otherwise indicated, all share amounts, per share data, share prices, and conversion rates set forth in these notes and the accompanying condensed consolidated financial statements have, where applicable, been adjusted retroactively to reflect this reverse stock split.

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

Although we believe that our expectations are based on reasonable assumptions within the limits of our knowledge of our business and operations, these forward-looking statements contained in this document are neither promises nor guarantees. Our business is subject to significant risk and uncertainties and there can be no assurance that our actual results will not differ materially from our expectations. These forward-looking statements include, but are not limited to, statements concerning our business plans and strategies, including with respect to our strategic transactions and planned sale of assets; expected future financial results and cash requirements; the potential impact from global geopolitical conflicts; plans for obtaining additional funding; plans and expectations that depend on our ability to continue as a going concern; and plans for development and commercialization of our Yield10 technologies. Such forward-looking statements are subject to a number of risks and uncertainties that could cause actual results to differ materially from those anticipated including, without limitation, risks related to our limited cash resources, uncertainty about our ability to secure additional funding, risks related to the execution of our business plans and strategies, risks associated with the protection and enforcement of our intellectual property rights, as well as other risks and uncertainties set forth under the caption "Risk Factors" in Part I, Item 1A, of the Company's Annual Report on Form 10-K for the year ended December 31, 2023 and in our other filings with the Securities and Exchange Commission ("SEC".)

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

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

Overview

Yield10 Bioscience, Inc. ("Yield10" or the "Company") is an agricultural bioscience company focused on commercializing sustainable products using the oilseed *Camelina sativa* ("Camelina") as a platform crop. The features of Camelina, including the availability of winter varieties and a short growth cycle, make it suitable for integration into crop rotations and double cropping on millions of acres in North America. To unlock this potential and make Camelina an attractive option to farmers, the Company has been developing and was planning to commercialize advanced varieties with elite weed control herbicide tolerance traits, improved agronomic performance, and increased crop value. The Company has been pursuing two Camelina seed oil products with different market opportunities, value chains, scale requirements and challenges. The first product, Camelina seed oil is being developed as a low-carbon intensity feedstock oil for biofuels, including biodiesel, renewable diesel (“RD”) and sustainable aviation fuel (“SAF”). The second Camelina product being developed will be seed oil with high levels of the omega-3 fatty acids eicosapentaenoic acid (“EPA” and docosahexaenoic acid (“DHA”) produced by a genetically engineered seed.) The Company's development was driven by the growing demand for new sources of omega-3 feedstocks and the production constraints and supply volatility of the traditional raw material source which is fish oil extracted from ocean harvested fish and krill. The Company's omega-3 Camelina is designed to address a need for a reliable, scalable supply of omega-3 oils for aquaculture.

On July 12, 2024, we entered into a Memorandum of Understanding (“MOU”) and License Agreement with Nuseed Nutritional US Inc. (the seed technologies platform of Nufarm Limited), granting Nufarm a commercial license to certain Omega-3 intellectual property assets, materials and know-how for the production of oil in Camelina. Under the License Agreement, Nufarm will pay us up to $5,000, of which $3,000 was received upon execution of the agreements with the balance of $2,000 due upon the Company's completion of certain near-term milestones. We are using the proceeds received from Nufarm for working capital, including the payment of outstanding amounts due to creditors. We additionally agreed with Nufarm to negotiate exclusively with each other for the sale of substantially all of our remaining assets to Nufarm. The asset sale will require approval from our stockholders, and we plan to hold a special meeting of stockholders to seek that approval following execution of the asset purchase agreement. We cannot provide any guidance that the asset purchase agreement will be completed on favorable terms, or at all.

Yield10 is headquartered in Woburn, Massachusetts and has an Oilseed Center of Excellence in Saskatoon, Saskatchewan, Canada.

