UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-Q

(Mark One)

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

For the quarterly period ended September 30, 2021

OR

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

For transition period from to

Commission File Number 001-40354

Zymergen Inc.

(Exact name of registrant as specified in its charter)

Delaware	**46-2942439**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)

5980 Horton Street, Suite 105
Emeryville, California 94608
(415) 801-8073
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

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

Title of each class	Trading Symbol	Name of each exchange on which registered
Common stock, $0.001 par value per share	ZY	The Nasdaq Global Select 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 7(a)(2)(B) of the Securities Act. ☐

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

As of October 22, 2021, there were approximately 102,400,795 shares of the registrant's common stock, par value $0.001 per share, outstanding.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Quarterly Report on Form 10-Q contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, which statements involve substantial risk and uncertainties. In some cases, you can identify forward-looking statements by the following words: “may,” “will,” “could,” “would,” “should,” “expect,” “intend,” “plan,” “target,” “anticipate,” “believe,” “estimate,” “predict,” “project,” “potential,” “continue,” “ongoing” or the negative of these terms or other comparable terminology, although not all forward-looking statements contain these words.

These statements involve risks, uncertainties and other factors that may cause actual results, levels of activity, performance or achievements to be materially different from the information expressed or implied by these forward-looking statements. Although we believe we have a reasonable basis for each forward-looking statement contained in this Quarterly Report on Form 10-Q, we caution you that these statements are based on a combination of facts and factors currently known by us and our projections of the future, about which we cannot be certain. Forward-looking statements in this Quarterly Report on Form 10-Q include, but are not limited to, statements about:

- our ability to successfully commercialize our products;
- our ability to complete and execute on our new strategic plan, including opportunities in healthcare;
- our ability to reduce our operating costs and fund our operations to the middle of 2023;
- the scope and timing of restructuring activities;
- our ability to focus on a smaller number of programs that capitalize on our capabilities;
- the commercial opportunities for the programs on which we are focused;
- our ability to generate revenues from our products and timelines for our products;
- our plans for the development, launch and commercialization of the products in our product pipeline;
- our ability to successfully produce products through fermentation that we initially launch using non-fermentation or non-bio-based molecules;
- the implementation of our business model and our ability to transition from revenues that are substantially all derived from research and development ("R&D") service contracts and collaboration agreements to revenues primarily derived from the commercialization of our products;
- our ability to find and qualify sources of manufacturing;
- the potential benefits of our existing and potential future R&D collaborations and other partner relationships;
- our ability to accurately anticipate and address the market opportunity in our target markets, as well as the total market opportunity across numerous sectors;
- our ability to accurately anticipate the size and growth potential of the markets for our products and our ability to develop and commercialize products that gain customer acceptance in those markets;
- our expectations regarding our ability to obtain and maintain intellectual property protection for our biofacturing platform, products and related technologies;
- our ability to obtain and maintain regulatory approval for certain of our products;
- regulatory developments in the United States and foreign countries;
- the ability of incumbent chemical companies and synthetic biology companies to address the needs of our existing and potential customers;
- developments relating to our competitors and our industry;
- the success of competing products that are or may become available;
- our goals for producing bio-based products that contribute to a more sustainable future;

- our ability to successfully enter new markets and manage any international expansion;
- our financial performance;
- our ability to obtain funding for our operations, including funding necessary to complete further development of our current and future products;
- our estimates regarding margins, future revenue, our ability to manage our expenses, capital requirements and needs for additional financing;
- our preliminary allocation of the purchase price of acquisitions;
- the success of our significant investments in our continued R&D of new products;
- the impact of COVID-19 on our business; and
- our ability to attract, train, and retain key personnel, including a permanent Chief Executive Officer.

You should refer to the "*Risk Factors*" section of this Quarterly Report on Form 10-Q for a discussion of important factors that may cause actual results to differ materially from those expressed or implied by the forward-looking statements. As a result of these factors, we cannot assure you that the forward-looking statements in this Quarterly Report on Form 10-Q will prove to be accurate. Furthermore, if the forward-looking statements prove to be inaccurate, the inaccuracy may be material. In light of the significant uncertainties in these forward-looking statements, you should not regard these statements as a representation or warranty by us or any other person that we will achieve our objectives and plans in any specified time frame, or at all. The forward-looking statements in this Quarterly Report on Form 10-Q represent our views as of the date of this Quarterly Report on Form 10-Q. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we have no current intention of doing so except to the extent required by applicable law. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this Quarterly Report on Form 10-Q.

PART I - FINANCIAL INFORMATION

Item 1. Financial Statements

ZYMERGEN INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
(Unaudited)
(in thousands, except share and per share data)

	As of September 30, 2021	As of December 31, 2020 (1)
ASSETS		
Current assets:		
Cash and cash equivalents	$ 496,247	$ 210,205
Accounts receivable	1,044	2,516
Accounts receivable, unbilled	1,581	1,659
Prepaid expenses	9,541	7,024
Inventories	6,210	4,969
Restricted cash, current	30	—
Other current assets	1,911	2,201
Total current assets	516,564	228,574
Restricted cash	10,777	9,605
Property and equipment, net	54,572	48,718
Goodwill	33,841	11,604
Intangible assets, net	9,153	4,790
Other long-term assets	2,429	1,630
Total assets	$ 627,336	$ 304,921
LIABILITIES AND CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' EQUITY (DEFICIT)		
Current liabilities:		
Accounts payable	$ 10,472	$ 12,097
Accrued and other liabilities	26,545	26,888
Short-term debt, net	80,221	79,331
Short-term deferred rent	1,132	494
Deferred revenue	2,282	2,648
Total current liabilities	120,652	121,458
Long-term deferred rent	27,473	9,916
Warrant liabilities	—	14,231
Other long-term liabilities	2,395	2,254
Total liabilities	150,520	147,859
Commitments and contingencies		
Convertible preferred stock, $0.001 par value, 170,000,000 and 214,181,024 shares authorized as of September 30, 2021 and December 31, 2020, respectively; no shares issued and outstanding as of September 30, 2021 and 68,093,280 shares issued and outstanding as of December 31, 2020	—	900,798
Stockholders' equity (deficit)		
Common stock, $0.001 par value, 1,500,000,000 and 286,477,669 shares authorized as of September 30, 2021 and December 31, 2020, respectively; 102,370,527 and 12,812,109 shares issued and outstanding as of September 30, 2021 and December 31, 2020, respectively	103	13
Additional paid-in capital	1,534,100	29,991
Accumulated deficit	(1,057,387)	(773,740)
Total stockholders' equity (deficit)	476,816	(743,736)
Total liabilities and convertible preferred stock and stockholders' equity (deficit)	$ 627,336	$ 304,921

(1) The balance sheet as of December 31, 2020 is derived from the audited financial statements as of that date.

The accompanying notes are an integral part of these Condensed Consolidated Financial Statements.

ZYMERGEN INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(Unaudited)
(in thousands, except share and per share data)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2021	2020	2021	2020
Revenues from research and development service agreements	$ 2,947	$ 2,143	$ 10,440	$ 4,818
Collaboration revenue	1,135	1,065	3,264	2,560
Total revenues	4,082	3,208	13,704	7,378
Cost and operating expenses:				
Cost of service revenue	17,179	21,047	60,138	63,721
Research and development	39,073	21,703	129,036	60,986
Sales and marketing	3,977	4,354	18,753	14,477
General and administrative	17,906	14,410	60,898	44,713
Restructuring charges	21,193	—	21,193	—
Total cost and operating expenses	99,328	61,514	290,018	183,897
Operating loss	(95,246)	(58,306)	(276,314)	(176,519)
Other income (expense):				
Interest income	7	32	62	451
Interest expense	(2,809)	(2,769)	(8,303)	(8,182)
Gain (loss) on change in fair value of warrant liabilities	—	(477)	1,849	(2,093)
Other expense, net	(199)	(292)	(967)	(355)
Total other expense	(3,001)	(3,506)	(7,359)	(10,179)
Loss before income taxes	(98,247)	(61,812)	(283,673)	(186,698)
(Provision for) benefit from income taxes	18	(4)	26	102
Net loss and comprehensive loss	$ (98,229)	$ (61,816)	$ (283,647)	$ (186,596)
Net loss per share attributable to common stockholders, basic	$ (0.96)	$ (4.92)	$ (4.39)	$ (15.47)
Net loss per share attributable to common stockholders, diluted	$ (0.96)	$ (4.92)	$ (4.40)	$ (15.47)
Weighted average shares used in computing net loss per share to common stockholders, basic	102,337,242	12,559,912	64,662,332	12,058,855
Weighted average shares used in computing net loss per share to common stockholders, diluted	102,337,242	12,559,912	64,812,356	12,058,855

The accompanying notes are an integral part of these Condensed Consolidated Financial Statements.

ZYMERGEN INC.
CONDENSED CONSOLIDATED STATEMENTS OF CHANGES IN CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' EQUITY (DEFICIT)
(Unaudited)
(in thousands, except share data)

	Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Equity (Deficit)
	Shares	Amount	Shares	Amount			
Balance, December 31, 2020	68,093,280	$ 900,798	12,812,109	$ 13	$ 29,991	$ (773,740)	$ (743,736)
Vesting of restricted common stock	—	—	16,810	—	—	—	—
Issuance of common stock upon exercise of options	—	—	711,963	—	3,189	—	3,189
Stock-based compensation expense	—	—	—	—	2,253	—	2,253
Share settlement of non-recourse loan to employee	—	—	(67,050)	—	—	—	—
Cash settlement of non-recourse loan to employee	—	—	—	—	1,946	—	1,946
Net loss	—	—	—	—	—	(84,585)	(84,585)
Balance, March 31, 2021	68,093,280	900,798	13,473,832	13	37,379	(858,325)	(820,933)
Issuance of common stock upon initial public offering, net of commission and issuance costs of $45,138	—	—	18,549,500	19	529,878	—	529,897
Issuance of preferred stock upon exercise of Series C Preferred Stock warrants	883,332	27,384	—	—	—	—	—
Conversion of preferred stock into common stock	(68,976,612)	(928,182)	68,998,791	69	928,113	—	928,182
Issuance of common stock upon exercise of warrants	—	—	226,880	—	—	—	—
Issuance of common stock in business acquisition	—	—	774,402	1	24,808	—	24,809
Vesting of restricted common stock	—	—	16,810	—	—	—	—
Issuance of common stock upon exercise of options	—	—	256,960	1	1,257	—	1,258
Stock-based compensation expense	—	—	—	—	6,965	—	6,965
Net loss	—	—	—	—	—	(100,833)	(100,833)
Balance, June 30, 2021	—	—	102,297,175	103	1,528,400	(959,158)	569,345
Vesting of restricted common stock	—	—	16,810	—	—	—	—
Issuance of common stock upon exercise of options	—	—	56,542	—	271	—	271
Stock-based compensation expense	—	—	—	—	5,422	—	5,422
Other	—	—	—	—	7	—	7
Net loss	—	—	—	—	—	(98,229)	(98,229)
Balance, September 30, 2021	—	$ —	102,370,527	$ 103	$ 1,534,100	$ (1,057,387)	$ 476,816

The accompanying notes are an integral part of these Condensed Consolidated Financial Statements.

ZYMERGEN INC.
CONDENSED CONSOLIDATED STATEMENTS OF CHANGES IN CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' EQUITY (DEFICIT)
(Unaudited)
(in thousands, except share data)

	Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Equity (Deficit)
	Shares	Amount	Shares	Amount			
Balance, December 31, 2019	54,834,169	$ 607,763	11,030,816	$ 11	$ 11,957	$ (511,546)	$ (499,578)
Issuance of common stock in business acquisition	—	—	1,082,747	1	10,394	—	10,395
Vesting of restricted common stock	—	—	16,810	—	—	—	—
Issuance of common stock upon exercise of options	—	—	40,868	—	172	—	172
Stock-based compensation expense	—	—	—	—	1,042	—	1,042
Net loss	—	—	—	—	—	(65,340)	(65,340)
Balance, March 31, 2020	54,834,169	607,763	12,171,241	12	23,565	(576,886)	(553,309)
Vesting of restricted common stock	—	—	16,810	—	—	—	—
Issuance of common stock upon exercise of options	—	—	327,979	1	1,627	—	1,628
Stock-based compensation expense	—	—	—	—	1,243	—	1,243
Net loss	—	—	—	—	—	(59,440)	(59,440)
Balance, June 30, 2020	54,834,169	607,763	12,516,030	13	26,435	(636,326)	(609,878)
Issuance of Series D Preferred Stock, net of issuance costs of $781	4,478,900	99,219	—	—	—	—	—
Vesting of restricted common stock	—	—	16,810	—	—	—	—
Issuance of common stock upon exercise of options	—	—	82,774	—	372	—	372
Stock-based compensation expense	—	—	—	—	1,139	—	1,139
Net loss	—	—	—	—	—	(61,816)	(61,816)
Balance, September 30, 2020	59,313,069	$ 706,982	12,615,614	$ 13	$ 27,946	$ (698,142)	$ (670,183)

The accompanying notes are an integral part of these Condensed Consolidated Financial Statements.

ZYMERGEN INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)
(in thousands)

	Nine Months Ended September 30,	
	2021	2020
Operating activities		
Net loss	$ (283,647)	$ (186,596)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization expense	15,129	14,306
Stock-based compensation expense	14,640	3,424
Non-cash interest expense	890	741
Loss from sale of property and equipment	—	778
Impairment of long-lived assets	11,155	—
(Gain) loss on change in fair value of warrant liabilities	(1,849)	2,093
Unrealized foreign exchange loss	695	—
Benefit from income tax	(26)	(107)
Other	63	(116)
Changes in operating assets and liabilities:		
Accounts receivable	574	763
Accounts receivable, unbilled	(943)	(3)
Prepaid expenses	(2,373)	(434)
Inventories	(1,241)	(654)
Other current assets	612	(78)
Other long-term assets	18	4
Accounts payable	(3,733)	(3,487)
Accrued and other liabilities	(4,909)	1,357
Deferred revenue	(908)	861
Deferred rent	18,041	3,141
Other long-term liabilities	172	2,820
Net cash used in operating activities	(237,640)	(161,187)
Investing activities		
Purchases of property and equipment	(27,264)	(17,141)
Proceeds from sale of property and equipment	—	15
Business acquisition, net of cash acquired	1,238	80
Net cash used in investing activities	(26,026)	(17,046)
Financing activities		
Proceeds from initial public offering, net of commission and issuance cost	529,897	—
Proceeds from exercise of Series C warrants	15,002	—
Proceeds from repayment of non-recourse loan to employee	1,946	—
Proceeds from Series D preferred stock offering, net of issuance cost	—	99,924
Proceeds from exercise of common stock options, net of repurchases	4,719	2,172
Net cash provided by financing activities	551,564	102,096
Effect of exchange rate changes on cash	(654)	—
Change in cash and cash equivalents	287,244	(76,137)
Cash, cash equivalents, and restricted cash at beginning of the period	219,810	163,042
Cash, cash equivalents, and restricted cash at end of the period	$ 507,054	$ 86,905
Cash and cash equivalents	$ 496,247	$ 77,537
Restricted cash, current	30	—
Restricted cash, non-current	10,777	9,368
Total cash, cash equivalents, and restricted cash shown in the statement of cash flows	$ 507,054	$ 86,905

The accompanying notes are an integral part of these Condensed Consolidated Financial Statements.

ZYMERGEN INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)
(in thousands)

	Nine Months Ended September 30,	
	2021	2020
Supplemental disclosure of cash flow information:		
Cash paid during the period for interest	$ 8,254	$ 7,793
Supplemental disclosure of non-cash investing and financing activities:		
Conversion of preferred shares to common stock	$ 900,798	$ —
Exercise of warrant liability into preferred stock	$ 12,382	$ —
Issuance of common stock in business combination	$ 24,816	$ 10,395
Acquisitions of property and equipment under accounts payable and accrued and other liabilities	$ 6,665	$ 2,374
Deferred offering costs related to Series D preferred stock under accounts payable and accrued and other liabilities	$ —	$ 711

The accompanying notes are an integral part of these Condensed Consolidated Financial Statements.

ZYMERGEN INC.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

1. Nature of Operations

Zymergen (the “Company”) integrates computational and manufacturing technologies to design, develop, and commercialize bio-based breakthrough products in a broad range of industries. The Company has developed a platform designed to treat the genome as a search space that utilizes proprietary machine learning algorithms and advanced automation to identify genetic changes for the development of bio-based products. In addition, Zymergen's platform is used to discover novel molecules used to enable unique material properties. The Company was incorporated in Delaware on April 24, 2013.

Initial Public Offering

In April 2021, the Company completed the initial public offering ("IPO") of its common stock. The Company sold an aggregate of 18,549,500 shares of its common stock (inclusive of 2,419,500 shares pursuant to the underwriters’ option to purchase additional shares) at a price of $31.00 per share for aggregate cash proceeds of approximately $529.9 million, net of underwriting discounts, commissions, and offering costs. The sale of 16,130,000 shares in the IPO and the sale of 2,419,500 shares pursuant to the underwriters’ option closed on April 26, 2021. On April 26, 2021, immediately prior to the closing of the IPO, all outstanding shares of convertible preferred stock converted into 68,115,459 shares of common stock. On April 26, 2021, immediately prior to the closing of the IPO, all warrants to purchase preferred stock were exercised and converted into 883,332 shares of common stock.

Need for Additional Capital

The Company has sustained operating losses and expects to continue to generate operating losses for the foreseeable future. The Company had unrestricted cash and cash equivalents of $496.2 million as of September 30, 2021. Since inception through September 30, 2021, the Company has incurred cumulative net losses of $1,057.4 million.

While the Company has signed a number of initial customer R&D services and collaboration contracts, revenues have been insufficient to fund operations. Accordingly, the Company has funded the portion of operating costs exceeding revenues through a combination of proceeds raised from equity and debt issuances (including from its recent IPO). The Company’s operating costs include the cost of developing and commercializing products as well as providing research and development services. As a consequence, the Company expects it will need to raise additional equity or debt financing to fund future operations, which may not be available, if at all, at terms acceptable to the Company. In September 2021, the Company's management commenced initial restructuring activities that are expected to reduce the cost structure of the Company (Note 4). The Company expects that its cash and cash equivalents will be sufficient to fund its operations for a period of at least one year from the date the accompanying unaudited Condensed Consolidated Financial Statements are filed with the Securities and Exchange Commission ("SEC").

The Company cannot at this time predict the specific extent, duration, or full impact that the ongoing COVID-19 pandemic will have on its financial condition and operations. The impact of the COVID-19 pandemic on the financial performance of the Company will depend on future developments, including the duration and spread of the pandemic and related governmental advisories and restrictions. These developments and the continuing impact of the COVID-19 pandemic on the financial markets and the overall economy are highly uncertain. If business conditions, financial markets and/or the overall economy continue to be impacted, the Company’s results may be adversely affected.

Reverse Split

In April 2021, the Company's Board of Directors approved a 3-for-1 reverse split (“Reverse Split”) of its common stock and convertible preferred stock. This became effective on April 13, 2021 with the filing of the Company’s amended and restated certificate of incorporation. The par value of the common stock and convertible preferred stock was not adjusted as the result of the Reverse Split. All share and per share information has been retroactively adjusted to reflect the Reverse Split for all periods presented.

2. Summary of Significant Accounting Policies

There were no significant changes to the accounting policies during the nine months ended September 30, 2021, from the significant accounting policies described in Note 2 of the “Notes to Consolidated Financial Statements” in the Prospectus dated April 21, 2021, filed with the SEC on April 23, 2021 pursuant to Rule 424(b)(4) under the Securities Act of 1933, as amended (the "Prospectus"), except as described below.

ZYMERGEN INC.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

Basis of Preparation

The accompanying unaudited Condensed Consolidated Financial Statements have been prepared in accordance with accounting principles generally accepted in the United States of America (“U.S. GAAP”) and applicable rules and regulations of the SEC regarding interim financial reporting. As permitted under those rules, certain footnotes or other financial information that are normally required by U.S. GAAP have been condensed or omitted, and accordingly the balance sheet as of December 31, 2020 has been derived from audited financial statements at that date but does not include all of the information required by U.S. GAAP for complete financial statements. These unaudited interim Condensed Consolidated Financial Statements have been prepared on the same basis as the annual financial statements and, in the opinion of management, reflect all adjustments (consisting only of normal recurring adjustments) that are necessary for a fair presentation of the financial information. The results of operations for the three and nine months ended September 30, 2021 are not necessarily indicative of the results to be expected for the year ending December 31, 2021 or for any other interim period or for any other future year.

The accompanying unaudited Condensed Consolidated Financial Statements and related financial information should be read in conjunction with the audited financial statements and the related notes thereto for the year ended December 31, 2020 included in the Prospectus.

Principles of Consolidation

These Condensed Consolidated Financial Statements include the accounts of the Company and its wholly-owned subsidiaries. All intercompany balances and transactions have been eliminated upon consolidation.

Fiscal Year

The Company’s fiscal year ends on December 31. References to fiscal 2021, for example, refer to the fiscal year ended December 31, 2021. The period end for the Company covered by this report is September 30, 2021.