Government Grants

During 2018, we entered into a sub-award with Michigan State University ("MSU") to support a Department of Energy ("DOE") funded grant entitled "*A Systems Approach to Increasing Carbon Flux to Seed Oil.*" Our participation under this five-year grant has been awarded incrementally on an annual basis with the first year commencing on September 15, 2017. Funding for this sub-award for the full grant amount of $2,957 was appropriated by the U.S. Congress through the contractual year ending in September 2022. We were permitted to extend the term of the award into early 2023 in order to earn and recognize the final $60 remaining under the grant. During early 2023 we recognized the final $60 from this sub-award with no remaining amounts to be recognized.

Program Title	Funding Agency	Total Government Funded Appropriations	Total Revenue Recognized through Contract Expiration	Contract/Grant Expiration
Subcontract from Michigan State University project funded by DOE entitled "A Systems Approach to Increasing Carbon Flux to Seed Oil"	Department of Energy	$ 2,957	$ 2,957	Completed in the first quarter of 2023

Critical Accounting Estimates and Judgments

The discussion and analysis of our financial condition and results of operations are based upon our unaudited condensed consolidated financial statements, which have been prepared in accordance with generally accepted accounting principles in the United States for interim financial information. The preparation of the unaudited condensed consolidated financial statements included in this Quarterly Report on Form 10-Q requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. On an ongoing basis, we evaluate our estimates, including those related to revenue recognition, stock-based and performance-based compensation, measurement of right-of-use assets and lease liabilities, the recognition of lease expense and income taxes. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates. The critical accounting policies and significant judgments and estimates used in the preparation of our unaudited condensed consolidated financial statements for the three and six months ended June 30, 2024, were consistent with those discussed in our Annual Report on Form 10-K for the year ended December 31, 2023, in the section captioned “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Critical Accounting Estimates and Judgments.”

Results of Operations

Comparison of the Three Months Ended June 30, 2024 and 2023

Revenue

	Three Months Ended June 30,		
	2024	2023	Change
License revenue	$ 450	$ —	$ 450

During the three months ended June 30, 2024, we recognized $450 in license revenue from our global license with VISION Bioenergy Oilseeds, LLC ("VISION"), for our proprietary herbicide tolerant Camelina technology. In consideration for the license and our completion of certain short-term deliverables, VISION made cash payments to us totaling $3,000. The license agreement with VISION contains a number of other service deliverables that the Company must meet in order to fulfill its obligations. We have concluded that all of the license and service deliverables should be bundled into a single unit of accounting and the $3,000 in revenue recognized on a straight line basis through the estimated completion date of the final service deliverables in September 2025.

On July 12, 2024, we entered into a MOU and License Agreement granting Nufarm a commercial license to certain Omega-3 intellectual property assets, materials and know-how for the production of oil in Camelina. Under the License Agreement, Nufarm will pay us up to $5,000, of which $3,000 was received upon execution of the agreements with the balance of $2,000 due upon the Company's completion of certain near-term milestones. We anticipate that the amount paid by Nufarm to us will be recorded as license revenue, when received.

During the year ended December 31, 2023, we took first-time deliveries of harvested Camelina grain produced under winter and spring season grower contracts in Western Canada and the United States. Our first two seasons were small in scale, representing a proof-of-concept for our Camelina products to be used in the biofuel feedstock market. We are at an early stage in the commercialization of Camelina and have not yet begun to capitalize product inventory. The costs of producing Camelina planting seed and the purchase cost of grain harvests acquired from our growers during 2023 and expected to be acquired during 2024 will be recorded to research and development expense.

Expenses

	Three Months Ended June 30,		
	2024	2023	Change
Research and development expenses	$ 1,649	$ 1,997	$ (348)
General and administrative expenses	2,004	1,670	334
Total expenses	$ 3,653	$ 3,667	$ (14)

Research and Development Expenses

Research and development expenses decreased by $348, or 17 percent, from $1,997 during the three months ended June 30, 2023, to $1,649 during the three months ended June 30, 2024. The decrease in expense was primarily the result of lower employee compensation and benefits and decreased crop trial expenses partially offset by an increase in licensing costs for intellectual property. Employee compensation and benefits expense decreased by $220 from $1,052 during the three months ended June 30, 2023, to $832 during the three months ended June 30, 2024, and is primarily the result of reduced payroll stemming from employee headcount reductions enacted to lower our cash burn rate. Our crop trial expenses decreased by $244 from $470 during the three months ended June 30, 2023 to $226 during the three months ended June 30, 2024. The decline in crop trial expense was the result of greater fieldwork conducted in the second quarter of the previous year to perform evaluations of our Camelina plant varieties, including our development of herbicide tolerant Camelina plant varieties. During the three months ended June 30, 2024, licensing expenses for intellectual property increased by $121 as a result of CRISPR maintenance costs.

As previously announced, we entered into an MOU and License Agreement granting Nufarm a commercial license to certain Omega-3 intellectual property assets, materials and know-how for the production of oil in Camelina. We additionally agreed with Nufarm to negotiate exclusively with each other for the sale of substantially all of our remaining assets to Nufarm. The asset sale will require approval from our stockholders, and we plan to hold a special meeting of stockholder to seek that approval following execution of the asset purchase agreement. We cannot provide any assurance that the asset purchase agreement will be completed on favorable terms, or at all. As a result of our plans to sell substantially all of the Company's assets to Nufarm, it is our intention to wind down our operations and discontinue our business before the end of 2024. During the remainder of 2024, we anticipate that our research and development expenses will decrease significantly in comparison to research and development expenses recorded in 2023.

General and Administrative Expenses

General and administrative expenses increased by $334, or 20 percent, from $1,670 during the three months ended June 30, 2023, to $2,004 during the three months ended June 30, 2024. The overall increase was primarily the result of higher licensing fees and increases in professional legal and accounting fees partially offset by reductions in employee compensation and benefits. Licensing fees increased by $200, primarily in connection with the Company's execution of a license with Rothamsted Research Limited for an exclusive global commercial license to advanced technology for producing omega-3 products in Camelina. Professional legal and accounting expenses increased by $79 and $99, in the second quarter of 2024 as compared to the second quarter of 2023, primarily as a result of preparing and filing securities registrations with the Securities and Exchange Commission and providing support to other corporate matters. Employee compensation and benefits decreased by $102 during the three months ended June 30, 2024, in comparison to the three months ended June 30, 2023 and included a reduction in stock-based compensation expense of $51.

As a result of our plans to sell substantially all of the Company's assets to Nufarm, it is our intention to wind down our operations and discontinue our business before the end of 2024. During the remainder of 2024, we anticipate that our general and administrative expenses will decrease in comparison to general and administrative expenses recorded in 2023.

Other Income (Expense), Net

	Three Months Ended June 30,		
	2024	2023	Change
Other income (expense), net	$ (35)	$ (14)	$ (21)

Other Income (Expense), net

Other income (expense) for the three months ended June 30, 2024, was a net expense of $35, and was primarily the result of interest accrued on our $1,000 short-term convertible note with Marathon Petroleum Corporation and interest incurred from our annual insurance premium financing plan. Other income (expense) of $14 during the three months ended June 30, 2023, was also derived from interest incurred on our insurance premium financing plan.

Comparison of the Six Months Ended June 30, 2024 and 2023

Revenue

	Six Months Ended June 30, 2024	Six Months Ended June 30, 2023	Change
Grant revenue	$ —	$ 60	$ (60)
License revenue	750	—	750
Total revenue	$ 750	$ 60	$ 690

During the six months ended June 30, 2024, we recognized $750 in license revenue from our global license with VISION for our proprietary herbicide tolerant Camelina technology. Grant revenue of $60 during the six months ended June 30, 2023, was derived from our DOE sub-award with MSU. As of March 31, 2023, our work in support of this research grant was completed with no further grant revenue to be recognized. We currently do not have any active government grants and cannot assess whether additional U.S. or Canadian government research grants will be awarded to us during the remainder of 2024.