Use of Estimates

The presentation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. These estimates include, but are not limited to, standalone selling price ("SSP") of performance obligations for contracts with multiple performance obligations, estimate of variable consideration from revenue contracts, useful life of property and equipment, fair value of property and equipment of which the carrying value may not be recoverable, allowance for doubtful accounts, net realizable value of inventories, the valuation of intangible assets, and the valuation of common and preferred stock used in the valuation of options to purchase common stock and warrants to purchase common stock or preferred stock, prior to being a publicly traded company. Actual results could differ from those estimates.

Segment Information

Operating segments are identified as components of an enterprise about which discrete financial information is available for evaluation by the chief operating decision-maker (“CODM”) in deciding resource allocation and assessing performance. The Company’s Acting Chief Executive Officer is its CODM. The Company’s CODM reviews financial information presented on a consolidated basis for the purposes of making operating decisions, allocating resources and evaluating financial performance. Consequently, the Company has determined it operates and manages its business in one operating and one reportable segment.

Foreign Currency

For the Company and its subsidiaries, the functional currency has been determined to be the U.S. Dollar (USD). Monetary assets and liabilities denominated in foreign currency are remeasured at period-end exchange rates. Non-monetary assets and liabilities denominated in foreign currencies are remeasured at historical rates. Foreign currency transaction gains and losses resulting from remeasurement are recognized in Other expense, net in the Condensed Consolidated Statements of Operations and Comprehensive Loss.

Costs Associated with Exit Activities

We account for employee termination benefits that represent a one-time benefit in accordance with Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") Topic 420, Exit or Disposal Cost Obligations (Topic 420). We record such costs into expense over the employee’s future service period, if any. Other costs associated with exit activities may include contract termination costs, impairments of long-lived assets, and consulting fees, if applicable. These

costs are expensed in accordance with FASB ASC Topic 420 and FASB ASC Topic 360, Property, Plant, and Equipment and are included in Restructuring charges in the Condensed Consolidated Statements of Operations and Comprehensive Loss.

Stock-Based Compensation

The Company's stock-based compensation for employees and non-employees is accounted for in accordance with the provisions issued by the Accounting Standard Codification principles for stock compensation and share-based arrangements. Under the fair value recognition provisions of this statement, stock-based compensation expense is estimated at the grant date based on the fair value of the award and is recognized as an expense ratably over the requisite service period of the award, taking into consideration actual forfeitures. Determining the appropriate fair value and calculating the fair value of stock-based awards requires judgment, including estimating stock price volatility, risk free interest rates, expected dividends, and expected life.
The Company estimates the fair value of stock options with a service-based vesting condition and employee stock purchase plan purchases on the date of grant using the Black-Scholes-Merton option-valuation model. The Company estimates the fair value of stock options with a market-based vesting condition on the date of grant using a Monte Carlo simulation model. The grant-date fair value of option awards is based upon the fair value of our common stock as of the date of grant, as well as estimates of the expected term of the awards using the simplified method for service-based vesting awards or the implied term for the market-based awards, expected common stock price volatility over the expected term of the option awards, risk-free interest rates and expected dividend yield. Restricted Stock Units ("RSUs") granted are valued at the market price of our common stock on the date of grant.

Contingencies

The Company is subject to various litigation and arbitration claims that arise in the ordinary course of business, including but not limited to those related to employee matters. Some of these proceedings involve claims that are subject to substantial uncertainties and unascertainable damages. The Company makes a provision for a liability when it is both probable that a liability has been incurred and the amount of the loss can be reasonably estimated. The Company has determined that no provision for liability nor disclosure is required related to any claim against the Company when: (a) there is not a reasonable possibility that a loss exceeding amounts already recognized (if any) may be incurred with respect to such claim; (b) a reasonably possible loss or range of loss cannot be estimated; or (c) such estimate is immaterial.

CARES Act

On March 27, 2020, the U.S. government enacted the Coronavirus Aid, Relief and Economic Security (CARES) Act which, among other things, permits the deferral of the employer's portion of social security tax payments between March 27, 2020 and December 31, 2020. As of September 30, 2021 and December 31, 2020, respectively, approximately $3.7 million of employer payroll tax payments were deferred with 50% due by December 31, 2021 and the remaining 50% by December 31, 2022.

Accounting Pronouncements Adopted

In August 2018, the FASB issued ASU 2018-15, *Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract*, an amendment to the accounting guidance on cloud computing service arrangements that changes the accounting for implementation costs incurred in a cloud computing arrangement that is a service contract. The update aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software. The guidance also requires an entity to expense the capitalized implementation costs of a hosting arrangement that is a service contract over the term of the hosting arrangement. This guidance is effective for the Company for fiscal years beginning after December 15, 2020, and interim periods within annual periods beginning after December 14, 2021. The Company adopted the new standard effective January 1, 2021 using a prospective transition method. The adoption did not have a material impact on the Condensed Consolidated Financial Statements.

In November 2018, the FASB issued ASU 2018-18, *Collaborative Arrangements (Topic 808)*, which discusses the interaction between Topic 808, Collaborative Arrangements and Topic 606, Revenue from Contracts with Customers, including clarification around certain transactions between collaborative arrangement participants, adding unit-of-account guidance to Topic 808 and require that transactions in a collaborative arrangement where the participant is not a customer not be presented together with revenue recognized under Topic 606. This standard is effective for the Company for annual periods beginning after December 15, 2020, and interim periods within fiscal years beginning after December 15, 2021. Early adoption is permitted but an entity may not adopt the amendments earlier than its adoption date of Topic 606. The Company adopted the new standard effective January 1, 2021 using a retrospective transition method. The adoption did not have a material impact on the Condensed Consolidated Financial Statements.

Recent Accounting Pronouncements Not Yet Adopted

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*, ("ASU 2016-02"). Under ASU 2016-02, a lessee will be required to recognize assets and liabilities for leases with lease terms of more than 12 months. Recognition, measurement, and presentation of expenses and cash flows arising from a lease by a lessee primarily will depend on its classification as a finance or operating lease. ASU 2016-02 will require both types of leases to be recognized on the balance sheet. The ASU also will require disclosures to help investors and other financial statement users better understand the amount, timing, and uncertainty of cash flows arising from leases. These disclosures include qualitative and quantitative requirements, providing additional information about the amounts recorded in the financial statements. The Company is evaluating the effect that Topic 842 and related standards will have on its financial statements, related disclosures and ongoing financial reporting, but expects implementation of Topic 842 to result in the recognition of material right-of-use assets and corresponding lease liabilities in its consolidated balance sheets, principally relating to facilities leases. The Company plans to implement Topic 842 on January 1, 2022 using the modified retrospective approach with the cumulative effect of adoption recognized to retained earnings on January 1, 2022.

In June 2016, the FASB issued ASU 2016-13, *Credit losses (Topic 326)*, subsequently amended by ASU 2019-10, which sets forth a "current expected credit loss" model which requires the Company to measure all expected credit losses for financial instruments held at the reporting date based on historical experience, current conditions, and reasonable supportable forecasts. This replaces the existing incurred loss model and is applicable to the measurement of credit losses on financial assets measured at amortized cost. The standard will become effective for the Company for fiscal years beginning after December 15, 2022. Early adoption is permitted. The Company is currently evaluating the impact the adoption of this standard will have on its financial statements and related disclosures.

In December 2019, the FASB issued ASU 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes*, which is intended to simplify various aspects related to accounting for income taxes. ASU 2019-12 removes certain exceptions to the general principles in Topic 740 and clarifies and amends existing guidance to improve consistent application. This pronouncement is effective for the Company for fiscal years beginning after December 15, 2021, and for interim periods within fiscal years beginning after December 15, 2022, with early adoption permitted. The Company is evaluating the effect of adopting this new accounting guidance but does not expect adoption will have a material impact on its financial statements and related disclosures.

In March 2020, the FASB issued ASU 2020-04, *Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting*, which provides optional expedients and exceptions for applying U.S. GAAP to contracts, hedging relationships, and other transactions that reference LIBOR or another reference rate expected to be discontinued because of reference rate reform. The amendments of ASU 2020-04 are effective for all entities as of March 12, 2020 through December 31, 2022 and do not apply to contract modifications made after December 31, 2022. The Company is evaluating the effect of this guidance and has not yet determined the impact to its financial statements and related disclosures.

In October 2021, the FASB issued ASU 2021-08, *Business Combinations (Topic 805): Accounting for Contract Assets and Contract Liabilities from Contracts with Customers*, which will require the Company to recognize and measure contract assets and contract liabilities acquired in a business combinations in accordance with Topic 606 as if it had originated the contracts. The amendments of ASU 2021-08 are effective for the Company for fiscal years beginning after December 15, 2023 with early adoption permitted, including adoption in an interim period. The Company plans to adopt ASU 2021-08 in the fourth quarter of 2021, with a retrospective application to the beginning of 2021. The Company is currently evaluating the impact of adopting this guidance to the acquisition of Lodo Therapeutics Corporation on May 16, 2021.

3. Business Combinations

Lodo Therapeutics Corporation

On May 16, 2021, the Company completed a nontaxable acquisition of 100% of the equity interests of Lodo Therapeutics Corporation ("Lodo"), a privately-held company which uses its proprietary bacterial metagenomics discovery platform to develop novel therapeutics from nature. The acquisition was accounted for as a business combination. The purchase price for the acquisition was $25.4 million, substantially all of which was non-cash consideration. The non-cash consideration consisted of 774,402 shares of the Company's common stock. The intangible assets acquired consisted primarily of $22.2 million of goodwill and Lodo's developed technology of $5.4 million. Goodwill recognized is primarily a measure of the expected synergies from combining the operations of Lodo and the Company's developed technologies.

The Company granted RSUs to certain employees and consultants of Lodo in connection with the acquisition that generally vest in three installments over a period of up to two years, subject to their continued service with the Company.

ZYMERGEN INC.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

The following table represents the allocation of the purchase consideration, including the non-cash consideration, based on fair value (in thousands):

Cash and cash equivalents	$	1,778
Other current assets		464
Property, plant and equipment		948
Other non-current assets		305
Developed technology		5,400
Customer relationship intangible asset		420
Total identifiable assets acquired	$	9,315
Accounts payable and accrued expenses	$	4,636
Other liabilities		1,534
Deferred tax liability		26
Total liabilities assumed	$	6,196
Net identifiable assets acquired	$	3,119
Goodwill		22,237
Net assets acquired	$	25,356

The Company's purchase price allocation for the acquisition is preliminary and subject to revision as additional information about the fair value of the assets and liabilities becomes available. The fair values assigned to tangible and intangible assets acquired and liabilities assumed are based on management's estimates and assumptions and may be subject to change as additional information is received. Primary areas that are not yet finalized are related to acquired intangible assets including goodwill. Additional information that existed as of the closing date but not known at the time of this filing may become known to the Company during the remainder of the measurement period, a period not to exceed 12 months from the closing date.

As a result of the business combination the Company incurred $0.9 million of acquisition related costs for its benefit which are not accounted for as part of consideration transferred. Acquisition related costs related primarily to legal services, accounting, tax, valuation, and due diligence and are recognized in General and administrative expenses on the Condensed Consolidated Statements of Operations and Comprehensive Loss. Pro forma results of operations will not be presented because the effects of this acquisition were not material to the Company's Condensed Consolidated Financial Statements under applicable SEC rules.

enEvolv, Inc.

On March 10, 2020, the Company completed a nontaxable acquisition of 100% of the equity of enEvolv, Inc., which has developed an enzyme and strain development platform that is built on diverse strain libraries and ultra-high throughput screening that utilizes molecular sensor systems. The acquisition was accounted for as a business combination. The purchase price for the acquisition was $10.7 million, of which $10.6 million was non-cash consideration. The non-cash consideration primarily consisted of 1,082,747 shares of the Company's common stock. The intangible assets acquired consisted primarily of $7.9 million of goodwill and enEvolv's developed technology of $2.6 million. Goodwill recognized is primarily a measure of the expected synergies from combining the operations of enEvolv and the Company's developed technologies.

The following table represents the allocation of the purchase consideration, including the non-cash consideration, based on fair value (in thousands):

Cash and cash equivalents	$	141
Accounts receivable		589
Other current assets		195
Property, plant and equipment		292
Other non-current assets		150
Developed technology		2,600
Customer relationship intangible asset		600
Total identifiable assets acquired	$	4,567
Accounts payable and accrued expenses	$	1,021
Other current liabilities		653
Deferred tax liability		107
Total liabilities assumed	$	1,781
Net identifiable assets acquired	$	2,786
Goodwill		7,871
Net assets acquired	$	10,657

As a result of the business combination the Company incurred $0.4 million of acquisition related costs for its benefit and were not accounted for as part of consideration transferred. Acquisition related costs related primarily to legal services, accounting, tax, valuation, due diligence, and escrow fees and are recognized in General and administrative expenses on the Condensed Consolidated Statements of Operations and Comprehensive Loss. Prior to the close of the transaction, the Company and enEvolv were unrelated parties that entered into a Research Agreement, whereby enEvolv provided services to the Company. As of the transaction date, the Company had $0.2 million prepaid services which were effectively settled through the business combination. Pro forma results of operations have not been presented because the effects of this acquisition were not material to the Company's Condensed Consolidated Financial Statements under applicable SEC rules.

4. Restructuring

In August 2021, the Company released a business update regarding its commercial product pipeline and financial forecast. Since that business update the Company has been conducting an assessment of its target markets and the fit of the products in its pipeline to those markets (the "Portfolio Review") and developing a plan to reduce its costs. In September 2021, the Company's management implemented a reduction in force that represented a preliminary phase of the Company’s plan to reduce its costs (the “2021 Restructuring”). In connection with the Portfolio Review and the 2021 Restructuring, the Company has determined to focus on a smaller number of programs that it believes capitalize on its capabilities and provide clear commercial opportunities. The 2021 Restructuring was initiated in the third quarter of 2021 and is expected to be substantially completed by the end of the first quarter of 2022.

The Company is continuing to evaluate the 2021 Restructuring. The Company expects the 2021 Restructuring to result in total pre-tax charges of approximately $29.4 million and approximately $18.2 million of these charges are estimated to result in cash outlays, of which the Company has made payments of $1.3 million through September 30, 2021. The Company has recorded costs of $21.2 million from the inception of the initiative through September 30, 2021.

The following table provides a summary of our costs incurred from the inception of the initiative through September 30, 2021, and cost estimates associated with the 2021 Restructuring through the end of the first quarter of 2022, by major type of cost (in thousands):

	Total amount incurred since inception through September 30, 2021	Total estimated amount expected to be incurred
Restructuring charges:		
Termination benefits	$ 4,151	$ 8,700
Impairment of long-lived assets (Note 7)	11,155	11,155
Contract terminations	3,727	4,000
Other [1]	2,160	5,500
Total	$ 21,193	$ 29,355

(1) Comprised of other costs directly related to the 2021 Restructuring, including consulting fees in relation to portfolio review, realignment of organizational resources to strategic priorities and organization redesign in order to achieve reduced operating costs.

The following table provides a reconciliation of the beginning and ending balances for the restructuring liabilities, which are reported as components of Accounts payable and Accrued and other liabilities in the accompanying Condensed Consolidated Balance Sheets (in thousands):

	Termination Benefits	Contract Terminations	Other	Total
Balance at January 1, 2021	$ —	$ —	$ —	$ —
Charges	4,151	3,727	2,160	10,038
Adjustments	—	—	—	—
Cash Payments	(291)	(977)	—	(1,268)
Balance at September 30, 2021	$ 3,860	$ 2,750	$ 2,160	$ 8,770

5. Goodwill and Intangible Assets

The following table summarizes goodwill as of September 30, 2021 and December 31, 2020 (in thousands):

	September 30, 2021	December 31, 2020
Goodwill	$ 33,841	$ 11,604

The $22.2 million increase in goodwill from December 31, 2020 to September 30, 2021 is due to the acquisition of Lodo on May 16, 2021 (Note 3).

The following table summarizes the net book value of the finite-lived intangible assets as of September 30, 2021 and December 31, 2020 (in thousands):

	Cost		Accumulated Amortization		Intangible Assets, Net	
	September 30, 2021	December 31, 2020	September 30, 2021	December 31, 2020	September 30, 2021	December 31, 2020
Developed technology	$ 12,300	$ 6,900	$ (3,613)	$ (2,460)	$ 8,687	$ 4,440
Customer relationships	1,400	980	(934)	(630)	466	350
Net carrying value	$ 13,700	$ 7,880	$ (4,547)	$ (3,090)	$ 9,153	$ 4,790

As a result of the acquisition of Lodo, the Company acquired intangible assets consisting of $5.4 million in developed technology and $0.4 million in customer relationships, which are amortized over an estimated useful life of six and two years, respectively. The Company recognized $0.7 million and $0.3 million in amortization expense for the three months ended September 30, 2021 and 2020, and $1.5 million and $0.9 million for the nine months ended September 30, 2021 and 2020, respectively.

Future amortization of intangible assets is as follows (in thousands):

Remainder of 2021	$ 625
2022	2,248
2023	2,067
2024	1,271
2025	1,271
Thereafter	1,671
	$ 9,153

6. Fair Value Measurements of Financial Instruments

GAAP defines fair value, establishes a framework for measuring fair value, and requires certain disclosures about fair value measurements. GAAP permits an entity to choose to measure many financial instruments and certain other items at fair value and contains financial statement presentation and disclosure requirements for assets and liabilities for which the fair value option is elected.

The hierarchy of fair value valuation techniques under GAAP provides for three levels: Level 1 provides the most reliable measure of fair value, whereas Level 3, if applicable, generally would require significant management judgment. The three levels for categorizing assets and liabilities under GAAP's fair value measurement requirements are as follows:

Level 1 – Fair value of the asset or liability is determined using unadjusted quoted prices in active markets for identical assets or liabilities.

Level 2 – Fair value of the asset or liability is determined using inputs other than quoted prices that are observable for the applicable asset or liability, either directly or indirectly, such as quoted prices for similar (as opposed to identical) assets or liabilities in active markets and quoted prices for identical or similar assets or liabilities in markets that are not active.

Level 3 – Fair value of the asset or liability is determined using unobservable inputs that are significant to the fair value measurement and reflect management's own assumptions regarding the applicable asset or liability.

There were no transfers between the levels during the periods presented. As of September 30, 2021 and December 31, 2020, the Company's financial assets and financial liabilities measured at fair value on a recurring basis were classified within the fair value hierarchy as follows (in thousands):

	Level 1	Level 2	Level 3	Balance as of September 30, 2021
Financial Assets				
Cash equivalents	$ 484,581	$ —	$ —	$ 484,581
Total financial assets	$ 484,581	$ —	$ —	$ 484,581

	Level 1	Level 2	Level 3	Balance as of December 31, 2020
Financial Assets				
Cash equivalents	$ 205,873	$ —	$ —	$ 205,873
Total financial assets	$ 205,873	$ —	$ —	$ 205,873
Financial Liabilities				
Warrant derivative liability	$ —	$ —	$ 14,231	$ 14,231
Total financial liabilities	$ —	$ —	$ 14,231	$ 14,231

Financial instruments consist principally of cash equivalents, accounts receivables, accounts payable, accrued liabilities, debt, and warrant derivative liability.

The following table provides a reconciliation of the beginning and ending balances for the warrant derivative liability measured at fair value using significant unobservable inputs (Level 3) (in thousands):

Balance at January 1, 2021	$ 14,231
Change in fair value	(1,849)
Fair value of warrants exercised	(12,382)
Balance at September 30, 2021	$ —

The warrant derivative liability represented the fair value of the warrants issued in conjunction with the term loan agreement entered into in 2019. In April 2021 all warrants were exercised effective with the Company's IPO. No warrants were outstanding at September 30, 2021 (Note 8).

The following methods and assumptions were used by the Company in estimating the fair value of financial instruments:

Accounts receivable, accounts payable, and accrued liabilities: The amounts reported in the accompanying balance sheets approximate fair value due to the short maturity of these instruments.

Debt: The gross amounts reported approximate fair value due to the debt being a variable interest rate debt and its relatively short-term maturity.

Warrant derivative liability: In April 2021 all warrants were exercised effective with the Company's IPO. At exercise, the warrants were remeasured to intrinsic value, with the resulting change in fair value recognized in Other income (expense) in the Condensed Consolidated Statements of Operations and Comprehensive Loss. Prior to the exercise of the warrants, the Company estimated the fair value of outstanding warrants using a weighted average between the value derived from a Black-Scholes (BSM) option model for a fully diluted scenario and the price of the warrant by applying the probability-weighted expected return method. The BSM model's inputs reflect assumptions that a market participant would use in pricing the instrument in a current period transaction and included the following as of December 31, 2020:

	December 31, 2020
Value per Series C Preferred share (fully-diluted)	$ 35.46
Exercise price	$ 16.98
Expected volatility	77.0 %
Risk-free rate	0.79 %
Time to liquidity (years)	8.97

7. Balance Sheet Components

Property and equipment consist of the following as of September 30, 2021 and December 31, 2020 (in thousands):

	September 30, 2021	December 31, 2020
Machinery and equipment	$ 73,940	$ 54,999
Leasehold improvements	31,274	24,192
Furniture and office equipment	3,189	2,743
Computers and software	2,742	2,677
	111,145	84,611
Less accumulated depreciation and amortization	(72,637)	(47,977)
	38,508	36,634
Construction in progress	16,064	12,084
Total property and equipment, net	$ 54,572	$ 48,718

Depreciation and amortization expense was $5.2 million and $4.4 million for the three months ended September 30, 2021 and 2020, and $13.7 million and $13.4 million for the nine months ended September 30, 2021 and 2020, respectively.

As a result of the 2021 Restructuring (Note 4), the Company determined it would not recover the carrying value of certain machinery and equipment that was solely used in the production of Hyaline. In determining the impairment charge the Company assessed the fair value of the machinery and equipment based on prices for similar assets and expected future cash

flows. As a result, machinery and equipment with a carrying amount of $11.2 million was impaired and written down to a fair value of zero during the three months ended September 30, 2021.

Accrued and other current liabilities consist of the following as of September 30, 2021 and December 31, 2020 (in thousands):

	September 30, 2021	December 31, 2020
Accrued compensation and compensation-related costs	$ 6,517	$ 15,211
Other accrued operating expenses	12,345	9,616
Accrued restructuring costs	6,610	—
Accrued legal service fees	1,033	1,105
Accrued interest	—	842
Accrued tax liabilities	40	114
Accrued and other current liabilities	$ 26,545	$ 26,888

8. Term Loans

In December 2019, the Company entered into and in February 2021, the Company amended and restated a credit and guaranty agreement in relation to the Company's senior secured delayed draw term loan facility, with Perceptive Credit Holdings II, LP and PCOF EQ AIV II, LP (the “Perceptive Credit Agreement”), in an aggregate principal amount of $100.0 million. On closing on December 19, 2019, the Company received $85.0 million which was available on the closing date, net of fees and repayment of the previous term loan. The availability of the additional principal amount of $15.0 million expired unused on September 30, 2021.

The Company's Perceptive Credit Agreement provides that a material adverse change constitutes an event of default. In the event the material adverse change clause is invoked, the outstanding principal, interest, including any applicable default interest and any prepayment premium will become payable on demand of the lender. On October 20, 2021, the lender and the Company entered into Amendment No. 1, Waiver and Consent to the Perceptive Credit Agreement (the "Amendment"). Pursuant to the terms of the Amendment:

- upon execution, the Company paid $41.0 million, which included $35.0 million in principal and $6.0 million of accrued interest and the applicable prepayment premium. Additionally, the Company placed $63.0 million into an account at the sole control of the lender that represents the remaining obligations under the credit agreement, including any further prepayment premium, which was released in November 2021 upon the lender's approval of the Company's planned cash usage through final maturity;
- modified the final maturity to be June 30, 2022; and
- eliminated the minimum revenue covenant and increased the minimum liquidity covenant.

As of the date these financial statements are issued, the Company has not yet finalized the accounting for the Amendment.

The Company was in compliance with all covenants of the Perceptive Credit Agreement as of September 30, 2021. At September 30, 2021, it was probable the minimum revenue covenant would not be met at a subsequent testing date within one year from the balance sheet date without cure and the lender had notified the Company of a purported default on August 16, 2021 related to an alleged material adverse effect event. As a result the amounts outstanding as of September 30, 2021 were classified as current.

The amounts outstanding as of December 31, 2020 were classified as current due to the substantial doubt about the Company's ability to continue operating as a going concern as of the date of issuance of the Company's audited annual financial statements, and the potential impact of the material adverse change clause.

Debt consists of the following as of September 30, 2021 and December 31, 2020 (in thousands):

	September 30, 2021	December 31, 2020
Senior secured delayed draw term loan facility bearing interest equal to 11.5% as of September 30, 2021 and December 31, 2020	$ 85,000	$ 85,000
Unamortized discount and offering costs	(4,779)	(5,669)
Senior secured delayed draw term loan facility, net	80,221	79,331
Less current portion	80,221	79,331
Long-term debt, net	$ —	$ —

Interest expense on the Company's term loan consisted of the following (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2021	2020	2021	2020
Coupon interest	$ 2,499	$ 2,499	$ 7,413	$ 7,441
Amortization of debt discount and offering costs	310	270	890	741
Total interest expense on term loan	$ 2,809	$ 2,769	$ 8,303	$ 8,182

Warrants Related to Prior Loan Agreement

In November 2014, the Company entered into a loan and security agreement for a term note which was subsequently amended and extinguished. In connection with the loan and security agreement and its amendments, the Company issued warrants to purchase the Company's common stock. On April 28, 2021, all warrants to purchase the Company's common stock, issued in connection with the Company's prior loan agreement, were exercised at the option of the holder. An aggregate of 226,880 shares were issued in connection with the cashless exercise. As of September 30, 2021, no common stock warrants were outstanding.

Warrants Related to Current Loan Facility

In connection with the Perceptive Credit Agreement, the Company issued a warrant to purchase the Company's Series C Preferred Stock (the "2019 Warrants"). On April 1, 2021, the holders of the Company's Series C Preferred Stock Warrants elected to exercise their warrants. The exercise was conditioned upon the consummation of a public offering of the Company's common stock on or prior to June 30, 2021. The exercise became effective with the Company's IPO in April 2021, with aggregate exercise proceeds of $15.0 million. As of September 30, 2021, no 2019 Warrants were outstanding.

9. Convertible Preferred Stock

Except as described below, the Company's convertible preferred stock is described in Note 10 of the "Notes to Consolidated Financial Statements" in the Prospectus.

As of December 31, 2020, the Company's convertible preferred stock consisted of the following:

	Authorized and Designated	Outstanding	Liquidation Preference (per share)	Liquidation Preference
				(in thousands)
Series A redeemable convertible preferred stock	21,998,250	7,332,750	$ 4.9893	$ 36,585
Series A-1 redeemable convertible preferred stock	26,158,833	8,719,611	$ 0.7599	6,626
Series B redeemable convertible preferred stock	42,244,588	14,081,522	$ 10.1091	142,352
Series C redeemable convertible preferred stock	76,750,881	24,700,286	$ 16.9836	419,500
Series D redeemable convertible preferred stock	47,028,472	13,259,111	$ 22.3269	296,035
	214,181,024	68,093,280		$ 901,098

On April 26, 2021, immediately prior to the closing of the IPO, all outstanding shares of convertible preferred stock converted into 68,115,459 shares of common stock. As of September 30, 2021, no convertible preferred stock was outstanding.

10. Equity

Equity Incentive Plans

In April 2021, the 2021 Incentive Award Plan (the "2021 Plan") became effective. The 2021 Plan serves as a successor to the 2014 Stock Plan (the "2014 Plan"). The 2021 Plan permits the award of stock options, restricted stock awards, stock appreciation rights, RSUs, performance awards, cash awards and stock bonuses. The Company reserved an initial 10,770,034 shares of common stock for issuance under the 2021 Plan, which includes the remaining reserved and unissued shares under the 2014 plan on the effective date of the 2021 Plan. The number of shares reserved for issuance under the 2021 Plan will increase automatically on January 1 of each calendar year continuing through the tenth calendar year during the term of the 2021 Plan by the number of shares equal to 5.0% of the total outstanding shares of the Company's common stock as of the immediately preceding December 31 or such lesser number as determined by the Board of Directors. Awards granted under the 2021 Plan

expire no later than ten years from the date of grant. For incentive stock options and non-statutory stock options, the option price shall not be less than 100% of the fair market value on the day of grant. If at the time the Company grants an option and the optionee directly or by attribution owns stock possessing more than 10% of the total combined voting power of all the Company's classes of stock, the option price is required to be at least 110% of the fair market value on the day of grant. Options and RSUs granted typically vest over a four-year period but may be granted with different vesting terms. As of September 30, 2021, there were 7,434,353 shares available for us to grant under the 2021 Plan.

In July 2014, the Company adopted the 2014 Plan for employees and non-employees pursuant to which the Board of Directors granted share-based awards, including stock options, to officers, employees, and non-employees. As of the effective date of the 2021 Plan, no further awards are issued from the 2014 Plan.

Stock Options with Service-based Vesting Conditions

The following table summarizes option activity under the 2021 Plan and the 2014 Plan:

	Number of Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life	Aggregate Intrinsic Value
				(in thousands)
Outstanding - December 31, 2020	5,498,490	$6.65	7.75	$79,756
Options granted	3,017,740	$23.76		
Options exercised	(1,025,465)	$4.61		
Options cancelled	(809,833)	$17.69		
Outstanding - September 30, 2021	6,680,932	$13.35	7.79	$27,820
Unvested - September 30, 2021	3,934,967	$18.69	9.24	$7,147
Exercisable - September 30, 2021	2,745,965	$5.70	5.72	$20,673

The weighted average grant-date fair value of options granted was $15.26 per share and $4.95 per share, during the nine months ended September 30, 2021, and 2020, respectively.

The aggregate intrinsic value of stock option awards exercised, determined at the date of option exercise, was $27.1 million and $2.4 million, during the nine months ended September 30, 2021, and 2020, respectively. The aggregate intrinsic value was calculated as the difference between the exercise prices of the underlying stock option awards and the estimated fair value of the Company’s common stock on the date of exercise.

Stock-based compensation expense for stock options is estimated at the grant date based on the fair-value using the Black-Scholes option pricing model. The fair value of employee stock options is recognized as an expense ratably over the requisite service period of the awards. The fair value of employee stock options was estimated using the following assumptions:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2021	2020	2021	2020
Expected dividend yield	— %	— %	— %	— %
Risk-free interest rate	0.95% - 1.09%	0.38% - 0.38%	0.77% - 1.09%	0.38% - 1.41%
Expected term (in years)	6.08	6.08	6.08	6.08
Expected volatility	70.09% - 71.58%	54.12% - 54.12%	70.09% - 74.67%	50.43% - 54.12%

As of September 30, 2021 the Company has employee stock-based compensation expense of $40.1 million related to unvested stock options not yet recognized, which is expected to be recognized over an estimated weighted average period of approximately 3.28 years.

Stock Options with Market-based Vesting Conditions

In April 2021, the Company granted options to purchase 2,099,999 shares of common stock to the Company's three founders, effective as of the closing of the IPO and adoption of the 2021 Plan, with an exercise price of $31.00 per share. The options are divided into five tranches with each tranche vesting, conditioned on the founder remaining a full time employee of the Company, when specific market capitalization and minimum price per share milestones are met, or as measured by total consideration per share in a change in control transaction. The options expire ten years from the grant date; any tranche not

earned by the seventh anniversary of the grant date is forfeited. The total grant date fair value of these options was $39.6 million, which will be recognized ratably for each vesting tranche using the accelerated attribution method as the award is subject to graded vesting over the weighted average derived service period of 3.19 years.

The fair value of the options was determined at the grant date using a Monte Carlo simulation model with the following assumptions:

Expected dividend yield	— %
Risk-free interest rate	1.57 %
Expected term (in years)	10.00
Expected volatility	75.00 %

The expected volatility was based on the most recent ten-year period for the Company's peer group. The stock price projection for the Company assumes a zero percent dividend yield. The risk-free interest is based on the yield on U.S. Treasury bonds with a maturity consistent with the ten-year expected term associated with the market condition of the award.

On August 2, 2021, Josh Hoffman separated from his position as the Company's Chief Executive Officer and resigned as a member of the Board. Mr. Hoffman and the Company entered into an Employment Separation Letter Agreement, pursuant to which, among other things, all unvested equity awards held by Mr. Hoffman were forfeited as of the separation date. As such, Mr. Hoffman forfeited options to purchase 1,183,333 shares of common stock that were granted to the Company's founders as of the closing of the IPO. Accordingly, all expenses related to Mr. Hoffman's unvested and forfeited options have been reversed. As of September 30, 2021, 916,666 options remain outstanding and unvested.

Restricted Stock Units with Service-based Vesting Conditions

The following table summarizes RSU activity (in thousands, except share and per share amounts and term):

	Shares	Weighted Average Grant Date Fair Value
Non-vested Restricted Stock Units as of December 31, 2020	—	$—
Granted [1]	1,970,523	$15.82
Vested	—	
Forfeited	(28,328)	$15.15
Non-vested Restricted Stock Units as of September 30, 2021	1,942,195	$15.83

(1) Includes RSUs granted to employees and consultants as part of the acquisition of Lodo (Note 3)

RSUs granted are valued at the market price of our common stock on the date of grant. The Company recognizes compensation expense for the fair value of RSUs ratably over the requisite service period of the awards. As of September 30, 2021 there was $28.6 million of total unrecognized compensation cost related to RSUs, which is expected to be recognized over a weighted average period of 2.27 years.

Non-vested Stock

As part of the acquisition of Radiant Genomics, Inc. ("Radiant") on December 29, 2017, the Company issued shares to the founders of Radiant. Half of the shares were subject to vesting based on the continued service of the founders with the Company post-acquisition over a four-year period. The shares are forfeited if the founders of Radiant do not complete the required service period and therefore represent compensation for post combination services.

The following table summarizes activity of the non-vested stock with service-based vesting granted as part of the Radiant acquisition (in thousands, except share and per share amounts and term):

	Shares	Weighted Average Grant Date Fair Value	Weighted Average Remaining Years	Aggregate Intrinsic Value
Non-vested stock as of December 31, 2020	67,240	$4.95	1.0	$1,089
Granted	—			
Vested	(50,430)	$4.95		
Forfeited	—			
Non-vested stock as of September 30, 2021	16,810	$4.95	0.25	$221

The total intrinsic value of non-vested stock that vested and were released was $1.4 million and $0.5 million, during the nine months ended September 30, 2021, and 2020, respectively. As of September 30, 2021 there was $0.1 million, of total unrecognized compensation cost related to non-vested stock, which is expected to be recognized over a weighted average period of 0.25 years.

Employee Stock Purchase Plan

In April 2021, the 2021 Employee Stock Purchase Plan (the "2021 ESPP") was adopted. The 2021 ESPP was adopted in order to enable eligible employees to purchase shares of the Company's common stock at a discount. Purchases will be accomplished through participation in discrete offering periods. The Company initially reserved 2,154,006 shares of common stock for issuance under the 2021 ESPP. The number of shares reserved for issuance under the 2021 ESPP will increase automatically on January 1 of each calendar year beginning after the first offering date and continuing through the first ten calendar years by the number of shares equal to 1.0% of the total outstanding shares of our common stock as of the immediately preceding December 31 or such lesser number as determined by our Board of Directors. The price at which common stock is purchased under the 2021 ESPP is equal to 85% of the fair market value of the common stock on the first day of the offering period or purchase date, whichever is lower. The offering periods begin in May and November of each year, except the initial offering period which commenced with the IPO in April 2021 will conclude in November 2021.

Compensation Expense

Compensation expense related to stock-based awards was included in the following categories in the accompanying Condensed Consolidated Statements of Operations and Comprehensive Loss in accordance with the accounting guidance for share-based payments for the three and nine months ended September 30, 2021 and 2020 (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2021	2020	2021	2020
Cost of service revenue	$ 1,189	$ 271	$ 2,557	$ 894
Research and development	3,775	308	7,065	998
Sales and marketing	437	96	998	375
General and administrative	21	464	4,020	1,157
Total stock-based compensation	$ 5,422	$ 1,139	$ 14,640	$ 3,424

Compensation expense by stock-based award was as follows for the three and nine months ended September 30, 2021 and 2020 (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2021	2020	2021	2020
Stock options with service based vesting conditions	$ 2,589	$ 1,055	$ 8,115	$ 3,174
Stock options with market based vesting conditions	24	—	2,438	—
RSUs with service based vesting conditions	1,601	—	2,186	—
Non-vested stock	84	84	250	250
ESPP	1,124	—	1,651	—
Total stock-based compensation	$ 5,422	$ 1,139	$ 14,640	$ 3,424

Non-recourse Loans to Employees

On October 5, 2017, the Company entered into promissory notes with two separate employees in the aggregate amount of $3.6 million. The notes bore interest at 3.0% per annum and were due on the earlier of October 18, 2027 or the date two weeks prior to the Company's good faith estimate of the date of initial filing of a Form S-1 to sell shares of Company common stock in an initial public offering. Interest was payable annually in arrears and could be added to the principal amount at the borrower's option. Both employees opted to add the interest in the aggregate amount of $0.1 million to be added to the principal for the interest payment due in October 2019 and October 2020, respectively. The outstanding principal and interest payment added to the principal were included in Additional Paid-In Capital on the Condensed Consolidated Balance Sheets.

On March 5, 2021, both promissory notes were repaid, including the principal and all unpaid interest in an amount of $4.0 million were settled by the receipt of a $2.0 million payment and the return of 67,050 shares of common stock to the Company. The 67,050 shares of common stock were immediately retired upon return to the Company.

11. Net Loss Per Share

Basic net loss per share is determined by dividing net loss by the weighted average shares outstanding for the period. The Company analyzes the potential dilutive effect of stock options, non-vested stock, RSUs, stock issuable under the ESPP, and warrants under the treasury stock method (as applicable), during periods of income, or during periods in which income is recognized related to changes in fair value of its liability-classified securities.

The following table presents the calculation of basic and diluted net loss per share (in thousands, except share and per share data) applicable to common stockholders for the three and nine months ended September 30, 2021 and 2020:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2021	2020	2021	2020
Numerator:				
Net loss, basic	$ (98,229)	$ (61,816)	$ (283,647)	$ (186,596)
Less: Gain on change in fair value of warrant liabilities	—	—	1,849	—
Net loss, diluted	$ (98,229)	$ (61,816)	$ (285,496)	$ (186,596)
Denominator:				
Weighted average shares used in calculating net loss per share, basic	102,337,242	12,559,912	64,662,332	12,058,855
Effect of dilutive securities:				
Warrants to purchase Series C convertible preferred stock	—	—	150,024	—
Weighted average shares used in calculating net loss per share, diluted	102,337,242	12,559,912	64,812,356	12,058,855
Net loss per share, basic	$ (0.96)	$ (4.92)	$ (4.39)	$ (15.47)
Net loss per share, diluted	$ (0.96)	$ (4.92)	$ (4.40)	$ (15.47)

The following potentially dilutive shares as of the periods ended September 30, 2021, and 2020, were excluded from the calculation of diluted net loss per share applicable to common stockholders because their effect would have been anti-dilutive for the periods presented:

	September 30, 2021	September 30, 2020
Shares issuable under convertible preferred stock	—	59,335,248
Warrants to purchase Series C convertible preferred stock	—	883,332
Options to purchase common stock	6,680,932	5,376,318
Restricted stock units	1,942,195	—
Non-vested stock	16,810	84,050
Warrants to purchase common stock	—	242,322
Total	8,639,937	65,921,270

12. Revenue, Credit Concentrations and Geographic Information

The Company has primarily earned revenue by engaging in R&D service contracts. The Company also earns revenue through collaborative arrangements with partners to develop novel materials to be commercialized by the collaborative partner and the Company.

The Company’s R&D service contracts generally consist of fixed-fee multi-phase research terms with concurrent value-share and/or performance bonus payments based on developing an improved microbial strain. The research term of the contracts typically spans several quarters and the contract term for revenue recognition purposes is determined based on the customer’s rights to terminate the contract for convenience. Other payment types, typically consisting of performance bonuses or value share payments, are constrained until those payments become probable or are earned. The Company recognized performance bonuses of $0.3 million for the nine months ended September 30, 2021. For the three months ended September 30, 2021 and for

the three and nine months ended September 30, 2020, performance bonuses the Company recognized were insignificant. For the three and nine months ended September 30, 2021 and 2020, the Company has not recognized any royalty or value share payments.

When acceptance clauses are present in an agreement, the Company recognizes the R&D service revenue at a point in time when the R&D services provided have been accepted by the customer and the Company has a present right for payment and no refunds are permitted. The Company recognized revenue at a point in time due to customer acceptance clauses of $0.4 million for the three months ended September 30, 2021. For the three months ended September 30, 2020, revenue recognized at a point in time due to customer acceptance clauses was insignificant. The Company recognized revenue at a point in time due to customer acceptance clauses of $2.7 million and $0.2 million for the nine months ended September 30, 2021 and 2020, respectively.

The following table represents changes in the balances of our contract liabilities during the periods ended September 30, 2021, and 2020 (in thousands):

	December 31, 2020	Additions	Adjustments	Deletions	September 30, 2021
Contract liabilities:					
Deferred revenue	$ 3,014	$ 7,658	$ (597)	$ (7,487)	$ 2,588

	December 31, 2019	Additions	Adjustments	Deletions	September 30, 2020
Contract liabilities:					
Deferred revenue	$ 1,760	$ 5,796	$ —	$ (4,283)	$ 3,273

Additions to contract liabilities during the nine months ended September 30, 2021 include $1.4 million of deferred revenue through the acquisition of Lodo (Note 3). Additions to contract liabilities during the nine months ended September 30, 2020 include $0.6 million of deferred revenue through the acquisition of enEvolv (Note 3). Long-term deferred revenue is included in Other long-term liabilities on the Condensed Consolidated Balance Sheets. Adjustments to deferred revenue for the nine months ended September 30, 2021 are attributable to the expected termination of a research and development services agreement.

Transaction price allocated to the remaining performance obligation represents contracted revenue that has not yet been recognized, which includes unearned revenue and unbilled amounts that will be recognized as revenue in future periods. Remaining performance obligations consisted of the following (in thousands):

	Current	Noncurrent	Total
As of September 30, 2021	$ 2,673	$ 306	$ 2,979

The Company’s noncurrent remaining performance obligation is expected to be recognized in the next 1.1 to 1.5 years.