Expenses

	Six Months Ended June 30, 2024	Six Months Ended June 30, 2023	Change
Research and development expenses	$ 3,015	$ 4,159	$ (1,144)
General and administrative expenses	3,378	3,368	10
Total expenses	$ 6,393	$ 7,527	$ (1,134)

Research and Development Expenses

Research and development expenses decreased by $1,144, or 27 percent, from $4,159 during the six months ended June 30, 2023, to $3,015 during the six months ended June 30, 2024. The decrease in expense was primarily the result of lower employee compensation and benefits and decreased crop trial expenses. Employee compensation and benefits expense decreased by $667 from $2,176 during the six months ended June 30, 2023, to $1,509 during the six months ended June 30, 2024 and is primarily the result of reduced payroll stemming from employee furloughs and terminations enacted to lower our cash burn rate. Our crop trial expenses decreased by $331 from $685 during the six months ended June 30, 2023, to $354 during the six months ended June 30, 2024. The decline in crop trial expense was the result of greater fieldwork conducted in the first six months of the previous year to evaluate our Camelina plant varieties, including our development of herbicide tolerant Camelina plant varieties.

General and Administrative Expenses

Total general and administrative expenses remained consistent during the six months ended June 30, 2024 and June 30, 2023 at $3,378 and $3,368, respectively. Although consistent in total, employee compensation and benefits decreased by $185, from $1,375 during the first six months of 2023 to $1,190 during the first six months of 2024. Offsetting this reduction was the increase in licensing fees of $200, primarily from the license executed with Rothamsted Research Limited.

Other Income (Expense), Net

	Six Months Ended June 30, 2024	Six Months Ended June 30, 2023	Change
Other income (expense), net	$ (67)	$ 4	$ (71)

Other Income (Expense), net

Other income (expense) for the six months ended June 30, 2024, was a net expense of $67, and was primarily the result of interest accrued on our $1,000 short-term convertible note with Marathon Petroleum Corporation and interest incurred from our annual insurance premium financing plan. Other income (expense) of $4 during the six months ended June 30, 2023 was derived from investment income earned on the Company's cash equivalents offset by interest expense charged in connection with the Company's annual insurance premium financing plan.

Liquidity and Capital Resources

Since our inception, we have incurred significant expenses related to our research, development and product commercialization efforts. With the exception of 2012, we have recorded losses since our initial founding, including the three and six months ended June 30, 2024. As of June 30, 2024, we had an accumulated deficit of $419,862. Our unrestricted cash and cash equivalents are held primarily for working capital purposes and as of June 30, 2024, totaled $733 compared to cash, cash equivalents and investments of $1,068 at December 31, 2023. As of June 30, 2024, we had restricted cash of $12 held in connection with the lease agreement for our Woburn, Massachusetts facility.

On February 14, 2024, we granted VISION a global non-exclusive commercial license to certain proprietary herbicide tolerant traits and herbicide tolerant Camelina varieties for use in any field except omega-3 oils and bioplastics. Under the terms of the license, VISION has a three-year exclusivity period to commercialize the licensed traits and varieties for biofuels. During this period, Yield10 has the right to continue developing these technologies up to a limited scale and form partnerships with other biofuel industry participants. The Company has no restrictions on the commercialization of the herbicide tolerance technologies outside of the biofuels field including for omega-3 oils production. For consideration of the license VISION paid us $3,000.

On March 22, 2024, we entered into warrant exercise agreements with certain existing institutional investors, pursuant to which these investors agreed to exercise (i) a portion of the warrants issued to them in May 2023 in a registered direct offering and private placement, which were exercisable for 27,964 shares of our common stock and had an exercise price of $71.52 per share, and (ii) a portion of the warrants issued to them in August 2023 public offering, which were exercisable for 105,000 shares of common stock and had an exercise price of $15.60 per share. In consideration for their immediate exercise of these 132,964 total warrants for cash, we agreed to reduce the exercise price of the May 2023 and August 2023 warrants held by these institutional investors, to $10.32 per share, which was equal to the closing price of the Company’s common stock on The Nasdaq Stock Market prior to the execution of the agreements. The institutional investors also received in a private placement, new unregistered warrants to purchase up to an aggregate of 265,928 shares of our common stock with an exercise price of $10.32 per share, which is equal to 200% of the shares of common stock issued in connection with this current warrant exercise. We received proceeds of approximately $1,174 as of June 30, 2024, from the exercise of the warrants, net of transaction expenses of $198 paid to date in completing the arrangement.