Customers representing 10% or greater of revenue were as follows for the three and nine months ended September 30, 2021 and 2020:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2021	2020	2021	2020
Customer A	28 %	45 %	24 %	48 %
Customer B	21 %	10 %	28 %	*
Customer C	15 %	17 %	13 %	17 %
Customer D	10 %	11 %	*	12 %
Customer I	10 %	— %	*	*

* Less than 10%

Customers representing 10% or greater of billed accounts receivable were as follows as of September 30, 2021 and December 31, 2020:

	September 30, 2021	December 31, 2020
Customer A	— %	37 %
Customer D	— %	23 %
Customer E	71 %	23 %
Customer G	— %	17 %
Customer I	29 %	— %

The Company's revenues by geographic region are presented in the table below for the three and nine months ended September 30, 2021 and 2020 (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2021	2020	2021	2020
United States of America	$ 1,655	$ 1,032	$ 4,702	$ 2,426
Asia	1,142	1,496	3,871	3,613
Europe	1,285	680	5,131	1,339
Total revenue	$ 4,082	$ 3,208	$ 13,704	$ 7,378

13. Commitments and Contingencies

Operating Lease Commitments

The Company leases certain facilities and recognizes rent expense on a straight-line basis, net of sublease income, over the non-cancellable lease term and records the difference between cash rent payments and the recognition of rent expense as a deferred rent liability. Rent expense under operating leases was $9.9 million and $3.9 million for the three months ended September 30, 2021 and 2020, and $25.7 million and $11.4 million for the nine months ended September 30, 2021 and 2020, respectively.

Total future minimum rental commitments under long-term leases, net of sublease income, with an initial term of more than one year are estimated as follows (in thousands):

Remainder of 2021	$ 4,665
2022	28,774
2023	35,414
2024	34,884
2025	33,868
Thereafter	240,821
	$ 378,426

Contingencies

The Company is subject to various litigation and arbitration claims that arise in the ordinary course of business, including but not limited to those related to employee matters. Unless otherwise specifically disclosed, we have determined that no provision for liability is required related to any claim against the Company.

On August 4, 2021, the Company, certain of the Company's current and former officers and directors, and the underwriters of the Company's IPO were named as defendants in a putative securities class action filed on behalf of purchasers of the Company's common stock pursuant to or traceable to the registration statement for its IPO. The action is pending in the United States District Court for the Northern District of California, and is captioned *Shankar v. Zymergen Inc. et al.*, Case No. 3:21-cv-06028-JCS. The action alleges violations of Sections 11 and 15 of the Securities Act of 1933, as amended, in connection with the Company's IPO, and seeks damages in an unspecified amount, attorneys' fees, and other remedies. The Company intends to defend vigorously against such allegations.

On November 9, 2021, a purported shareholder of Zymergen filed a putative derivative lawsuit in the United States District Court for the Northern District of California that is captioned *Mellor v. Hoffman, et al.*, Case No. 4:21-cv-08723. The complaint names certain of the Company's current and former officers and directors and the Company as nominal defendants based on allegations substantially similar to those in the securities class action. The complaint purports to assert claims on the Company's behalf for breach of fiduciary duty, unjust enrichment, abuse of control, gross mismanagement, corporate waste, and contribution under the federal securities laws and seeks corporate reforms, unspecified damages and restitution, and fees and costs.

In addition, certain government agencies, including the Securities and Exchange Commission ("SEC"), have requested information related to the Company's August 3, 2021 disclosure. The Company is cooperating fully.

14. Subsequent Events

In addition to the amendment to the Company's Perceptive Credit Agreement, which has been disclosed in Note 8, the following events have occurred subsequent to September 30, 2021.

On October 21, 2021, the Company executed a reduction in force that resulted in the termination of approximately 100 employees. The Company will incur severance and employee-related restructuring costs of approximately $4.2 million related to this reduction in force. The Company has now completed its reductions in force under the 2021 Restructuring.

On October 31, 2021, Jed Dean, the Company's co-founder, stepped down from the Company. Under the terms of the 2014 Plan and 2021 Plan, as applicable, and Dr. Dean's employment agreement all unvested equity awards held by Dr. Dean at the time of his departure were forfeited. As such, Dr. Dean forfeited options to purchase 458,333 shares of common stock that were granted to the Company's founders. All expense incurred prior to the separation date related to unvested options were reversed as of the separation date.

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations

You should read the following discussion and analysis of our financial condition and results of operations in conjunction with our unaudited Condensed Consolidated Financial Statements and related notes included in Part I, Item 1 of this Quarterly Report on Form 10-Q and with our audited Consolidated Financial Statements and related notes thereto for the year ended December 31, 2020, included in our final Prospectus.

In this section, the terms "we," "our," "ours," "us," and "the Company" refer collectively to Zymergen Inc. and its consolidated direct and indirect subsidiaries. This discussion contains forward-looking statements that involve risks and uncertainties reflecting our current expectations, estimates and assumptions concerning events and financial trends that may affect our future operating results or financial position. Factors that could cause or contribute to such difference include, but are not limited to, those identified below and those discussed in the section of this Quarterly Report on Form 10-Q titled "Risk Factors". Forward-looking statements speak only as of the date they are made, and the Company assumes no duty to and does not undertake any obligation to update forward-looking statements. Actual results could differ materially from those anticipated in forward-looking statements and future results could differ materially from historical performance.

Overview

Zymergen partners with Nature to design, develop and commercialize bio-based breakthrough products that can deliver value to customers in a broad range of industries. Our goal is to create new products with a proprietary platform that unlocks the design and manufacturing efficiency of the biological processes with technology's ability to rapidly iterate and control diverse functions. We call our process biofacturing and we believe it will create better products and materials faster, cheaper and more sustainably than traditional chemistry by engineering microbes to make novel biomolecules that are the key ingredients in those products. Substantially all of our revenue to date has been generated from R&D service contracts and collaboration arrangements aimed at developing, testing and validating our biofacturing platform by providing custom services for use only by the collaboration partner. Over the next few years, we seek to develop and commercialize our products and generate revenue from these products. Our long-term objective is to generate revenue from the sale of numerous breakthrough products across a variety of industries.

Recent Developments

Portfolio Review and Cost Reductions

Since our business update on August 3, 2021, we have made significant progress on our previously announced assessment of our target markets and the fit of the products in our pipeline to those markets (the "Portfolio Review"). We have reviewed our potential market opportunities and the related project portfolio, using a standardized evaluation process applied to current and potential market segments. This included a review of market size, addressable market, competitive profiles, product development cost, cost of goods of the final offering, cost of customer acquisition, time to market, margin profile and development risk. As a result of our Portfolio Review, we have determined to focus on a smaller number of programs that we believe capitalize on our capabilities and provide clear commercial opportunities. To that end, we are discontinuing our electronics film programs, other than ZYM0101, which is partnered with Sumitomo Chemical, because emerging data on the market segment we were targeting with Hyaline and other electronics films indicates a smaller near-term opportunity than previously expected. We are also discontinuing our consumer care programs, including our insect repellent, ZYM0201, because we determined through our Portfolio Review that the costs of customer acquisition with a direct-to-consumer model would have been prohibitive and, in the case of ZYM0201, it could not be produced and distributed at a price point competitive with incumbent products. As part of our Portfolio Review, two programs in the healthcare market have been promoted, one for development of key enzymes used in vaccine production and a second in drug discovery, and we have also continued to see success with our work in agriculture, particularly with a partnered program for nitrogen fixation. We are still evaluating several programs that are still in early concept stages as part of our Portfolio Review and may determine that additional programs do not meet our criteria for continued development.

We have also made progress on our plan to reduce operating costs since August. We conducted two reductions in force eliminating approximately 220 positions. We are also working to potentially restructure some of our expenses, including lease expenses. We have recorded restructuring costs of $21.2 million in the third quarter of 2021, including $4.1 million in severance and employee-related restructuring costs and an impairment charge of $11.2 million with respect to certain manufacturing equipment. We expect to incur additional restructuring costs of approximately $8.2 million in the fourth quarter of 2021, including $4.5 million in severance and employee-related restructuring costs in connection with our October 2021 reduction in force and $3.3 million in consulting costs. With this downsizing and restructuring we believe that we will have sufficient operating capital to continue to fund our operations to the middle of 2023. With our focus on a smaller number of

programs and reduced cost structure and with the benefit of the analyses and evaluations that we have conducted through the Portfolio Review, we are developing our strategic plan through 2024 with clear milestones and goals.

Perceptive Amendment

On October 20, 2021, we entered into Amendment No. 1, Waiver and Consent to Amended and Restated Credit Agreement and Guaranty (the "Amendment") with Perceptive Credit Holdings II, LP, a Delaware limited partnership, in its capacity as administrative agent for the Lenders (in such capacity, together with its successors and assigns, the "Administrative Agent") and as the Lenders (the "Lenders") with respect to the Amended and Restated Credit Agreement and Guaranty, dated as of February 26, 2021 (the "Credit Agreement"). Pursuant to the terms of the Amendment, we and the Administrative Agent have agreed to: (1) shorten the term of the Credit Agreement by moving the final maturity date to June 30, 2022 (the "Maturity Date"), (2) reduce the amount of the prepayment premium that will be due on the Maturity Date from what otherwise would have been payable, (3) eliminate the minimum revenue covenant set forth in the Credit Agreement and (4) increase the minimum liquidity covenant set forth in the Credit Agreement.

As conditions precedent to the effectiveness of the Amendment, among other things, we: (1) paid the Administrative Agent (for the benefit of itself and the Lenders) approximately $41.0 million, representing a $35.0 million principal prepayment plus accrued interest and the applicable prepayment premium under the Credit Agreement and (2) deposited funds equal to the remaining outstanding principal amount of the loans under the Credit Agreement plus interest through the Maturity Date and further prepayment premium into a blocked account controlled by the Administrative Agent, which was released in November 2021 from the blocked account upon the Administrative Agent's completion of diligence to its reasonable satisfaction regarding our anticipated operating costs and budget through the Maturity Date.

Components of Results of Operations

Revenue

Research and Development Service Agreements Revenue. To date, we have earned revenue by engaging in R&D services primarily to help our customers develop bio-based products. In addition, the R&D services provided to our customers test and validate our biofacturing platform. We account for R&D service contracts when we have approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance and collectability of consideration is probable. The research term of the contracts spans typically over several quarters and the contract term for revenue recognition purposes is determined based on the customer's rights to terminate the contract for convenience. Over the longer-term, as and to the extent we grow our product sales and commercialize products, we expect revenue from R&D services to represent a smaller component of our total revenue.

Collaboration Revenue. Our collaboration revenue relates primarily to our collaboration agreement with Sumitomo Chemical. Our agreement with Sumitomo Chemical includes provision of R&D services by us through the joint innovation of certain materials and applications of strategic interest to Sumitomo Chemical. Under this arrangement R&D costs are shared equally between the parties with settlement of such amounts on a quarterly basis. Amounts received for those services are classified as collaboration revenue as those services are being rendered because those services are considered to be part of our ongoing major operations.

Cost of Service Revenue

Cost of service revenue represents costs we incur to service our contract research efforts pursuant to our R&D service contracts, as well as certain costs allocable to our Sumitomo Chemical collaboration arrangement. Costs include both internal and third party fixed and variable costs including labor, materials and supplies, facilities and other overhead costs.

Operating Expenses

Our operating expenses are classified in the following categories: research and development, sales and marketing and general and administrative. For each of these categories, the largest component is personnel costs, which includes salaries, employee benefit costs, bonuses and stock-based compensation expenses.

We have recently implemented several measures designed to reduce our cost structure with a goal to extend our cash runway. We have incurred, and expect to continue to incur in the near-term, increased non-recurring expenses as a result of our restructuring activities, including consultancy fees and restructuring expenses.

Research and development. Uncertainties inherent in the research and development of customer products preclude us from capitalizing such costs. Research and development expenses include personnel costs, the cost of consultants, materials and

supplies associated with research and development projects as well as various laboratory studies. Indirect research and development costs include depreciation, amortization and other indirect overhead expenses.

Sales and marketing. Sales and marketing expenses consist primarily of personnel costs, costs of general marketing activities and promotional activities, travel-related expenses and other indirect overhead costs.

General and administrative. Our general and administrative expenses consist primarily of personnel costs for our executive, finance, corporate and other administrative functions, intellectual property and patent costs, facilities and other allocated expenses, other expenses for outside professional services, including legal, human resources, audit and accounting services and insurance costs.

Restructuring charges. Our restructuring charges consist primarily of costs associated with employee termination benefits, contract terminations, restructuring-related consulting fees and long-lived asset impairments.

Interest income

Interest income consists of income earned from our cash, cash equivalents and short-term investments.

Interest expense

Interest expense consists of interest incurred from our term loan along with the amortization of loan initiation fees and lender warrant expense.

Change in fair value of warrant liability

The change in the fair value of the warrant liability is due to the change in the value of the underlying shares of Series C Preferred Stock. The change in value reflects the change in fair value of the underlying shares of Series C Preferred Stock during the applicable period.

Other income (expense), net

Other income (expense), net relates to miscellaneous other income and expense and foreign currency gains and losses.

Provision for Income Taxes

Provision for income taxes consists primarily of minimum tax payments at the state level and income taxes paid outside of the United States for our overseas subsidiaries. The factors that most significantly impact our effective tax rate include realizability of deferred tax assets, changes in tax laws, variability in the allocation of our taxable earnings among multiple jurisdictions, the amount and characterization of our research and development expenses, the levels of certain deductions and credits, acquisitions and licensing transactions.

We have various federal and state net operating loss carryforwards as well as federal and state research and development tax credit carryforwards. Utilization of some of the federal and state net operating loss and research and development tax credit carryforwards are subject to annual limitations due to the “change in ownership” provisions of the Internal Revenue Code of 1986 and similar state provisions. The annual limitations may result in the expiration of net operating losses and credits before utilization.

Results of Operations for the Three Months Ended September 30, 2021 and 2020

The following table set forth our results of operations for the periods (in thousands):

	Three Months Ended September 30,		Change	
	2021	2020	$	%
Revenues from research and development service agreements	$ 2,947	$ 2,143	$ 804	37.5 %
Collaboration revenue	1,135	1,065	70	6.6 %
Total revenues	4,082	3,208	874	27.2 %
Cost and operating expenses:				
Cost of service revenue	17,179	21,047	(3,868)	(18.4)%
Research and development	39,073	21,703	17,370	80.0 %
Sales and marketing	3,977	4,354	(377)	(8.7)%
General and administrative	17,906	14,410	3,496	24.3 %
Restructuring charges	21,193	—	21,193	n.m.
Total cost and operating expenses	99,328	61,514	37,814	61.5 %
Operating loss	(95,246)	(58,306)	(36,940)	63.4 %
Other income (expense):				
Interest income	7	32	(25)	(78.1)%
Interest expense	(2,809)	(2,769)	(40)	1.4 %
Gain (loss) on change in fair value of warrant liabilities	—	(477)	477	(100.0)%
Other expense, net	(199)	(292)	93	(31.8)%
Total other expense	(3,001)	(3,506)	505	(14.4)%
Loss before income taxes	(98,247)	(61,812)	(36,435)	58.9 %
(Provision for) benefit from income taxes	18	(4)	22	(550.0)%
Net loss	$ (98,229)	$ (61,816)	$ (36,413)	58.9 %

n.m.: Not meaningful

Revenue

Revenue from research and development service agreements increased by $0.8 million, or 38%, for the quarter ended September 30, 2021 compared to the same period of the prior year. This increase was primarily due to the following:

- a $0.5 million increase due to the timing of deliverables under fixed fee contracts;
- a $0.3 million increase compared to the three months ending September 30, 2020 as a result of temporary lab closures in 2020 due to the COVID-19 pandemic, which temporarily limited our ability to deliver R&D services to our customers;
- a $0.3 million increase of additional revenue recognized at a point in time due to contract milestones; and
- a $0.3 million increase from new and acquired contracts

This was offset by:

- a $0.6 million decrease from contracts ending in 2020.

Collaboration revenue increased by $0.1 million, or 7%, for the quarter ended September 30, 2021 compared to the same period of the prior year. This increase was due to the increased research activity under the partnership agreement with Sumitomo Chemical.

Cost of Revenue

Cost of service revenue decreased by $3.9 million, or 18%, for the quarter ended September 30, 2021 compared to the same period of the prior year. This decrease was primarily due to:

- a decrease of $5.1 million in labor cost associated with a shift of resources from performing research and development activities for third parties to performing research and development activities on our own products, as well as a current period reversal of accrued performance bonuses resulting from our conclusion that we will not meet certain 2021 corporate objectives established for payment of performance bonuses, net of the impact of salary increases that went into effect in 2021 to reflect current market trends, and the impact of the acquisition of Lodo Therapeutics, which resulted in an increase in labor costs of approximately $0.2 million; and
- a decrease of approximately $0.5 million in consumables and $0.6 million in depreciation, both due to a shift of resources from performing research and development activities for third parties to performing research and development activities on our own products.

This was offset by:

- an increase of approximately $0.9 million in stock-based compensation, partly due to an increase in the fair value of the shares underlying options with service-based vesting conditions, the vesting of awards under our Employee Stock Purchase Plan (the "ESPP"), the impact of the issuance of options with market-based vesting conditions, and the impact of the RSUs issued in relation to the Lodo Therapeutics acquisition for post-acquisition services;
- an increase in the use of contract research resources of $0.4 million due mainly to the engagement of contract research resources to accelerate a client early stage development project;
- an increase of approximately $0.8 million in allocated rent due to an expansion of our real estate costs, including the addition of a new company headquarters, which is currently under development; and
- an increase of approximately $0.2 million in other expenses due to an increase in insurance expenses.

Operating Expenses

Research and development

Research and development expense increased by $17.4 million, or 80%, in the quarter ended September 30, 2021 compared to the same period of the prior year. The overall increase was primarily due to:

- the increase in resources allocated to our own product development from customer research and development activities, including product development work on Hyaline, our insect repellent, ZYM0201, and other products in our product pipeline prior to our decisions to discontinue Hyaline and our insect repellent, ZYM0201; and
- expenses of approximately $1.7 million incurred after the acquisition of Lodo Therapeutics, primarily relating to personnel and consumables.

This resulted in:

- a $2.7 million net increase in manufacturing and lab consumables and subcontractors, largely attributable to the development of Hyaline and ZYM0201 (insect repellent) products as well as early development spend in other products;
- a $2.7 million increase in labor costs due to an expansion of resources focused on research and development activities (including the Lodo personnel), and the impact of salary increases that went into effect in 2021 to reflect current market trends. This was partially offset by a current period reversal of accrued performance bonuses, resulting from our conclusion that we will not meet certain 2021 corporate objectives established for payment of performance bonuses; and
- a $4.1 million increase in allocated rent due to an expansion of our real estate costs, including the addition of a new company headquarters, which is currently under development.

In addition there was:

- an increase of approximately $3.6 million in stock-based compensation, partly due to the increase in resources allocated to our own product development from customer research and development activities, an increase in the fair value of the shares underlying options with service-based vesting conditions, the vesting of awards under the ESPP, the impact of the issuance of options with market-based vesting conditions, and the impact of the RSUs issued in relation to the Lodo Therapeutics acquisition for post-acquisition services;
- a $2.8 million increase in depreciation attributable to new equipment and leasehold improvements entered into service throughout 2020 and 2021; and

- an increase of approximately $1.5 million in other expenses, of which approximately $0.8 million was due to an increase in insurance expenses and approximately $0.4 million related to product and raw material freight and shipping costs.

Sales and marketing

Sales and marketing expense decreased by $0.4 million, or 9%, in the quarter ended September 30, 2021 compared to the same period of the prior year. This increase was primarily due to:

- a decrease of approximately $1.0 million in labor costs attributable to a current period reversal of accrued performance bonuses, resulting from our conclusion that we will not meet certain 2021 corporate objectives established for payment of performance bonuses. This was partially offset by the impact of salary increases that went into effect in 2021 to reflect current market trends.

This was offset by:

- an increase of approximately $0.3 million in stock-based compensation, partly due an increase in the fair value of the shares underlying options with service-based vesting conditions and the vesting of awards under the ESPP; and
- a $0.2 million increase in allocated rent.

General and administrative

General and administrative expense increased by $3.5 million or 24%, in the quarter ended September 30, 2021 compared to the same period of the prior year. The increase in general and administrative expenses was primarily attributable to the following:

- a $2.4 million increase legal, strategy, investor relations and accounting services, mainly associated with becoming and being a public company, as well as services associated with litigation; and
- an increase of approximately $2.0 million in allocated rent due to an expansion of our real estate costs, including the addition of a new company headquarters, which is currently under development.

This was offset by:

- a decrease of approximately $0.4 million in stock compensation, due to the reversal of expense related to the forfeiture of options with market-based vesting conditions. This was partially offset by an increase in the fair value of the shares underlying options with service-based vesting conditions and the vesting of awards under the ESPP;
- a decrease of approximately $0.3 million in depreciation and software costs; and
- a $0.2 million decrease in labor costs attributable to a current period reversal of accrued performance bonuses, resulting from our conclusion that we will not achieve certain 2021 corporate objectives established for payment of performance bonuses. This was partially offset by an expansion of resources to meet the requirements of being a public company and the impact of salary increases that went into effect in 2021 to reflect current market trends.