Material Cash Requirements

We require cash to fund our working capital needs, to pay our lease and other creditor obligations and to fund other operating costs. As a result of our recent licensing agreement with Nufarm and the prospective sale of substantially all of our remaining assets, subject to stockholder approval, we anticipate that funds received from Nufarm will serve as our primary source of working capital as we seek to wind down our operations and satisfy our remaining obligations by the end of 2024.

We routinely enter into contractual commitments with third parties to support our operating activities. The more significant of these commitments include real estate operating leases for our office, laboratory and greenhouse facilities located in the U.S. and Canada. In addition, we typically enter into annual premium funding arrangements through our insurance broker that allows us to spread the payment of our directors' and officers' liability and other business insurance premiums over the terms of the policies. Our material commitments also include arrangements with third party growers located in North and South America for the execution of crop trials and seed scale-up activities to further our trait development goals and to progress the commercial development of our Camelina plant varieties. The aggregate cost of these contracted crop activities is substantial. From time-to-time, we also enter into exclusive research licensing and collaboration arrangements with third parties for the development of intellectual property related to trait development. These long-term agreements typically include initial licensing payments and future contingent milestone payments associated with regulatory filings and approvals as well as potential royalty payments based on future product sales. Generally, these licensing arrangements contain early termination provisions within the terms of the respective agreements.

The Company has no off-balance sheet arrangements as defined in Item 303(b) of Regulation S-K of the Securities Exchange Act of 1934.

Letter of Intent with Marathon Petroleum Corporation ("Marathon")

On April 27, 2023, we signed a non-binding letter of intent (“LOI”) with Marathon for a potential investment in Yield10 by Marathon and for an offtake agreement for low-carbon intensity Camelina feedstock oil to be used in renewable fuels production. In connection with signing the LOI, we sold and issued to MPC Investment LLC, an affiliate of Marathon, a senior unsecured convertible note in the original principal amount of $1,000 (the “Convertible Note”) which is convertible into shares of the Company’s common stock at a conversion price equal to $73.68 per share. The Convertible Note was due and payable in full in cash on the expected maturity date of August 24, 2024. On July 23, 2024, we and MPC mutually agreed to terminate the Convertible Note with our completing a one-time payment to MPC of $500 in full satisfaction of the $1,000 Convertible Note and unpaid interest of $101.

Going Concern

As of June 30, 2024, the Company held unrestricted cash and cash equivalents of $733. Yield10 follows the guidance of Accounting Standards Codification ("ASC") Topic 205-40, *Presentation of Financial Statements-Going Concern*, in order to determine whether there is substantial doubt about its ability to continue as a going concern for one year after the date its condensed consolidated financial statements are issued. There is substantial doubt that the Company will continue as a going concern beyond 2024.

On July 12, 2024, the Company entered into an MOU and License Agreement with Nuseed Nutritional US Inc. (the seed technologies platform of Nufarm Limited), granting Nufarm a commercial license to certain Omega-3 intellectual property assets, materials and know-how for the production of oil in Camelina. Under the License Agreement, Nufarm will pay Yield10 up to $5,000, of which $3,000 was received upon execution of the agreements during July 2024, with the balance of $2,000 due upon the Company's completion of certain near-term milestones. The Company is using the proceeds received from Nufarm for working capital, including the payment of outstanding amounts due to creditors. Nufarm and the Company additionally agreed to negotiate exclusively with each other for the sale of substantially all of Yield10’s remaining assets to Nufarm. The asset sale will require approval from the stockholders of Yield10, and we plato hold a special meeting of stockholders to seek that approval following execution of the asset purchase agreement. If the Company's shareholders approve the asset sale to Nufarm, the Company will likely complete the sale of its remaining assets, wind down its affairs and cease operations shortly thereafter.