Restructuring charges

We recorded restructuring charges of $21.2 million in the quarter ended September 30, 2021 and we did not record any restructuring charges in the corresponding prior year period. The restructuring charges resulted from one-time termination benefits of $4.1 million incurred in connection with our September 2021 reduction in force, contract termination costs in the amount of $3.7 million, long-lived asset impairments of $11.2 million and restructuring-related consulting fees of $2.2 million.

Interest income (expense)

Interest income and interest expense was flat in the quarter ended September 30, 2021 compared to the same period of the prior year.

Gain (loss) on change in fair value of warrant liability

No change in fair value of warrant liability was recorded in the quarter ended September 30, 2021, as all warrants were exercised effective with our initial public offering ("IPO") in April 2021. The loss of $0.5 million in the same period of the prior year was the result of a change in the warrant value influenced by the change in the value of the underlying Series C preferred stock which increased significantly during the third quarter of 2020 with the expectation of Series D fund-raising closing, and hence providing a better runway for the Company to achieve its product goals.

Results of Operations for the Nine Months Ended September 30, 2021 and 2020

The following table set forth our results of operations for the periods (in thousands):

	Nine Months Ended September 30,		Change	
	2021	2020	$	%
Revenues from research and development service agreements	$ 10,440	$ 4,818	$ 5,622	116.7 %
Collaboration revenue	3,264	2,560	704	27.5 %
Total revenues	13,704	7,378	6,326	85.7 %
Cost and operating expenses:				
Cost of service revenue	60,138	63,721	(3,583)	(5.6)%
Research and development	129,036	60,986	68,050	111.6 %
Sales and marketing	18,753	14,477	4,276	29.5 %
General and administrative	60,898	44,713	16,185	36.2 %
Restructuring charges	21,193	—	21,193	n.m.
Total cost and operating expenses	290,018	183,897	106,121	57.7 %
Operating loss	(276,314)	(176,519)	(99,795)	56.5 %
Other income (expense):				
Interest income	62	451	(389)	(86.3)%
Interest expense	(8,303)	(8,182)	(121)	1.5 %
Gain (loss) on change in fair value of warrant liabilities	1,849	(2,093)	3,942	(188.3)%
Other expense, net	(967)	(355)	(612)	172.4 %
Total other expense	(7,359)	(10,179)	2,820	(27.7)%
Loss before income taxes	(283,673)	(186,698)	(96,975)	51.9 %
(Provision for) benefit from income taxes	26	102	(76)	(74.5)%
Net loss	$ (283,647)	$ (186,596)	$ (97,051)	52.0 %

n.m.: Not meaningful

Revenue

Revenue from research and development service agreements increased by $5.6 million, or 117%, for the nine months ended September 30, 2021 compared to the same period of the prior year. This increase was primarily due to the following:

- a $4.1 million increase from new and acquired contracts, including $1.6 million that was recognized at a point in time and an additional $0.6 million of which was recognized at a point in time for work performed in the fourth quarter of 2020 but recognized in the first quarter of 2021, due to a delay in contract signing until the first quarter of 2021;
- a $2.1 million increase of additional revenue recognized at a point in time due to contract milestones; and
- a $1.2 million increase compared to the nine months ended September 30, 2020 as a result of temporary lab closures in 2020 due to the COVID-19 pandemic, which temporarily limited our ability to deliver R&D services to our customers.

This was offset by:

- a $1.8 million decrease from contracts ending in 2020.

Collaboration revenue increased by $0.7 million, or 28%, for the nine months ended September 30, 2021 compared to the same period of the prior year. This increase was due to the increased research activity under the partnership agreement with Sumitomo Chemical.

Cost of Revenue

Cost of service revenue decreased by $3.6 million, or 6%, in the nine months ended September 30, 2021 compared to the same period of the prior year. This was primarily due to the following:

- a $9.5 million decrease in labor cost associated with a shift of resources from performing research and development activities for third parties to performing research and development activities on our own products, as well as a current period reversal of accrued performance bonuses resulting from our conclusion that we will not meet certain 2021 corporate objectives established for payment of performance bonuses net of the impact of salary increases that went into effect in 2021 to reflect current market trends and the impact of the acquisition of Lodo Therapeutics; and

- a decrease of approximately $0.9 million in depreciation and software costs due to a shift of resources from performing research and development activities for third parties to performing research and development activities on our own products.

This was offset by:

- an increase of approximately $2.4 million in allocated rent due to an expansion of our real estate costs, including the addition of a new company headquarters, which is currently under development;
- an increase of approximately $1.7 million in stock-based compensation, partly due an increase in the fair value of the shares underlying options with service-based vesting conditions, the impact of the issuance of options with market-based vesting conditions, RSUs issued in relation to the Lodo Therapeutics acquisition for post acquisition services and the vesting of awards under the ESPP;
- an increase in the use of contract research resources of $1.4 million due mainly to the engagement of contract research resources to accelerate a client early stage development work;
- an increase of approximately $0.7 million in other expenses, primarily due to an increase in insurance expenses; and
- an increase of approximately $0.6 million in lab consumables, mainly due to the lab shutdown from mid March through mid June of 2020 due to the COVID-19 pandemic.

Operating Expenses

Research and development

Research and development expense increased by $68.1 million, or 112%, in the nine months ended September 30, 2021 compared to the same period of the prior year. The overall increase was primarily due to:

- the increase in resources allocated to our own product development from customer research and development activities, including product development work on Hyaline, our insect repellent, ZYM0201 and other products in our product pipeline prior to our decisions to discontinue Hyaline and our insect repellent, ZYM0201; and
- expenses of approximately $3.1 million incurred after the acquisition of Lodo Therapeutics, primarily relating to personnel and consumables.

This resulted in:

- a $29.8 million increase in manufacturing and lab consumables and subcontractors, largely attributable to the development of Hyaline, ZYM0107 (optical film), ZYM0101 (optical film) and ZYM0201 (insect repellent) products as well as early development spend on other products;
- a $14.9 million increase in labor costs due to an expansion of resources focused on research and development activities (including the Lodo personnel), and the impact of salary increases that went into effect in 2021 to reflect current market trends. This was partially offset by a current period reversal of accrued performance bonuses, resulting from the conclusion that we will not meet certain 2021 corporate objectives established for payment of performance bonuses; and
- a $9.2 million increase in allocated rent due to an expansion of our real estate costs, including the addition of a new company headquarters, which is currently under development.

In addition, there was:

- an increase of approximately $6.1 million in stock-based compensation, partly due to an increase in the fair value of the shares underlying options with service-based vesting conditions, the impact of the issuance of options with market-based vesting conditions, the vesting of awards under the ESPP and the impact of the RSUs issued in relation to the Lodo Therapeutics acquisition for post acquisition services;
- a $5.1 million increase in depreciation attributable to new equipment and leasehold improvements entered into service throughout 2020 and 2021; and
- an increase of approximately $3.0 million in other expenses, of which approximately $1.5 million was due to an increase in insurance expenses.

Sales and marketing

Sales and marketing expense increased by $4.3 million, or 30%, in the nine months ended September 30, 2021 compared to the same period of the prior year. This increase was primarily due to:

- a $3.0 million increase in expense related to subcontractors. This was largely due to an increase in customer and brand marketing activities;
- a $0.7 million increase in allocated rent due to an expansion of our real estate costs, including the addition of a new company headquarters, which is currently under development; and

- an increase of approximately $0.6 million in stock-based compensation, partly due to an increase in the fair value of the shares underlying options with service-based vesting conditions and the vesting of awards under the ESPP.

General and administrative

General and administrative expense increased by $16.2 million or 36%, in the nine months ended September 30, 2021 compared to the same period of the prior year. The increase in general and administrative expenses was primarily attributable to the following:

- a $7.6 million increase in legal, strategy, investor relations and accounting services, mainly associated with becoming and being a public company, as well as services associated with the acquisition of Lodo Therapeutics and on litigation;
- a $4.4 million increase in rent and facilities costs. This was largely driven by an expansion of our real estate costs, including the addition of a new company headquarters, which is currently under development;
- an increase of approximately $2.9 million in stock-based compensation, partly due to an increase in the fair value of the shares underlying options with service-based vesting conditions and the vesting of awards under the ESPP;
- a $2.2 million increase in labor costs due to an expansion of resources to meet the requirements of being a public company and the impact of salary increases that went into effect in 2021 to reflect current market trends. This was partially offset by a current period reversal of accrued performance bonuses, resulting from our conclusion that we will not meet certain 2021 corporate objectives established for payment of performance bonuses and a reduction of allocation of headcount to general and administrative expense as a result of the end of temporary lab closures in 2020 due to the COVID-19 pandemic; and
- an increase of approximately $0.5 million in other expenses, primarily due to an increase in insurance expenses.

This was offset by:

- a decrease of approximately $1.1 million in depreciation and software costs and a decrease of approximately $0.3 million in consumables, this was mainly due to a reduction of allocation of headcount to general and administrative expense as a result of the end of temporary lab closures in 2020 due to the COVID-19 pandemic.

Restructuring charges

We recorded restructuring charges of $21.2 million in the nine months ended September 30, 2021 and did not record any restructuring charges in the corresponding prior year period. The restructuring charges resulted from one-time termination benefits of $4.1 million incurred in connection with our September 2021 reduction in force, contract termination costs in the amount of $3.7 million, long-lived asset impairments of $11.2 million and restructuring-related consulting fees of $2.2 million.

Interest income (expense)

Interest income decreased by $0.4 million, or 86%, in the nine months ended September 30, 2021 compared to the same period of the prior year. This decrease was primarily due to a reduction in the principal balance held in certain money market funds combined with a decrease in overall market interest rates.

Interest expense was flat in the nine months ended September 30, 2021 compared to the same period of the prior year.

Gain (loss) on change in fair value of warrant liability

A gain on change in fair value of warrant liability of $1.8 million was recorded in the nine months ended September 30, 2021, compared to a loss of $2.1 million in the same period of the prior year, a change in the fair value of warrant liability of $3.9 million.

The gain in the fair value of the warrant liability in the nine months ended September 30, 2021, was primarily due to the assumption used in the valuation of the warrants which as of March 31, 2021, used a weighted average derived from a Black-Scholes (BSM) option model with a term consistent with the time to the expected IPO date as of March 31, 2021 based on the expectation that the warrant would be exercised at the IPO (conditioned upon the consummation of a public offering of the Company's common stock on or prior to June 30, 2021) and the value derived from the option pricing model with a term consistent with the remaining term until a future liquidity event, other than the IPO scenario described above. This change in assumption led to a gain on change in fair value of warrant liability of $2.3 million in the quarter ended March 31, 2021. In the subsequent quarter ending June 30, 2021, there was a partial reversal of the gain of $0.4 million when the warrants were exercised in connection with the IPO in April 2021 and were at that time remeasured to their intrinsic value.

Throughout 2020, the warrant value was influenced by the change in the value of the underlying shares of Series C preferred stock which increased significantly during the nine months ending September 30, 2020, with the expectation of Series D closing and hence providing a better runway for the Company to achieve its product goals. The increase in fair value of the warrant liability resulted in a loss of $2.1 million in that period.

Other expense

Other expense increased by $0.6 million in the nine months ended September 30, 2021 compared to the same period of the prior year. This increase was primarily due to an unrealized loss on a currency balance following a strengthening of the U.S. Dollar primarily against the Japanese Yen.

Income Taxes

Income taxes increased by $0.1 million in the nine months ended September 30, 2021 compared to the same period of the prior year, this was due to the impact of the tax credit arising from the enEvolv acquisition in the first quarter of 2020.

Liquidity, Capital Resources and Plan of Operations

From our inception through September 30, 2021 we have incurred significant operating losses and negative cash flows from our operations as we developed our biofacturing platform.

We have not yet generated revenue from product sales (except for nominal revenue related to the sale of samples), do not expect to generate revenue from product sales in 2021 and expect product revenue to be immaterial in 2022. As a result of our Portfolio Review, we have determined to discontinue our electronics film programs, other than ZYM0101, which is partnered with Sumitomo Chemical, because emerging data on the market segment we were targeting with Hyaline and other electronics films indicates a smaller near-term opportunity than previously expected. We are also discontinuing our consumer care programs, including our insect repellent, ZYM0201, because we determined through our Portfolio Review that the costs of customer acquisition with a direct-to-consumer model would have been prohibitive and, in the case of ZYM0201, it could not be produced and distributed at a price point competitive with incumbent products. We have also been developing a plan to reduce our costs to extend our cash runway, including conducting two reductions in force eliminating approximately 220 positions and working to potentially restructure some of our expenses, including lease expenses. As a result of these activities we believe that we will have sufficient cash to continue to fund our operations to the middle of 2023. We expect we will need additional funds to meet operational needs and capital requirements for product development and commercialization.

To date, we have financed our operations primarily with proceeds from the sale of shares through our initial public offering, the sale of convertible preferred shares, proceeds from debt arrangements and revenue from R&D service and collaboration arrangements. We had unrestricted cash and cash equivalents as of September 30, 2021 of $496.2 million.

Our primary uses of capital are, and we expect will continue to be for the near future, personnel costs, product pipeline development and commercialization costs, platform development costs, laboratory and related supplies, legal, patent and other regulatory expenses and general overhead costs. We may also pursue acquisitions, investments, joint ventures and other strategic transactions.

We expect to need substantial additional funding to pursue our growth strategy and support continuing operations. Until such time as we can generate significant revenue from product sales or other customer arrangements to fund operations, we expect to require additional capital to fund our operations, which may include capital from the issuance of additional equity, debt financings or other capital-raising transactions. We may be unable to increase our revenue, raise additional funds or enter into such other agreements or arrangements when needed on favorable terms, or at all. If we are unable to raise capital when needed, we will need to delay, reduce or terminate planned activities to reduce costs. Doing so will likely harm our ability to execute our business plans.

On October 20, 2021 we entered into the Amendment. Pursuant to the terms of the Amendment: (i) upon execution, we paid $41.0 million, which included $35.0 million in principal and $6.0 million of accrued interest and the applicable prepayment premium, (ii) we placed $63.0 million into an account at the sole control of the lender that represents the remaining obligations under the credit agreement, including any further prepayment premium, which was released in November 2021 upon the lender's approval of our planned cash usage through final maturity, (iii) eliminated the minimum revenue covenant and increased the minimum liquidity covenant and (iv) modified the final maturity to be June 30, 2022. Upon final maturity the remaining outstanding principal and applicable prepayment premium will be due. Any required repayment of our indebtedness as a result of acceleration or otherwise would lower our current cash on hand such that we would not have those funds available for use in our business or for payment of other outstanding indebtedness.

Cash Flows

The following table summarizes our cash flows for the periods presented (in thousands):

	Nine Months Ended September 30,	
	2021	2020
Net cash used in operating activities	$ (237,640)	$ (161,187)
Net cash used in investing activities	$ (26,026)	$ (17,046)
Net cash provided by financing activities	$ 551,564	$ 102,096

Net Cash Used in Operating Activities

The cash used in operating activities resulted primarily from our net losses adjusted for non-cash charges and changes in components of operating assets and liabilities, which are generally attributable to timing of payments, and the related effect on certain account balances, operational and strategic decisions and contracts to which we may be a party.

Net cash used in operating activities for the nine months ended September 30, 2021 of $237.6 million primarily related to our net loss of $283.6 million, adjusted for non-cash charges of $40.7 million and net cash inflows of $5.3 million due to changes in our operating assets and liabilities. Non-cash charges primarily consisted of depreciation and amortization of property and equipment, stock-based compensation, impairment of long-lived assets, and gain on fair value change of warrant liability. The main drivers of the changes in operating assets and liabilities were an increase of $18.0 million in deferred rent, largely as a result of the straight-line impact of leases, particularly for the new company headquarters, along with tenant improvement allowances received in the period, and a decrease in net other assets and liabilities of $0.8 million. These changes resulted in a cash inflow and were partially offset by cash outflows resulting from an $8.6 million decrease in accounts payable, accrued expenses and other liabilities, an increase in prepaid expenses of $2.4 million, mainly due to insurance costs related to being a public company, an increase in inventories of $1.2 million, a decrease in deferred revenue of $0.9 million and an increase in accounts receivable (billed and unbilled) of $0.4 million.

Net cash used in operating activities for the nine months ended September 30, 2020 of $161.2 million primarily related to our net loss of $186.6 million, adjusted for non-cash charges of $21.1 million and net cash inflows of $4.3 million provided by changes in our operating assets and liabilities. Non-cash charges primarily consisted of depreciation and amortization of property and equipment, stock-based compensation, and loss on fair value change of warrant liability. The main drivers of the changes in operating assets and liabilities were a $3.1 million inflow resulting from an increase in the deferred rent balance resulting from the straight-line impact of leases, a decrease in net other assets and liabilities of $2.7 million, a $0.9 million increase in deferred revenue and a decrease of $0.8 million in accounts receivable (billed and unbilled) resulting primarily from timing differences in customer billings and cash receipts. These changes resulted in a cash inflow and were partially offset by cash outflows resulting from a $2.1 million decrease in accounts payable, accrued expenses and other liabilities resulting primarily from a pay down of vendor balances; an increase in inventories of $0.7 million and a $0.4 million increase in prepaid expenses.

Net Cash Used in Investing Activities

Net cash used in investing activities was $26.0 million for the nine months ended September 30, 2021 related to the purchase of property and equipment, of which a substantial majority related to purchases of laboratory equipment and facilities improvements, and the acquisition of Lodo Therapeutics.

Net cash used in investing activities was $17.0 million for nine months ended September 30, 2020 related to the purchase of property and equipment, of which a substantial majority related to purchases of laboratory equipment and facilities improvements.

Net Cash Provided by Financing Activities

Net cash provided by financing activities was $551.6 million for nine months ended September 30, 2021, which consisted primarily of $529.9 million in net proceeds from the initial public offering, $15.0 million from the exercise of Series C warrants, $4.7 million from the exercise of common stock options and $1.9 million in proceeds from the repayment of non-recourse loans.

Net cash provided by financing activities was $102.1 million for the nine months ended September 30, 2020, which consists primarily of $99.9 million in net proceeds from the Series D preferred stock offering and $2.2 million from the exercise of common stock options.

Off Balance Sheet Arrangements

As of September 30, 2021 and 2020, we did not have any relationships with any entities or financial partnerships, such as structured finance or special purpose entities that would have been established for the purpose of facilitating off balance sheet arrangements or other purposes.

Critical Accounting Policies

We have prepared our financial statements in accordance with GAAP. Our preparation of these financial statements requires us to make estimates, assumptions, and judgments that affect the reported amounts of assets, liabilities, expenses, and related disclosures at the date of the financial statements, as well as revenue and expenses recorded during the reporting periods. We evaluate our estimates and judgments on an ongoing basis. We base our estimates on historical experience and on various other factors that we believe are 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 could therefore differ materially from these estimates under different assumptions or conditions.

There have been no material changes to our critical accounting policies from those described in "Management's Discussion and Analysis of Financial Condition and Results of Operations" included in our Prospectus, except as described below.

Stock-Based Compensation

Our stock-based compensation is accounted for in accordance with the provisions issued by the Accounting Standard Codification principles for stock compensation and share-based arrangements. Under the fair value recognition provisions of this statement, stock-based compensation expense is estimated at the grant date based on the fair value of the award and is recognized as an expense ratably over the requisite service period of the award, taking into consideration actual forfeitures. Determining the appropriate fair value and calculating the fair value of stock-based awards requires judgment, including estimating stock price volatility, risk free interest rates, expected dividends and expected life. We estimate the fair value of stock options with service-based vesting conditions and employee stock purchase plan purchases on the date of grant using the Black-Scholes-Merton option-valuation model. The grant-date fair value of option awards is based upon the fair value of our common stock as of the date of grant, as well as estimates of the expected term of the awards, expected common stock price volatility over the expected term of the option awards, risk-free interest rates and expected dividend yield. RSUs granted are valued at the market price of our common stock on the date of grant.

Options with Market-based Vesting Conditions

We estimate the fair value of stock options with a market-based vesting condition on the date of grant using a model based on multiple stock price paths developed through the use of a Monte Carlo simulation that incorporates into the valuation the possibility that the market condition may not be satisfied. The assumptions for stock price volatility, contractual term, dividend yield, and stock price used in the Monte Carlo simulations are determined using the same methodology as described above. The exception is that with respect to the stock price volatility used for the Monte Carlo simulations, we took into consideration the capital structure of each comparable company comprising the benchmark to isolate each comparable company's equity volatility without the effect of leverage and then re-levered using our capital structure. Additionally, we utilized an assumption for cost of capital in the Monte Carlo simulation that relied on market data due to the lack of our own publicly traded stock price history. The Monte Carlo simulation also calculates a derived service period for each of the vesting tranches, which is the measure of the expected time to achieve the market conditions. We recognize the cost of these options by accounting for each tranche as a discrete award and recognizing the cost over the requisite service period with respect to each award using the accelerated attribution method, regardless of whether the market conditions are achieved. We determine the requisite service period by comparing the derived service period to achieve the market-based condition and the implicit service-based condition, if any, using the longer of the two service periods as the requisite service period.

Determination of the fair value of common stock on grant dates

The estimated fair values of the shares of our common stock underlying options granted prior to the date of our IPO were determined by members of our board of directors as of the grant date, with input from management, considering our most recently available independent third-party valuation of our common stock and our directors' assessment of additional objective and subjective factors that it believed were relevant and which may have changed between the effective date of the most recent valuation and the date of the grant. Following the consummation of the IPO, the fair market value of our common stock is determined based on the quoted market price of our common stock. Prior to the IPO independent third-party valuations have generally been performed quarterly in accordance with the guidance outlined in the AICPA Practice Aid, Valuation of Privately-Held Company Equity Securities Issued as Compensation or AICPA's Practice Aid. In conducting the valuations, the independent third-party valuation specialist considered all objective and subjective factors that it believed to be relevant for

each valuation conducted in accordance with AICPA's Practice Aid, including management's best estimate of our business condition, prospects and operating performance at each valuation date. Other significant factors included:

- the rights, preferences and privileges of our preferred stock as compared to those of our common stock, including the liquidation preferences of our preferred stock;
- our results of operations, financial position and the status of R&D efforts;
- arms-length transactions involving recent rounds of preferred stock financings;
- the composition of, and changes to, our management team and board of directors;
- the lack of liquidity of our common stock;
- our stage of development and business strategy and the material risks related to our business and industry;
- the valuation of publicly traded companies in relevant industry sectors, as well as recently completed mergers and acquisitions of peer companies;
- any external market conditions affecting relevant industry sectors;
- the likelihood of achieving a liquidity event, such as an initial public offering, or IPO, or a sale of our company, given prevailing market conditions; and
- the state of the IPO market for similarly situated privately held comparable companies.

In valuing our common stock, the fair value of our business was determined using various valuation methods, including combinations of income approach (discounted cash flow method) and market approach (public company market multiple method) with input from management. We also used the option pricing model to backsolve the value of the security from our most recent round of financing, which implies a total equity value as well as a per share common stock value, when applicable for the valuation date. The income approach involves applying an appropriate risk-adjusted discount rate to projected cash flows based on forecasted revenues and costs. The market approach estimates value based on a comparison of the subject company to comparable public companies in a similar line of business. From the comparable companies, a representative market value multiple was determined, which was applied to our operating results to estimate the enterprise value of our company.

Once the enterprise value was determined under the market approach, we used the option pricing model to allocate that value among the various classes of securities to arrive at the fair value of the common stock.

In addition, we also considered any secondary transactions involving our capital stock. In our evaluation of those transactions, we considered the facts and circumstances of each transaction to determine the extent to which they represented a fair value exchange. Factors considered include transaction volume, timing, whether the transactions occurred among willing and unrelated parties and whether the transactions involved investors with access to our financial information.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

Interest Rate Risk

We are exposed to market risk related to changes in interest rates. Our primary exposure to market risk is interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates, particularly because our cash equivalents are primarily invested in short-term U.S. Treasury obligations, and our term loan bears interest at a variable rate.

Our term loan bears a variable interest rate which is the sum of 9.25% plus the greater of the one-month LIBOR and 2.25%. Accordingly, increases in LIBOR could increase our interest payments under the term loan. An increase of 100 basis points in the interest rate of the term loan would not have a material impact on our financial position or results of operations.

Foreign Currency Risk

We are not currently exposed to significant market risk related to changes in foreign currency exchange rates; however, we have contracted with and may continue to contract with foreign vendors. Our operations may be subject to fluctuations in foreign currency exchange rates in the future.

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to provide reasonable assurance that information required to be disclosed in our periodic and current reports that we file with the SEC is recorded, processed, summarized and

reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including our acting Chief Executive Officer and our Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

Our management, with the participation and supervision of our acting Chief Executive Officer and our Chief Financial Officer, have evaluated our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended, or the Exchange Act) as of the end of the period covered by this Quarterly Report on Form 10-Q. Based on that evaluation, our acting Chief Executive Officer and our Chief Financial Officer have concluded that, as of the end of the period covered by this Quarterly Report on Form 10-Q, our disclosure controls and procedures were effective to provide reasonable assurance that information we are required to disclose in reports that we file or submit under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in SEC rules and forms, and that such information is accumulated and communicated to our management, including our acting Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

Changes in Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as such term is defined in Rule 13a-15(f) of the Exchange Act. An evaluation was also performed under the supervision and with the participation of our management, including our acting Chief Executive Officer and our Chief Financial Officer, of any change in our internal control over financial reporting that occurred during our last fiscal quarter and that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting. That evaluation did not identify any change in our internal control over financial reporting that occurred during our latest fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Limitations on Effectiveness of Controls and Procedures

In designing and evaluating the controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable and not absolute assurance of achieving the desired control objectives. In reaching a reasonable level of assurance, management is required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures. In addition, the design of any system of controls also is based, in part, upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, controls may become inadequate because of changes in conditions, or the degree of compliance with policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

PART II - OTHER INFORMATION

Item 1. Legal Proceedings

We are currently in and may, from time to time, become involved in legal proceedings arising in the ordinary course of our business. For example, on August 4, 2021, we, certain of our current and former officers and directors, and the underwriters of our IPO were named as defendants in a putative securities class action filed on behalf of purchasers of our common stock pursuant to or traceable to the registration statement for our IPO. The action is pending in the United States District Court for the Northern District of California, and is captioned *Shankar v. Zymergen Inc. et al.*, Case No. 3:21-cv-06028-JCS. The action alleges violations of Sections 11 and 15 of the Securities Act of 1933, as amended, in connection with our IPO, and seeks damages in an unspecified amount, attorneys' fees, and other remedies. We intend to defend vigorously against such allegations.

On November 9, 2021, one of our purported shareholders filed a putative derivative lawsuit in the United States District Court for the Northern District of California that is captioned *Mellor v. Hoffman, et al.*, Case No. 4:21-cv-08723. The complaint names certain of our current and former officers and directors and the Company as nominal defendants based on allegations substantially similar to those in the securities class action. The complaint purports to assert claims on the Company's behalf for breach of fiduciary duty, unjust enrichment, abuse of control, gross mismanagement, corporate waste, and contribution under the federal securities laws and seeks corporate reforms, unspecified damages and restitution, and fees and costs.

In addition, certain government agencies, including the Securities and Exchange Commission ("SEC"), have requested information related to our August 3, 2021 disclosure. The Company is cooperating fully.

Item 1A. Risk Factors

Investing in our common stock involves a high degree of risk. You should carefully consider the risks described below, as well as the other information in this report, including our financial statements and the related notes and the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" in this report, before deciding whether to invest in our common stock. The occurrence of any of the events or developments described below could harm our business, financial condition, results of operations and growth prospects. In such an event, the market price of our common stock could decline and you may lose all or part of your investment. Additional risks and uncertainties not presently known to us or that we currently deem immaterial also may impair our business operations.

Risk Factors Summary

Our business is subject to numerous risks and uncertainties, including those outside of our control, that could cause our actual results to be harmed. These risks include, but are not limited to, the following:

- We may not be able to successfully commercialize or generate revenue from our products.
- We are developing our new strategic plan and may not be able to successfully execute it.
- Our efforts to reduce our operating costs and extend our cash runway may not be successful.
- We have a history of operating losses and we do not expect to be profitable for the foreseeable future.
- We have a limited operating history, which has made it and may continue to make it difficult to evaluate the prospects for our future viability and predict our future performance.
- The market, including customers and potential investors, may be skeptical of the viability and benefits of our pipeline products because they are based on a relatively novel and complex technology and we may encounter challenges to align the fit of the products in our pipeline to the relevant market.
- Loss of key personnel and/or failure to attract, train and retain additional key personnel, including a permanent Chief Executive Officer, could delay our product development programs and harm our R&D efforts and our ability to meet our business objectives.
- It is difficult to predict the time and cost of development of our pipeline products, which are produced by or based on a relatively novel and complex technology and are subject to many risks, any of which could prevent or delay revenue growth and adversely impact our market acceptance, business and results of operations.
- The Perceptive Credit Agreement provides our secured lender with liens on substantially all of our assets, including our intellectual property, contains financial covenants and other restrictions on our actions, which may cause significant risks to our stockholders and may impact our ability to pursue certain transactions and operate our business, and provides that a material adverse change constitutes an event of default.
- Our restructuring activities have resulted in impairment and other charges, which may adversely affect our financial condition and results of operations.
- We may not be successful in our efforts to use our proprietary biofacturing platform to build a pipeline of products.

- Even if we are successful in expanding our biofacturing platform, rapidly changing technology and extensive competition in the synthetic biotech and petrochemical industries could make the products we are developing and producing obsolete or non-competitive unless we continue to develop and manufacture new and improved products and pursue new market opportunities.
- We may launch products with a non-fermentation produced molecule and, if we are not successful in our efforts to convert to a fermentation-produced version of our product, our products may not be commercially successful.
- The success of our business relies heavily on the performance of our products and developing new products at lower costs and faster development timelines.
- We do not have our own commercial scale manufacturing capability, and any disruptions or interruptions in our biofacturing capacity may prevent us from launching products or producing current and future products at necessary volumes to meet commercial demand, which may result in loss of customers or lost revenue opportunities.
- The manufacture of our products is complex, and we may be unable to secure necessary talent to establish and scale our manufacturing and supply chain to the extent necessary to make a profit or sustain and grow our current business.
- The COVID-19 pandemic has had, and is expected to continue to have, an impact on our business, results of operations and financial condition.
- Our revenue, results of operations, cash flows and reputation in the marketplace may suffer upon the loss of a significant customer.
- We are involved in securities litigation and other related matters that are expensive and time-consuming. Such litigation and other related matters could harm our business.
- Governmental trade controls, including export and import controls, sanctions, customs requirements, regulatory requirements and related regimes, could subject us to liability or loss of contracting privileges or limit our ability to compete in certain markets.

Risks Related to Our Business

We may not be able to successfully commercialize or generate revenue from our products.

We have not yet generated revenue from product sales (except for nominal revenue related to the sale of samples), do not expect to generate revenue from product sales in 2021 and expect product revenue to be immaterial in 2022. We have been conducting an assessment of our target markets and the fit of the products in our pipeline to those markets (the "Portfolio Review"). As a result of our Portfolio Review, we have determined to focus on a smaller number of programs that we believe capitalize on our capabilities and provide clear commercial opportunities. As a result, we are discontinuing our electronics film programs, other than ZYM0101, which is partnered with Sumitomo Chemical, because emerging data on the market segment we were targeting with Hyaline and other electronics films indicates a smaller near-term opportunity than previously expected. We are also discontinuing our consumer care programs, including our insect repellent, ZYM0201, because we determined through our Portfolio Review that the costs of customer acquisition with a direct-to-consumer model would have been prohibitive and, in the case of ZYM0201, it could not be produced and distributed at a price point competitive with incumbent products. As part of our Portfolio Review, two programs in the healthcare market have been promoted, one for development of key enzymes used in vaccine production and a second in drug discovery, and we have also continued to see success with our work in agriculture, particularly with a partnered program for nitrogen fixation. We are still evaluating several programs that are still in early concept stages as part of our Portfolio Review and may determine that additional programs do not meet our criteria for continued development. We do not currently know which, if any, of our products will be successfully commercialized, we do not have a firm pipeline of customers or visibility on commitments, and our prospects for sales of our products are highly uncertain. In addition, if we are unable to commercialize or generate revenue from the products in our focus areas, we may be unable to identify or develop suitable alternative product candidates in a timely manner or at all. If we are unable to successfully commercialize or generate revenue from product sales, our results of operations could differ materially from our expectations, and our business, financial condition and results of operations would be materially and adversely affected and the value of our common stock could decline.

We are developing our new strategic plan and may not be able to successfully execute it.

With the benefit of the analyses and evaluations that we have conducted through the Portfolio Review, we are developing our new strategic plan with clear milestones and goals. As a result of our Portfolio Review, we have determined to focus on a smaller number of programs and to discontinue some of our programs, including our electronics film programs, except ZYM0101, which is partnered with Sumitomo Chemical, and our consumer care programs, including our insect repellent program, ZYM0201. As part of our Portfolio Review, two programs in the healthcare market have been promoted, one for development of key enzymes used in vaccine production and a second in drug discovery, and we have also continued to see success with our work in agriculture, particularly with a partnered program for nitrogen fixation. We are still evaluating several programs that are still in early concept stages as part of our Portfolio Review and may determine that additional programs do not meet our criteria for continued development. Some or all of the programs on which we are focused could fail to produce

commercially viable products on the timelines that we anticipate or at all. After developing our new strategic plan, we may determine that the commercial opportunities we target are smaller than we anticipate or otherwise determine to modify our strategic plan. Further, reducing the number of programs that we are pursuing also reduces the number of opportunities available to us. The success of our narrowed focus and, once developed, our new strategic plan will depend on our ability to identify and execute on commercial opportunities for our products in our focus areas. If we are unable to successfully execute our strategy, our business, financial condition and results of operations may be materially and adversely affected.

Our efforts to reduce our operating costs and extend our cash runway may not be successful.

We recently implemented several cost reduction measures, including reductions in force in September and October 2021 that have resulted in the elimination of approximately 220 positions and discontinuing a number of programs. We believe that following these measures we will have sufficient capital to support our operations to the middle of 2023, but our estimates of our future costs and the resources required to support our operations may prove incorrect, and we may be unable to support our operations for such period. In addition, our recent reductions in force, and any future reductions in force or other cost-cutting measures, could adversely affect our ability to attract and retain employees, which could require us to expend more resources on employee attraction and retention than we currently anticipate. Even if our efforts to reduce our operating costs are successful, our resources may not be sufficient to support our current research, development or commercialization efforts to success, and we may have insufficient resources to invest in research, development or commercialization of otherwise promising future programs or activities, either of which could be detrimental to the success of our programs or our strategy and our ability to commercialize and generate revenue from our products. Any inability to support our operations could also require us to raise additional capital. See the risk factor titled "*—We may be unable to satisfactorily fund our working capital requirements and raising additional capital may cause dilution to our stockholders or restrict our operations*." If we do not have sufficient funds to support our programs, then our programs, business, financial condition and results of operations may be materially and adversely affected.

In addition, our customers, vendors and partners may consider our credit profile when considering whether to contract with us or negotiating or renegotiating contract terms, and certain third parties have issued negative reports regarding our business and financial risk. If our existing or potential customers, vendors or partners develop a negative perception of our short- or long-term financial prospects, including as a result of third-party reports, such parties may decide not to do business with us or change the terms on which they do business with us, which could limit our ability to develop products and generate revenue, require us to find alternate vendors, customers or partners, or limit the availability of credit from vendors and increase our costs. Any of these consequences could have a material adverse effect on our business, prospects, results of operations, financial condition, and efforts to reduce our operating costs and extend our cash runway.

We have a history of operating losses and we do not expect to be profitable for the foreseeable future.

We have incurred significant operating losses in each period since our inception. Our operating losses reflect the substantial investments we made to develop our biofacturing platform and to work on the development of our products. We incurred net losses of $98.2 million and $61.8 million for the three months ended September 30, 2021 and 2020, and $283.6 million and $186.6 million for the nine months ended September 30, 2021 and 2020, respectively. As of September 30, 2021, we had an accumulated deficit of $1,057.4 million. We have not yet generated revenue from product sales (except for nominal revenue related to the sale of samples), do not expect to generate revenue from product sales in 2021 and expect product revenue to be immaterial in 2022. We expect our losses to continue for the foreseeable future as we continue to invest significant additional funds toward ongoing R&D as we develop new products. We have recently implemented several cost reductions measures, but have incurred, and expect to continue to incur, increased operating costs in the short-term given the external consultants that we have engaged to assist with our Portfolio Review and development of our new strategic plan and one-time restructuring costs. Further, our limited operating history makes it difficult to effectively plan for and model future growth, revenue and operating expenses. Our ability to achieve or sustain profitability is based on numerous factors, many of which are beyond our control, including whether or when we achieve market acceptance of our products, product and biofacturing platform development, our ability to develop and commercialize new products, our ability to scale our manufacturing capacity, our ability to manufacture products with a fermentation-produced biomolecule and our market penetration and margins. We may never be able to generate sufficient revenue to achieve or sustain profitability or it may take longer than we anticipate. Our failure to achieve or maintain profitability could negatively impact the value of our common stock.

We have a limited operating history, which has made it and may continue to make it difficult to evaluate the prospects for our future viability and predict our future performance.

As a business with a limited operating history, we have encountered unforeseen expenses, difficulties, complications, delays and other known and unknown obstacles. For example, as a result of our Portfolio Review, we are discontinuing our electronics film programs, other than ZYM0101, which is partnered with Sumitomo Chemical, because emerging data on the market segment we were targeting with Hyaline and other electronics films indicates a smaller near-term opportunity than previously expected. We are also discontinuing our consumer care programs, including our insect repellent, ZYM0201, because

we determined through our Portfolio Review that the costs of customer acquisition with a direct-to-consumer model would have been prohibitive and, in the case of ZYM0201, it could not be produced and distributed at a price point competitive with incumbent products.

Our long-term objective is to generate revenue from the sale of numerous breakthrough products across a variety of industries. We expect that there will be variability between individual products with respect to the timelines and costs for launching a product, which may be greater where regulatory requirements lead to longer timelines, which could apply to certain of our products. In addition, with respect to some of our pipeline products, we expect to generate revenue only after customers have completed all aspects of their qualification processes for those products and have decided to place orders for such products, which is typically done on a purchase order basis, rather than under long-term contractual commitments.

Substantially all of our revenue to date has been generated from R&D service contracts and collaboration arrangements aimed at developing, testing and validating our biofacturing platform by providing custom services for use only by the collaboration partner. Our prospects must be considered in light of the uncertainties, risks, expenses and difficulties frequently encountered by companies in their early stages of operations. We have not yet achieved market acceptance for our products, generated revenue from product sales (except for nominal revenue related to the sale of samples), produced our products at scale, scaled our manufacturing capabilities to meet potential demand at a reasonable cost, established a sales model or conducted sales and marketing activities necessary for successful product commercialization. Predictions about our future success or viability are highly uncertain and may not be as accurate as they could be if we had a longer operating history or a company history of successfully developing, commercializing and generating revenue from products.

We have encountered in the past, and will encounter in the future, risks and uncertainties frequently experienced by growing companies with limited operating histories in emerging and rapidly changing industries, such as our recent determination to discontinue our electronics film programs, other than ZYM0101, which is partnered with Sumitomo Chemical, and our consumer care programs, including our insect repellent, ZYM0201. If our assumptions regarding these risks and uncertainties, which we use to plan and operate our business, are incorrect or change, or if we do not address these risks successfully, our results of operations could differ materially from our expectations, and our business, financial condition and results of operations could be adversely affected.

The market, including customers and potential investors, may be skeptical of the viability and benefits of our pipeline products because they are based on a relatively novel and complex technology and we may encounter challenges to align the fit of the products in our pipeline to the relevant market.

The market, including customers and potential investors, may be skeptical of the viability and benefits of our pipeline products because they are based on a relatively novel and complex technology. There can be no assurance that, once we launch them, our products will be understood, approved, or accepted by customers, regulators and potential investors or that we will be able to sell our products profitably at competitive prices and with features sufficient to establish demand. In addition, in order for novel materials to get designed into new products, dialogue across the relevant supply chain is needed. While the ultimate customers for our products may only be specific parts of the relevant value chain, relationships with all parts of the chain are important in order to gain visibility into market trends and feature and specification requirements, and in order to get designed into the end products. If we are unable to convince these potential customers, including the consumers or businesses who purchase end-products containing our products, of the utility and value of our products or the end products in which they are incorporated or that our products are superior to the products they currently use, we will not be successful in entering these markets and our business and results of operations will be adversely affected. If potential investors are skeptical of the success of our pipeline products, our ability to raise capital and the value of our stock may be adversely affected.

Loss of key personnel and/or failure to attract, train and retain additional key personnel, including a permanent Chief Executive Officer, could delay our product development programs and harm our R&D efforts and our ability to meet our business objectives.

Our business involves complex, global operations across a variety of markets and requires a management team and employee workforce that is knowledgeable in the many areas in which we operate, including our target industries. As a result of some of the issues we have experienced with our commercial product pipeline, we are working to bring additional talent to our commercial team and to our sales pipeline qualification and forecast processes. Our future success depends upon our ability to attract, train, retain and motivate highly qualified management, scientific, engineering, information technology, and sales personnel, among others, including a permanent Chief Executive Officer. The market for qualified personnel is very competitive because of the limited number of people available who have the necessary technical skills and understanding of our technology and products and the nature of our industry which requires certain of our technical personnel to be on-site in our facilities. We compete for qualified scientific and information technology personnel with other life sciences and information technology companies as well as academic institutions and research institutions in the markets in which we operate, including the San Francisco Bay Area, California and Boston, Massachusetts. To attract top talent, we believe we will need to offer

competitive compensation and benefits packages, including equity incentive programs, which may require significant investment.

The departure of one or more of our senior management team members or other key employees could be disruptive to our business until we are able to hire qualified successors. Our employees, including members of our management team, could leave our company with little or no prior notice and would be free to work for a competitor. We do not maintain “key man” life insurance on any of our employees.