Cash Usage During the Six Months Ended June 30, 2024

Net cash used for operating activities during the six months ended June 30, 2024 and the six months ended June 30, 2023 was $1,477 and $5,746, respectively. Net cash used for operating activities during the six months ended June 30, 2024 primarily reflects the net loss of $5,710 and cash payments made to reduce lease liabilities of $325, offset by the receipt of $3,000 in cash from the VISION license agreement. Non-cash charges offsetting a portion of the net loss include depreciation and amortization expense of $126, our 401(k) matching contribution in common stock of $26, stock-based compensation expense of $746, and non-cash lease expense of $250. Net cash used for operating activities during the first six months of 2023 was $5,746 and primarily reflects the net loss of $7,463, cash payments made to reduce lease liabilities of $180. Non-cash charges offsetting a portion of the net loss included depreciation and amortization expense of $145, our 401(k) matching contribution in common stock of $63, stock-based compensation expense of $830, and non-cash lease expense of $110.

During the six months ended June 30, 2023, $1,964 in net cash was provided by investing activities and was primarily the result of receiving proceeds of $1,991 from maturing investments, offset by our purchase of $27 in new laboratory equipment. We did not have cash transactions related to investing activities during the six months ended June 30, 2024.

Net cash of $885 was provided by financing activities during the six months ended June 30, 2024, compared to net cash of $3,779 provided by financing activities during the six months ended June 30, 2023. During the six months ended June 30, 2024, we received $1,174 from funds received from the Company's warrant inducement transaction described earlier. During the six months ended June 30, 2023, we completed a registered direct offering that included 38,817 shares of the Company's common stock, par value $0.01 per share, and a pre-funded warrant to purchase 3,130 shares of common stock, receiving net proceeds of $2,717 from the offering after issuance costs of $283. Also during the six months ended June 30, 2023, we signed a non-binding letter LOI with Marathon Petroleum Corporation that included a potential investment in Yield10 by Marathon and an investment and offtake agreement for low-carbon intensity Camelina feedstock oil to be used in renewable fuels production. In connection with signing the LOI, the Company sold and issued to MPC Investment LLC, an affiliate of Marathon, a senior unsecured convertible note in the original principal amount of $1,000. During the six months ended June 30, 2023, we also received net proceeds of $103 from the sale of shares of our common stock through the Maxim Sales Agreement.

Recent Accounting Pronouncements

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

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

Not applicable.

ITEM 4. CONTROLS AND PROCEDURES.

Evaluation of Disclosure Controls and Procedures

Our management (with the participation of our Principal Executive Officer and Principal Accounting Officer) evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act), as of June 30, 2024. Disclosure controls and procedures are designed to ensure that information required to be disclosed by the Company in the reports it files or submits under the Exchange Act is recorded, processed, summarized and reported on a timely basis and that such information is accumulated and communicated to management, including the Principal Executive Officer and the Principal Accounting Officer, as appropriate, to allow timely decisions regarding disclosure. Based on this evaluation, our Principal Executive Officer and Principal Accounting Officer concluded that these disclosure controls and procedures are effective.

Changes in Internal Control over Financial Reporting

There have been no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) under the Exchange Act) during the quarter ended June 30, 2024, 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 aggregate, a material adverse effect on the business, financial condition or the results of operations.

ITEM 1A. RISK FACTORS.

The information presented below updates, and should be read in conjunction with risk factors in Part I, Item 1A, "Risk Factors" described in our Annual Report on Form 10-K for the year ended December 31, 2023, filed with the SEC on April 1, 2024 and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2024, filed with the SEC on May 15, 2024. Except as presented below, there were no other significant changes in the Company's risk factors during the six months ended June 30, 2024.