On August 3, we announced that Josh Hoffman, our former Chief Executive Officer, stepped down, and we appointed Jay Flatley as Acting Chief Executive Officer. Our Board of Directors will commence a search process to identify a permanent Chief Executive Officer. We also recently reduced our workforce by approximately 220 positions and have experienced higher levels of voluntary attrition in recent months. In addition, our recent reductions in force, and any future reductions in force or other cost-cutting measures, could adversely affect employee morale and further increase voluntary attrition or increase the difficulty of attracting qualified personnel. During this period of management transition and uncertainty, we have experienced, and may experience in the future, diversion of management attention from business concerns, failure to retain other key personnel and loss of institutional knowledge. Additionally, if the perceived value of our equity awards declines, it may adversely affect our ability to attract and retain key employees. If we are unable to successfully identify and attract adequate candidates for the permanent Chief Executive Officer vacancy or any other key vacancies that occur in a timely manner, we could experience harm to our business, growth, financial conditions, results of operations and cash flows.

In addition, some of our scientific personnel are qualified foreign nationals whose ability to live and work in the United States is contingent upon the continued availability of appropriate visas. Due to the competition for qualified personnel in the key markets in which we operate, we expect to continue to utilize foreign nationals to fill part of our recruiting needs. As a result, changes to United States immigration policies have and could further restrain the flow of technical and professional talent into the United States and adversely affect our ability to hire qualified personnel.

It is difficult to predict the time and cost of development of our pipeline products, which are produced by or based on a relatively novel and complex technology and are subject to many risks, any of which could prevent or delay revenue growth and adversely impact our market acceptance, business and results of operations.

We concentrate our R&D efforts on a select number of pipeline products that we believe are both technically feasible and present a market opportunity. The typical development cycle of new pipeline products can be lengthy and may require new scientific discoveries or advancements and the development and engineering of complex technology, including improvements or modifications to our biofacturing platform. Some of our products may also be subject to customer qualification processes, which may increase our costs and extend our timelines, and we may encounter unforeseen difficulties as we develop and commercialize our products. As we ramp the sale of new products, we expect to initially experience negative product gross margins. Material manufacturing process changes could also result in reduced or possibly negative margins. We expect our cost of product revenue to increase over time in absolute dollars, and our gross margins will vary based on the volume and mix of products sold. We expect the timing for achieving positive gross margins for any product will depend on the pace at which we achieve commercial scale for that product, which could take significant time from when we begin generating revenue from such product or may not occur at all. We may not achieve the product gross margins that we anticipate.

Further, the variety of our products and different industries as well as pricing pressures and other factors may lead to challenges in scaling production across our product portfolio as well as adapting our biofacturing platform to solve different development problems arising in the development processes. We also may depend on third parties for the supply of key inputs and various components and for manufacturing capacity, making our ability to develop new pipeline products complex and subject to risks and uncertainties regarding commercial feasibility, timing and satisfactory technical performance of pipeline products. For example, as a result of the COVID-19 pandemic, the inability to travel delayed the establishment of our Hyaline manufacturing capacity and delayed the process of selecting and vetting contract manufacturing organizations ("CMOs") for our insect repellent product, ZYM0201, and we experienced delays at our U.S. CMO site for Hyaline and at a key supplier of a raw material for Hyaline and ZYM0107, one of our optical film products. If we experience additional problems or delays in developing our pipeline products, we may be subject to further unanticipated costs, including the loss of customers or potential customers. Additionally, even after the incurrence of significant costs to develop a product, we may not be able to solve development problems or develop a commercially viable product at all. For example, we launched our first product, Hyaline, in December 2020, but as a result of our Portfolio Review recently determined to discontinue our electronics film programs, other than ZYM0101, which is partnered with Sumitomo Chemical, because emerging data on the market segment we were targeting with Hyaline and other electronics films indicates a smaller near-term opportunity than previously expected. We are also discontinuing our consumer care programs, including our insect repellent, ZYM0201, because we determined through our Portfolio Review that the costs of customer acquisition with a direct-to-consumer model would have been prohibitive and, in the case of ZYM0201, it could not be produced and distributed at a price point competitive with incumbent products. If we do not achieve the required technical specifications or successfully manage our new product development processes, or if

development work is not performed according to schedule, then our revenue growth from new pipeline products may be prevented or delayed, and our business and operating results may be harmed.

The Perceptive Credit Agreement provides our secured lender with liens on substantially all of our assets, including our intellectual property, contains financial covenants and other restrictions on our actions, which may cause significant risks to our stockholders and may impact our ability to pursue certain transactions and operate our business, and provides that a material adverse change constitutes an event of default.

In December 2019, we entered into a credit and guaranty agreement with Perceptive Credit Holdings II, LP and PCOF EQ AIV II, LP (the “Perceptive Credit Agreement”), which was amended and restated in February 2021 and further amended in October 2021 (the "Oct. 2021 Amendment"), pursuant to which the secured lender agreed to provide us with a $100 million credit facility. As of September 30, 2021, our debt under this credit facility totaled $85 million in principal amount outstanding, which was subsequently reduced to $50 million following a $41 million payment made in connection with the execution of the Oct. 2021 Amendment. During the course of 2020 and into 2021, we sought and obtained various default waivers and amendments under this agreement due to our inability, or anticipated inability, to comply with certain of our covenants relating to the treatment of our acquisitions as permitted transactions under the terms of the Perceptive Credit Agreement, the achievement of quarterly revenue milestones, the timing for consummation of specified debt or equity transactions and the timing for delivery of audited financials for the year ending December 31, 2019. As a result of the amendments and waivers to the Perceptive Credit Agreement, we regained compliance with the applicable covenants under the agreement. The Oct. 2021 Amendment shortened the term of the loan by moving the final maturity date to June 2022. Pursuant to the terms of the Oct. 2021 Amendment we also deposited funds equal to the remaining outstanding principal amount of the loans under the Credit Agreement plus interest through the maturity date and further prepayment premium into a blocked account controlled by the administrative agent, which was released in November 2021 upon the administrative agent’s completion of diligence to its reasonable satisfaction regarding our anticipated operating costs and budget through the maturity date. We will be required to utilize cash that would otherwise be available to support our operations to repay this indebtedness when it becomes due.

In addition, in association with the secured debt, we have granted liens on substantially all of our assets, including our intellectual property, as collateral, and have agreed to significant covenants, including covenants that require us to maintain minimum liquidity and covenants that materially limit our ability to take certain actions, including our ability to pay dividends, make certain investments and other payments, incur additional indebtedness, undertake certain mergers and consolidations, encumber and dispose of assets and customary events of default, including failure to pay amounts due, breaches of covenants and warranties, material adverse effect events, certain cross defaults and judgements and insolvency. For example, the Perceptive Credit Agreement contains restrictions on our ability to purchase or dispose of assets and has other affirmative and negative covenants that impact how we run our business. A failure to comply with the covenants and other provisions of the Perceptive Credit Agreement, including any failure to make a payment when required, would generally result in events of default under such instruments. Although we have obtained waivers from the lender of certain defaults in 2020 and 2021, there can be no assurance that the lender would be willing to grant such waivers in the future. The Perceptive Credit Agreement also provides that a material adverse change constitutes an event of default. The occurrence of any default would cause the interest rate to increase during the period of such default and could permit acceleration of such indebtedness with a prepayment premium. Any required repayment of our indebtedness as a result of acceleration or otherwise would lower our current cash on hand such that we would not have those funds available for use in our business, which could also reduce our ability to support our operations.

If we are at any time unable to service our indebtedness when payment is due, we may be required to attempt to renegotiate the terms of the instruments relating to the indebtedness, seek to refinance all or a portion of the indebtedness, or obtain additional financing. There can be no assurance that we would be able to successfully renegotiate such terms, that any such refinancing would be possible or that any additional financing could be obtained on terms that are favorable or acceptable to us, if at all. Any debt financing that is available could cause us to incur substantial costs and subject us to covenants that significantly restrict our ability to conduct our business. If we seek to complete additional equity financings, the interests of existing equity holders may be diluted.

If we are unable to make payment on our secured debt instruments when due, our secured lender may foreclose on and sell the assets securing such indebtedness, which includes substantially all of our property (including our intellectual property), to satisfy our payment obligations, which could prevent us from accessing those assets for our business and conducting our business as planned. Our business, financial condition, prospects and results of operations could be materially adversely affected as a result of any of these events.

Our restructuring activities have resulted in impairment and other charges, which may adversely affect our financial condition and results of operations.

Our restructuring activities have resulted in the impairment of certain manufacturing equipment and may result in impairment of additional assets in the future. Impairment may result from, among other things, decisions to discontinue a

program or dispose of assets, deterioration in our stock price or adverse market conditions. For example, in connection with our decision to discontinue our electronics film programs, other than ZYM0101, which is partnered with Sumitomo Chemical, we determined that certain assets used solely for our electronics film program were impaired and recorded a non-cash impairment charge of $11.2 million related to that equipment during the three months ended September 30, 2021. In addition, we incurred $4.1 million in severance and employee-related restructuring charges, $3.7 million of contract termination costs and $2.2 million in consulting fees in the three months ended September 30, 2021 related to our restructuring activities. We may incur further restructuring charges or impairment charges with respect to restructuring activities that we expect to complete through the first quarter of 2022. Determining whether an impairment exists and the amount of the impairment involves quantitative data and qualitative criteria that are based on estimates and assumptions requiring significant management judgment. Future events or new information may change management's valuation of assets in a short amount of time. The timing and amount of impairment charges recorded in our consolidated statements of operations and write-downs recorded in our consolidated balance sheets could vary if management's conclusions change. Any impairment of assets, which will result in non-cash charges against earnings, or other restructuring costs that we incur could have a material adverse effect on our financial condition and results of operations.

We may not be successful in our efforts to use our proprietary biofacturing platform to build a pipeline of products.

A key element of our strategy is to build a pipeline of products through our biofacturing platform and develop those pipeline products into commercially viable products faster and cheaper than traditional materials. Although our R&D efforts to date have resulted in potential pipeline products, we have not yet successfully commercialized a product. We may not be able to continue to identify and develop additional pipeline products through the use of our biofacturing platform.

Even if we are successful in continuing to build our product pipeline through the use of our biofacturing platform, not all potential pipeline products we identify will be suitable for development and use in commercial products. For example, as a result of our Portfolio Review, we are discontinuing our electronics film programs, other than ZYM0101, which is partnered with Sumitomo Chemical, because emerging data on the market segment we were targeting with Hyaline and other electronics films indicates a smaller near-term opportunity than previously expected. We are also discontinuing our consumer care programs, including our insect repellent, ZYM0201, because we determined through our Portfolio Review that the costs of customer acquisition with a direct-to-consumer model would have been prohibitive and, in the case of ZYM0201, it could not be produced and distributed at a price point competitive with incumbent products.

In addition, machine learning and automation, generally, remain in the early stages of development. Although we expect machine learning and automation to improve over time, the operation of our biofacturing platform will continue to require significant human interaction, which introduces risks of error and requires us to recruit and retain highly skilled employees, which is more challenging in a competitive market and particularly in light of our recent workforce reductions and higher levels of attrition. Identifying and developing commercially viable pipeline products may require us to make continued advancements in our biofacturing platform to lower costs, reduce development time, better align our products with industry trends or customer demands or otherwise more quickly identify pipeline products. Our ability to advance our biofacturing platform may be adversely impacted if our efforts to reduce our operating costs result in insufficient resources to support research and development in this area. See the risk factors titled "*—Even if we are successful in expanding our biofacturing platform, rapidly changing technology and extensive competition in the synthetic biotech and petrochemical industries could make the products we are developing and producing obsolete or non-competitive unless we continue to develop and manufacture new and improved products and pursue new market opportunities*" and "*—Our efforts to reduce our operating costs may not be successful*." If we are unable to use our biofacturing platform to successfully identify and develop pipeline products, our business, results of operations and financial condition may be adversely and materially affected.

Even if we are successful in expanding our biofacturing platform, rapidly changing technology and extensive competition in the synthetic biotech and petrochemical industries could make the products we are developing and producing obsolete or non-competitive unless we continue to develop and manufacture new and improved products and pursue new market opportunities.

The synthetic biotech and, to a lesser extent, the petrochemical industries, are characterized by rapid and significant technological changes, frequent new product introductions and enhancements and evolving industry demands and standards. Our future success will depend on our ability to develop and launch new products that address the evolving needs of our customers on a timely and cost-effective basis, to continually improve the products we are developing and producing and to pursue new market opportunities that develop as a result of technological and scientific advances. Due to the significant lead time involved in launching a new product, we are required to make a number of assumptions and estimates regarding the commercial feasibility of a new product, including assumptions and estimates regarding the size of an emerging product category and demand for those products, our ability to penetrate that emerging product category, customer adoption of a downstream product, the existence or non-existence of products being simultaneously developed by competitors, potential market penetration and obsolescence. As a result, it is possible that we may introduce a new product that has been displaced by

the time of launch, addresses a market that no longer exists or is smaller than previously thought, that end-consumers do not like or otherwise is not competitive at the time of launch, in each case after the incurrence of significant costs to develop such product. For example, as a result of our Portfolio Review, we are discontinuing our electronics film programs, other than ZYM0101, which is partnered with Sumitomo Chemical, because emerging data on the market segment we were targeting with Hyaline and other electronics films indicates a smaller near-term opportunity than previously expected. We are also discontinuing our consumer care programs, including our insect repellent, ZYM0201, because we determined through our Portfolio Review that the costs of customer acquisition with a direct-to-consumer model would have been prohibitive and, in the case of ZYM0201, it could not be produced and distributed at a price point competitive with incumbent products. Any extended product qualification process and other delays in the timelines for launching our products may exacerbate these risks. The ultimate success of our products, even if successful in meeting the technical needs of our customers, may be dependent on the success of our customers within that market which, in each case, may not reach the size anticipated by us or may be replaced by another emerging product category.

There is extensive competition in the synthetic biotech and, to a lesser extent, the petrochemical industries, and our future success will depend on our ability to maintain a competitive position with respect to technological advances. Technological development by others may result in our technologies, as well as products developed using our technologies, becoming obsolete. Our ability to compete successfully will depend on our ability to develop proprietary technologies and products that are technologically superior to, otherwise differentiated from, and/or less expensive than our competitors' technologies and products. Our competitors may be able to develop competing and/or superior technologies and processes and compete more aggressively and sustain that competition over a longer period of time due to greater human and financial resources, longer operating histories, track records for product development and existing market share. If we are unable to successfully develop and manufacture new and improved products and successfully commercialize our products at scale, our business and results of operations will be adversely impacted.

The success of our business relies heavily on the performance of our products and developing new products at lower costs and faster development timelines.

To date our revenue has primarily been derived from relationships with partners where we seek to test and validate the ability of our biofacturing platform to improve or optimize our clients' products through biofacturing. However, the success of our business will depend on our ability to successfully execute and maintain a sustainable business model and generate continuous streams of revenue through the sale of our products across industries. Our current business model is premised on innovating and producing new products rapidly and at lower costs than traditional methods and achieving results that may only be obtained through leveraging biology. While we may launch bio-based versions of existing products or existing molecules that are too expensive to utilize in products today, biofacturing of previously unavailable, superior molecules and materials is key to our plans for long-term success. If we are unable to successfully transition into becoming a biofacturer of new products and create novel products at lower costs and on accelerated development timelines, our business and results of operations will be adversely affected.

We may launch products with a non-fermentation produced molecule and, if we are not successful in our efforts to convert to a fermentation-produced version of our product, our products may not be commercially successful.

During the design phase of our development cycle, we identify molecules from biology that we believe have the potential to add value to products and evaluate potential means of sourcing such molecules, including through fermentation. In some cases, we may initially launch products using molecules that we have identified during the design phase but which are first produced with traditional, non-fermentation based methods. We may use this approach for a variety of reasons, including, as was the case with Hyaline, when use of non-fermentation produced molecules and/or molecules sourced from third parties allows for faster commercial launch, even if the cost of production or sourcing of these molecules is more expensive than can be achieved with fermentation-based production.

While the use of a non-fermentation produced molecule can accelerate product launch, it may result in consumer confusion or misperceptions about the characteristics or differentiation of our products. Launching fermentation-produced products or products with fermentation-produced components or ingredients is a key element of our strategy for lowering manufacturing costs and launching products desirable to our customers more quickly. If we do not successfully develop fermentation-produced versions of our products that lower the costs of manufacturing, we may not be able to achieve anticipated product margins in future periods and may lose our anticipated competitive advantage, each of which could have an adverse result on our business, results of operations and financial condition.

We do not have our own commercial scale manufacturing capability, and any disruptions or interruptions in our biofacturing capacity may prevent us from launching products or producing products at necessary volumes to meet commercial demand, which may result in loss of customers or lost revenue opportunities.

We do not have our own commercial scale manufacturing capability. If we are unable to establish or maintain adequate biofacturing capacity, we may not have sufficient supply of our products to satisfy demand from our customers, which may result in loss of customers and lost revenue opportunities. If our CMOs are unable to meet our future demand or do so at a reasonable cost or in a timely fashion, we may be required to identify a suitable replacement CMO, which is a burdensome and time-consuming process that could take significant time and requires us to become satisfied with their quality control, responsiveness and service, financial stability, security and labor and other ethical practices. Even if we are able to identify an alternative CMO, we may encounter delays in product development, production and added costs as a result of the time it takes to train a new CMO in our methods, products and quality control standards. Any future CMO agreements that we enter with CMOs could require us to agree to terms that may increase our costs and reduce our margins, or result in delays as we ramp up new manufacturing capabilities.

Process development is a key component of product R&D to enable the biofacturing of products at scale. If we cannot attract, develop and retain product leaders and process engineers with the necessary expertise to drive process development of our manufacturing for our pipeline of products, we will be unable to achieve commercially viable volumes of our pipeline products to meet customer demand. Further, we will need the biofacturing ecosystem to continue its emergence as we launch production at commercial scale, a process we have not yet undergone. If we encounter difficulties in accessing pilot plant facilities with the required downstream processing equipment to enable our process development, we may face delays in our time-to-market and increased R&D costs relative to our targets. If the biofacturing ecosystem and overall capacity does not grow enough to provide the volumes we need to satisfy anticipated commercial needs, we may face delays in scaling our production of bioproducts which could cause delays, increase costs in scaling manufacture of our bioproducts, and negatively impact our financial position.

Any adverse developments affecting manufacturing of our pipeline products may result in shipment delays, inventory shortages, lot failures, product withdrawals or recalls or other interruptions in the supply of our pipeline products or enforcement actions by regulatory authorities. We may also have to take inventory write-offs and incur other charges and expenses for our pipeline products that fail to meet specifications or undertake costly remediation efforts. Accordingly, failures, difficulties or delays faced at any level of our manufacturing capabilities could adversely affect our business and delay or impede the development and commercialization of any of our pipeline products and could have an adverse effect on our business, financial condition, results of operations and prospects.

The manufacture of our products is complex and we may be unable to secure necessary talent to establish and scale our manufacturing and supply chain to the extent necessary to make a profit or sustain and grow our current business.

The manufacture of our products is complex and to commercialize our products requires significant expertise in a variety of specialties and capital investment, including the development of advanced manufacturing techniques and process controls. We are targeting market opportunities in a wide variety of industries. Given the wide range of products we are developing and the even greater range of products we expect to develop in the future, biofacturing processes, including the necessary equipment for biofacturing, for one product may not be translatable to other products and, therefore, we may need to identify and recruit additional internal talent to develop products and coordinate manufacturing techniques and process controls required for the variety of pipeline products in the various industries we are targeting. We may also require multiple facilities and partners in order to commercialize various products and to meet the volumes we need to satisfy our anticipated commercial needs. For example, our electronics films have been manufactured in different facilities than our agriculture pipeline products and require completely separate supply chains and manufacturing facilities. If we are unable to successfully establish adequate manufacturing capacity for all of our pipeline products, we may not have the capacity required to meet our commercial needs. See the risk factor titled "*—We do not have our own commercial scale manufacturing capability and any disruptions or interruptions in our biofacturing capacity, may prevent us from launching products or producing current and future products at necessary volumes to meet commercial demand, which may result in lost revenue opportunities.*"

We must continue to secure and maintain sufficient and stable supplies of disposable lab equipment, raw materials and synthetic biology materials and services.

The COVID-19 pandemic has caused substantial disruption in global supply chains. As a result, we have experienced shortages in some of our key supplies, including materials required in our labs and may continue to do so in the future as a result of the pandemic, or otherwise. We may also experience price increases due to unexpected material shortages, services disruptions and other unanticipated events, which may adversely affect our supply of disposable lab equipment, raw materials and synthetic biology materials and services. We typically do not enter into long-term agreements with our suppliers but secure our materials and services on a purchase order basis. Our suppliers may reduce or cease their supply of materials or services to us at any time in the future. If the supply of materials or services is interrupted, our production processes may be delayed.

A deterioration of our relationship with any of our suppliers, or problems experienced by these suppliers, could lead to shortages in our production capacity for the development or biofacture of some or all of our products. Therefore, we may not be able to cost-effectively develop new products or fulfil the demand of existing customers or supply new customers. In addition, as we grow, our existing suppliers may not be able to meet our increasing demand, and we may need to find additional suppliers. In some cases, we purchase non-commodity or specially prepared consumables, materials or services, and obtaining such consumables, materials and services requires lead time. We may not be able to secure suppliers who provide materials at, or services to, the specification, quantity and quality levels that we demand (or at all) or be able to negotiate acceptable fees and terms of services with any such suppliers. Identifying a suitable supplier is an involved process that requires us to become satisfied with their quality control, responsiveness and service, financial stability, security and labor and other ethical practices. Even if we are able to expand existing sources, we may encounter delays in product development and production and added costs as a result of the time it takes to train new suppliers in our methods, products and quality control standards. If any of the above events occur, our operations and results of operations may be adversely affected.