The announcement and pendency of the proposed sale of our assets to Nuseed, whether or not consummated, may adversely affect our business.

The announcement and pendency of the proposed sale of our assets to Nuseed (the “Asset Sale”), whether or not consummated, may adversely affect the trading price of our common stock, our business or our relationships with third parties. We cannot assure you that we will be able to enter into a definitive agreement for the Asset Sale. In addition, pending the completion of the Asset Sale, any of our employees, consultants or advisors may terminate their employment or engagement with us on short notice and the loss of the services of any of our employees, consultants or advisors could substantially harm our ability to complete the Asset Sale.

Our stockholders may not approve the Asset Sale, and even if they do, we may not be successful in completing the Asset Sale or otherwise selling our remaining assets.

The consummation of the Asset Sale is subject to the satisfaction or waiver of various conditions, including the approval of the Asset Sale by our stockholders. We cannot guarantee that the closing conditions to be set forth in the Asset Purchase Agreement will be satisfied. If we are unable to satisfy the closing conditions or if other mutual closing conditions are not satisfied, Nuseed will not be obligated to complete the Asset Sale. In the event that the Asset Sale is not completed, the announcement of the termination of the Asset Purchase Agreement may adversely affect the trading price of our common stock, our business or our relationships with our consultants and other third parties.

In addition, if the Asset Sale is not completed, our Board of Directors, in discharging its fiduciary obligations to our stockholders, may evaluate other strategic alternatives in respect of our remaining assets that may be available, which alternatives may not be as favorable as the Asset Sale and may not result in any definitive transaction or enhance stockholder value. Any future sale of all or substantially all of our assets or certain other transactions may be subject to further stockholder approval. However, because our Board of Directors and management believe that they have exhausted all reasonable and viable strategic alternatives, it is possible that we would seek voluntary dissolution at a later time and likely with diminished assets. In addition, we could cease all operations, make an assignment for the benefit of creditors, turn the company over to a third-party management company or liquidator or file for bankruptcy protection.

We will incur significant expenses in connection with the Asset Sale, regardless of whether the Asset Sale is completed.

We expect to incur significant expenses related to the Asset Sale and the process of negotiating the Asset Purchase Agreement. These expenses include, but are not limited to, legal fees, accounting fees and expenses, certain consultant expenses, filing fees, printing expenses and other related fees and expenses. Many of these expenses will be payable by us regardless of whether the Asset Sale is completed. We cannot assure you that we will be able to consummate the Asset Sale, as we are still in the process of negotiating the definitive agreement relating to the Asset Sale.

Our recently implemented reverse stock split could adversely affect the market liquidity of our common stock.

On April 26, 2024, our stockholders approved an amendment to our Amended and Restated Certificate of Incorporation, as amended, and authorized our Board of Directors, if in their judgment they deemed it necessary, to effect a reverse stock split of our common stock at a ratio in the range of 5:1 to 25:1. This reverse stock split became effective on May 2, 2024, with a ratio of 1-for-24. We cannot predict whether the reverse stock split will increase the market price for our common stock on a sustained basis. The history of similar stock split combinations for companies in like circumstances is varied, and we cannot predict whether:

- the reverse stock split will result in a sustained per share price that will attract brokers and investors who do not trade in lower priced stocks; or
- the reverse stock split will result in a per share price that will increase our ability to attract and retain employees and other service providers.

The reverse stock split was not accompanied by a decrease in our authorized shares.

The reduction in outstanding shares that resulted from the reverse stock split reduced the proportion of shares owned by our stockholders relative to the number of shares authorized for issuance, giving our Board of Directors an effective increase in the relative number of authorized shares available for issuance, in its discretion. Our Board of Directors may from time to time may deem it to be in the best interests of the Company and its stockholders to enter into transactions and other ventures that may include the issuance of shares of our common stock. If our Board of Directors authorizes the issuance of additional shares of common stock subsequent to a reverse stock split, the dilution to the ownership interest of our existing stockholders may be greater than would occur had such reverse stock split not been effected.

The delisting of our common stock from The Nasdaq Capital Market and our trading on the "over-the-counter" market operated by the OTC Markets Group will result in a more limited market and lack of liquidity for our securities and may make it more difficult to raise funds on terms acceptable to us.

On May 14, 2024, we received the Delisting Notice from the Staff of Nasdaq stating that Nasdaq would suspend trading in our common stock, effective at the opening of trading on May 16, 2024, because the Company had not regained compliance with the minimum stockholders' equity requirement pursuant to Rule 5550(b)(1) during the grace period previously granted to the Company. Beginning on May 16, 2024, our common stock began trading on the "over-the-counter" market operated by the OTC Markets Group under our existing “YTEN” trading symbol, and effective July 19, 2024, it is now quoted on the OTC-QB market.

The Company was given a period of 15 days from the date of the Delisting Notice to submit a written request for a review of the Nasdaq Hearings Panel’s delisting determination by the Nasdaq Listing and Hearing Review Council. The Company did not appeal the Nasdaq Hearings Panel’s determination. On July 19, 2024, a Form 25-NSE was filed with the SEC, removing the Company’s common stock from listing and registration on Nasdaq.

The trading of our common stock in the OTC Marketplace may have an unfavorable impact on our stock price and liquidity. The OTC Marketplace is a significantly more limited market than Nasdaq. The quotation of our shares on such marketplace may result in a less liquid market available for existing and potential stockholders to trade shares of our common stock, could further depress the trading price of our common stock, and could have a long-term adverse impact on our ability to raise capital in the future. Further, our delisting from Nasdaq may impair your ability to sell or purchase our common stock when you wish to do so. In addition, with the delisting from Nasdaq, our common stock ceases to be recognized as covered securities, and we would be subject to regulation in each state in which we offer our securities.

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

Recent Sales of Unregistered Securities

On July 9, 2024, we issued 14,663 shares of common stock to participants in the Yield10 Bioscience, Inc. 401(k) Plan as a matching contribution. The issuance of these securities is exempt from registration pursuant to Section 3(a)(2) of the Securities Act as exempted securities.

Issuer Purchases of Equity Securities

During the three months ended June 30, 2024, 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.

During the three months ended June 30, 2024, none of our directors or executive officers adopted or terminated any contract, instruction or written plan for the purchase or sale of our securities that was intended to satisfy the affirmative defense conditions of Rule 10b5-1(c), and none of our directors or executive officers adopted or terminated a non-Rule 10b5-1 trading arrangement (as defined in Item 408(c) of Regulation S-K).

ITEM 6. EXHIBITS.

(a) 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.INS	Inline XBRL Instance Document (the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document) (filed herewith).
101.SCH	Inline XBRL Taxonomy Extension Schema Document (filed herewith).
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document (filed herewith).
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document (filed herewith).
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document (filed herewith).
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document (file herewith).
104	Cover Page Interactive Data File (formatted as inline XBRL and contained in Exhibit 101) (filed herewith).

SIGNATURES

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

YIELD10 BIOSCIENCE, INC.

August 14, 2024	By:	/s/ OLIVER PEOPLES Oliver Peoples *President and Chief Executive Officer* *(Principal Executive Officer)*
August 14, 2024	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: August 14, 2024	/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: August 14, 2024

/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 June 30, 2024 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), we, Oliver Peoples, President, Chief Executive Officer and Principal Executive Officer of the Company and Charles B. Haaser, Chief Accounting Officer and Principal Financial and Accounting Officer of the Company, certify, pursuant to 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, to our knowledge that:

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

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

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

Dated: August 14, 2024	/s/ OLIVER PEOPLES Oliver Peoples *President and Chief Executive Officer* *(Principal Executive Officer)*
Dated: August 14, 2024	/s/ CHARLES B. HAASER Charles B. Haaser *Chief Accounting Officer* *(Principal Financial and Accounting Officer)*