We cannot assure you that any instability or other issues relating to the manufacture of any of our products or pipeline products will not occur in the future. Additionally, our manufacturers may experience manufacturing difficulties due to resource constraints or as a result of labor disputes or unstable political environments. For example, the COVID-19 pandemic has caused substantial disruption in global supply chains. We have experienced shortages in some of our key supplies, including materials required in our labs. Any future impact of the COVID-19 pandemic, including with respect to the spread of additional COVID-19 variants, on our ability to procure sufficient supplies for the development of our pipeline products will depend on the duration of the pandemic and the mitigation actions undertaken to contain COVID-19 or treat its effects.

For the quarter ended September 30, 2021, our cost of disposable lab equipment, raw materials and synthetic biology materials and services accounted for a significant portion of our total cost of revenue. In the event of significant price increases by suppliers, we may have to pass the increased costs to our customers. However, we may not be able to raise the prices of our products sufficiently to cover increased costs resulting from increases in the cost of our materials and services, overcome the interruption of a sufficient supply of materials or services for our pipeline products or products, or adequately reduce supplier costs. As a result, materials and services costs, including any price increase for our materials and services may negatively impact our business, financial condition and results of operations.

We depend on a limited number of suppliers for critical components of development and manufacturing of our pipeline products. The loss of any one or more of these suppliers, or their failure to supply us with the necessary components on a timely basis, could cause delays in our production capacity and adversely affect our business.

We depend on a limited number of suppliers for critical components, including lab consumables, for the development and manufacturing of our pipeline products. The pandemic has caused substantial disruption in global supply chains. We have experienced shortages in some of our key supplies, including lab consumables. We do not currently have the infrastructure or capability internally to manufacture these components. Although we have a reserve of supplies and although alternative suppliers exist for some of these critical components, our existing manufacturing process has been designed based on the functions, limitations, features and specifications of the components that we currently utilize. While we work with a variety of domestic and international suppliers, our suppliers may not be obligated to supply product or our arrangements may be terminated with relative short notice periods. Our supply of these components could be limited, interrupted, or of unsatisfactory quality or cease to be available at acceptable prices. Additionally, we do not have any control over the process or timing of the acquisition or manufacture of materials by our manufacturers and cannot ensure that they will deliver to us the components we order on time, or at all.

The loss of these components provided by these suppliers could require us to change the design of our development and manufacturing processes based on the functions, limitations, features and specifications of the replacement components or seek out a new supplier to provide these components.

However, the lead time needed to establish a relationship with a new supplier can be lengthy, and we may experience delays in meeting demand in the event we must switch to a new supplier. The time and effort to qualify a new supplier could result in additional costs, diversion of resources or reduced manufacturing yields, any of which would negatively impact our operating results. Further, we may be unable to obtain critical components on commercially reasonable terms, which could have a material adverse impact on our business, financial condition and results of operations.

In addition, some disposable lab equipment, synthetic biology materials and other supplies and materials that we purchase are purchased from single-source or preferred suppliers, which limits our negotiating leverage and our ability to rely on additional or alternative suppliers for these products. Our dependence on these single-source and preferred suppliers exposes us to certain risks, including the following:

- our suppliers may cease or reduce production or deliveries, raise prices or renegotiate terms;
- we may be unable to locate a suitable replacement on acceptable terms or on a timely basis, if at all;

- if there is a disruption to our single-source or preferred suppliers' operations, and if we are unable to enter into arrangements with alternative suppliers, we will have no other means of completing our manufacturing process until they restore the affected facilities or we or they procure alternative manufacturing facilities or sources of supply;
- delays caused by supply issues may harm our reputation, frustrate our customers and cause them to turn to our competitors for future projects; and
- our ability to progress the development and production of our pipeline products could be materially and adversely impacted if the single-source or preferred suppliers upon which we rely were to experience a significant business challenge, disruption or failure due to issues such as financial difficulties or bankruptcy, issues relating to other customers such as regulatory or quality compliance issues, or other financial, legal, regulatory or reputational issues.

Moreover, to meet anticipated market demand, our single-source and preferred suppliers may need to increase manufacturing capacity, which could involve significant challenges. This may require us and our suppliers to invest substantial additional funds and hire and retain the technical personnel who have the necessary experience. Neither we nor our suppliers may successfully complete any required increase to existing manufacturing capacity in a timely manner, or at all.

Changes to our business focus and organization may place significant demands on our management and our infrastructure.

As a result of our Portfolio Review, we have determined to focus on a smaller number of programs that we believe capitalize on our capabilities and provide clear commercial opportunities. Our management team has also been focused on our plan to reduce our operating costs and is developing a strategic plan through 2024 with clear milestones and goals. These changes and our diversified operations have placed, and may continue to place, significant demands on our management and our operational and financial infrastructure. For example, our Portfolio Review and cost reduction activities, among other activities, have placed and will continue to place significant demands on our management team. Managing these changes has required, and will continue to require, significant expenditures and allocation of valuable management resources. If we fail to achieve the necessary level of efficiency in our organization as it changes, our business, financial condition and results of operations would be adversely impacted.

We are subject to risks related to our reliance on collaboration arrangements to fund development and commercialization of certain of our pipeline products, and our financial results may be adversely impacted if such collaborations do not lead to the commercialization of products.

Substantially all of our revenue to date has been generated from R&D service contracts and collaboration arrangements. Over the next several years, our goal is to commercialize our products, and we expect revenue from R&D and collaboration arrangements to represent a smaller component of our total revenue. However, in the near term, we expect to continue generating revenue from R&D service agreements and collaborations and may in fact pursue additional arrangements with new or existing partners as we seek to enter new industry verticals. For example, we have entered into a collaboration agreement with Sumitomo Chemical which has led to the development of some of our electronics films, including ZYM0101. Collaborations with strategic partners are necessary to successfully commercialize our existing and future products. The terms of our collaboration agreements typically include one or more of the following: joint ownership of the new intellectual property, assignment of the new intellectual property to either us or the collaborator, either exclusive or non-exclusive licenses to the new intellectual property to us or the collaborator and other restrictions on our sole use of developments, such as non-competes and rights of first refusal. Our collaboration agreements also typically include one or more of the following: payments for the R&D services to be performed, milestone payments to be received upon the achievement of the milestone events defined in the agreements, revenue-sharing and royalty payments upon the commercialization of the molecules in which we share in the customer's profits.

These exclusivity, revenue-sharing and other similar terms limit our ability to commercialize our products and technology and may impact the size of our business or our profitability in ways that we do not currently envision. The competition for collaborators is intense, and the negotiation process is time-consuming and complex. Any new collaboration may be on terms that are not optimal for us, and we may not be able to maintain any new collaboration. Any such collaboration may require us to incur non-recurring or other charges, increase our near- and long-term expenditures and pose significant integration or implementation challenges or disrupt our management or business. These transactions would entail numerous operational and financial risks, including exposure to unknown liabilities, disruption of our business and diversion of our management's time and attention to manage a collaboration, incurrence of substantial debt or dilutive issuances of equity securities to pay transaction consideration or costs, higher than expected collaboration, acquisition or integration costs, write-downs of assets or goodwill or impairment charges, increased amortization expenses, difficulty and cost in facilitating the collaboration or combining the operations and personnel of any acquired business, impairment of relationships with key suppliers, manufacturers or customers of any acquired business due to changes in management and ownership and the inability to retain key employees of any acquired business.

Many factors may impact the success of such collaborations, including our ability to perform our obligations, our collaborators' satisfaction with our products and services, our collaborators' participation and interest in supporting commercialization of products, and exposure to the risks of our collaborators. Like us, many of our collaborators are exposed to a number of risks, any of which could impact their ability to fulfil their obligations under our collaboration agreements, which in turn would adversely impact our ability to derive the anticipated benefits from these collaboration agreements. In addition, most of these agreements do not affirmatively obligate the other party to purchase specific quantities of any products or require funding all R&D costs necessary to bring products to market. We may encounter numerous uncertainties and difficulties in developing, manufacturing and commercializing any new products subject to these collaboration arrangements that may delay or prevent us from realizing their expected benefits or enhancing our business, including uncertainties on the feasibility of taking new molecules to commercial-scale. Further, we have in the past and may in the future have disputes with our collaborators, which may harm these relationships or require us to settle the disputes on unfavorable terms. It is possible that these agreements could result in restrictions on our ability to use molecules which have been discovered through the collaborations, which could restrict our ability to commercialize certain products in the future. For example, some of our film-related pipeline products, including ZYM0101, were developed through our collaboration with Sumitomo Chemical. In that agreement, we agreed to exclusive cooperation activities with Sumitomo Chemical within the defined field, as well as a right of first offer for Sumitomo Chemical to use Sumitomo Chemical technology or items developed for Sumitomo Chemical outside of the defined field. However, Sumitomo Chemical is not obligated to commercialize or support commercialization of any products developed through our collaboration. Sumitomo Chemical's continued interest and support in developing pipeline products, scaling up manufacturing for existing and new pipeline products, evaluating the market opportunity, providing potential sales channels or access to customers, and conducting sales and marketing activities will have an effect on the commercialization of ZYM0101 and our ability to access this market.

Any failure or difficulties in maintaining existing collaboration arrangements, establishing new collaboration arrangements, or building up or retooling our operations to meet the demands of our collaboration partners could have a significant negative impact on our business, including our ability to commercialize or achieve commercial viability for our products, lead to the inability to meet our contractual obligations, and could cause us to allocate or divert capital, personnel and other resources from our organization which could adversely affect our business, financial condition, results of operations, prospects and reputation.

We expect to face competition for our products from established enterprises and new companies, particularly in China, and if we cannot compete effectively against these companies, products or prices, we may not be successful in bringing our products to market.

We are focused on developing products that we expect will compete with both the traditional products that are currently being used in our target markets and with the alternatives to these existing products that established enterprises and new companies are seeking to produce. In the markets that we seek to enter, and in other markets that we may seek to enter in the future, we will compete primarily with the established providers of components used in products or finished products in these markets. Producers of these incumbent products include global agricultural companies, large international chemical and materials companies and companies specializing in specific products.

Some of the competitors in our target markets are large publicly-traded companies, or are divisions of or established contractors to large publicly-traded companies, and may enjoy a number of competitive advantages over us, including:

- greater name and brand recognition;
- greater financial and human resources;
- larger R&D departments;
- broader product lines;
- larger sales forces and more established distributor networks;
- substantial intellectual property portfolios;
- larger and more established customer bases and relationships;
- the leverage to enter into contracts on more favorable terms; and
- better established, larger scale and lower cost manufacturing capabilities.

With the emergence of many new companies seeking to produce products from renewable sources, we may face competition from such companies in bringing new products to market. Some of these companies may develop products that are disruptive to ours or may be able to establish production capacity and commercial partnerships to compete with us.

Some of our competitors may also receive government support that is not available to us. For example, there are risks that foreign governments may, among other things, provide government funding or support to domestic companies to produce new

technology, require the use of local suppliers in place of non-domestic suppliers like us, compel companies to partner with local companies to conduct business or provide incentives to government-backed local customers to buy from local suppliers, thereby creating a significant competitive advantage for domestic companies and creating obstacles for us. Any such actions or similar actions taken by foreign governments could significantly harm our competitive position and adversely affect our business and results of operations.

If and when commercialized, our products may not compete favorably or be successful in the face of increasing competition from products and technologies introduced by our existing or future competitors or developed by our customers internally. In addition, our competitors may have or develop products or technologies that currently or in the future will enable them to produce competitive products with greater capabilities or at lower costs than ours or run comparable experiments at a lower total experiment cost. Any failure to compete effectively could materially and adversely affect our business, financial condition and results of operations.

International expansion of our business exposes us to business, regulatory, political, operational, financial and economic risks associated with doing business outside of the United States.

We currently operate our business through various international subsidiaries. Further, because we and our collaborators currently conduct business outside of the United States and may market future products outside of the United States, our business is subject to risks associated with doing business outside of the United States, including an increase in our expenses and diversion of our management's attention from the development of future products. Accordingly, we are subject to a variety of risks inherent in doing business internationally, and our exposure to these risks will increase as we expand our operations, customer base and advertiser base globally. These risks include:

- political, social and economic instability, including wars, terrorism and political unrest;
- fluctuations in currency exchange rates;
- higher levels of credit risk, corruption and payment fraud;
- enhanced difficulties of integrating any foreign acquisitions;
- regulations that might add difficulties in repatriating cash earned outside the United States and otherwise prevent us from freely moving cash;
- import and export controls and restrictions and changes in trade regulations;
- compliance with the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act and similar laws in other jurisdictions;
- multiple, conflicting and changing laws and regulations such as privacy, security and data use regulations, tax laws, trade regulations, economic sanctions and embargoes, employment laws, anticorruption laws, regulatory requirements, reimbursement or payor regimes and other governmental approvals, permits and licenses;
- failure by us, our collaborators or our distributors to obtain regulatory clearance, authorization or approval for the use of our products in various countries;
- additional potentially relevant third-party patent rights;
- complexities and difficulties in obtaining intellectual property protection and enforcing our intellectual property rights;
- difficulties in staffing and managing foreign operations;
- logistics and regulations associated with shipping samples and customer orders, including infrastructure conditions and transportation delays;
- financial risks, such as longer payment cycles, difficulty collecting accounts receivable, the impact of local and regional financial crises, on demand and payment for our products and exposure to foreign currency exchange rate fluctuations;
- natural disasters and outbreak of disease, such as the ongoing COVID-19 pandemic;
- breakdowns in infrastructure, utilities and other services;
- boycotts, curtailment of trade and other business restrictions; and
- the other risks and uncertainties described in this report.

Any of these factors could significantly harm our future international expansion and operations and, consequently, our revenue and results of operations.

Changes in government regulations and trade policies may materially and adversely affect our sales and results of operations.

The markets where we expect to sell our products are heavily influenced by foreign, federal, state and local government regulations and policies. The U.S. or foreign governments may take administrative, legislative, or regulatory action that could materially interfere with our ability to sell products in certain countries and/or to certain customers, particularly in China. The uncertainty regarding future standards and policies may also affect our ability to develop our products or to license our technologies to third parties and to sell products to our end customers, which could have a material adverse effect on our business, financial condition and results of operations.

An escalation of recent trade tensions between the U.S. and China has resulted in trade restrictions that could harm our ability to participate in Chinese markets and numerous additional such restrictions have been threatened by both countries. The U.S. government, for example, has recently implemented stringent export license requirements on U.S.-origin and certain foreign-origin items going to or being used by certain Chinese technology companies. The United States and China have imposed a number of tariffs and other restrictions on items imported or exported between the United States and China. We cannot predict what actions may ultimately be taken with respect to tariffs or trade relations between the United States and China or other countries, what products may be subject to such actions, or what actions may be taken by the other countries in retaliation. The institution of trade tariffs both globally and between the United States and China specifically carries the risk of negatively impacting China's overall economic condition, which could have negative repercussions for our business. Our products are and may continue to be subject to export license requirements or restrictions, particularly in respect of China.

In addition, changes in U.S. trade policy more generally could trigger retaliatory actions by affected countries, which could impose restrictions on our ability to do business in or with affected countries or prohibit, reduce or discourage purchases of our products by foreign customers, leading to increased costs of components contained in our products, increased costs of manufacturing our products and higher prices for our products in foreign markets. Changes in, and responses to, U.S. trade policy could reduce the competitiveness of our products, cause our sales to decline and adversely impact our ability to compete, which could materially and adversely impact our business, financial condition and results of operations.

In addition, the Chinese economic, legal and political landscape differs from other countries in many respects, including the level of government involvement and regulation, control of foreign exchange and allocation of resources and uncertainty regarding the enforceability and scope of protection for intellectual property rights. The laws, regulations and legal requirements in China are also subject to frequent changes. For example, the Chinese government has intensified enforcement of China's antitrust, data privacy and cybersecurity laws. These laws apply to impose onerous obligations on entities involved in the use, processing, storage and export of personal data. The exact obligations under and enforcement of laws and regulations in China are often subject to unpublished internal government interpretations and policies which makes it challenging to ascertain compliance with such laws.

We use biological and hazardous materials that require considerable expertise and expense for handling, storage and disposal and may result in claims against us.

We work with chemical and biological materials that could be hazardous to human health and safety or the environment. Our operations also produce hazardous and biological waste products, and we largely contract with third parties for the disposal of these products. Federal, state and local laws and regulations govern the use, generation, manufacture, storage, handling and disposal of these materials and wastes. Compliance with applicable environmental laws and regulations is expensive, and current or future environmental laws and regulations may restrict our operations. If we do not comply with applicable regulations, we may be subject to fines and penalties.

In addition, we cannot eliminate the risk of accidental injury or contamination from these materials or wastes, which could cause an interruption of our commercialization efforts, R&D programs and business operations, as well as environmental damage resulting in costly clean-up and liabilities under applicable laws and regulations, as well as potential reputational damage. In May 2021, a localized fire occurred at our chemistry lab in Emeryville, California. Although the physical damage to the facility was minimal and no serious injuries occurred in connection with this fire, a risk of a similar fire in the future is possible. Furthermore, environmental laws and regulations are complex, change frequently, and have tended to become more stringent. We cannot predict the impact of such changes and cannot be certain of our future compliance. While we do carry a pollution legal liability policy, this policy may not fully cover costs arising from contamination from hazardous and biological products and the resulting cleanup, or claims arising from the handling, storage or disposal of hazardous materials. Accordingly, in the event of fire, injury, or contamination, we could be liable for damages or penalized with fines in an amount exceeding our resources and our operations could be suspended or otherwise adversely affected.

The COVID-19 pandemic has had, and is expected to continue to have, an impact on our business, results of operations and financial condition.

The full impact of the continuing COVID-19 pandemic and related public health measures on our business will depend largely on future developments, including the duration and severity of the pandemic, which remains highly uncertain. On March 11, 2020, the World Health Organization declared the outbreak of COVID-19 caused by a novel strain of coronavirus as a pandemic, which continues to spread throughout the United States and around the world. Since then, extraordinary actions have been taken by international, federal, state and local public health and governmental authorities to contain and combat the outbreak and spread of COVID-19 throughout the world. These actions include travel bans, quarantines, "stay-at-home" orders and similar mandates for many individuals to substantially restrict daily activities and for many businesses to curtail or cease normal operations. Although these health and safety precautions were loosened in many jurisdictions over the past several months, beginning in early July 2021 a new Delta variant of COVID-19, which appears to be the most transmissible and contagious variant to date, has caused a surge in COVID-19 cases globally. The impact of the Delta variant, or any other variants that may emerge, cannot be predicted at this time, and could depend on numerous factors, including vaccination rates among the population, the effectiveness of COVID-19 vaccines against the Delta variant and the response by governmental bodies and regulators including whether those precautions previously loosened are reinstated.

The COVID-19 pandemic has had, and is expected to continue to have, an adverse impact on our operations, particularly as a result of preventive and precautionary measures that we, other businesses, and governments are taking including to the response to the outbreak of variants. For example, as part of these efforts and in accordance with applicable government directives, we initially reduced and then temporarily suspended on-site operations at our facilities in Emeryville and Boston in late March 2020. In addition, we began restricting non-essential travel and temporarily reduced salaries of our executives. As a result of the travel restrictions, we limited in-person sales and marketing activities and in-person visits to our partners, customers and manufacturers. We have continued to operate within the rules applicable to our business; however, a continuing implementation of these governmental mandates could further impact our ability to operate effectively and conduct ongoing R&D or other activities.

Governmental mandates related to COVID-19, other infectious diseases or public health crises, have impacted and we expect them to continue to impact, our personnel and personnel at third-party manufacturing facilities in the United States and other countries. The pandemic has caused substantial disruption in global supply chains. We have experienced shortages in some of our key supplies, including materials required in our labs. For example, prior to our decision to discontinue our electronics film programs, other than ZYM0101, which is partnered with Sumitomo Chemical, we experienced delays at a key supplier of a raw material for both Hyaline and ZYM0107, another optical film product. In addition, the inability to travel delayed the establishment of our Hyaline manufacturing capacity and delayed the process of selecting and vetting CMOs for our insect repellent, ZYM0201. As a result of the restrictions, we also experienced a partial suspension in servicing our R&D services contracts and the development of our own products. This occurred for the duration of the suspension of our on-site operations and for a period afterward as we ramped the operation back up and adopted the new work practices. This resulted in an approximate reduction in R&D services revenue of $0.7 million from existing contracts, not recognized before the year ended December 31, 2020.

In addition, limitations on our ability to travel and restrictions on our ability to conduct site visits or conduct in-person meetings with our customers due to the COVID-19 pandemic may have contributed to issues we recently identified in the product qualification process for Hyaline. Although such challenges did not contribute to our recent determination to discontinue most of our electronics film programs, difficulties and delays such as those we have experienced and may experience in the future have prevented and may in the future prevent us from meeting our operating and financial goals, both in general and within our targeted timelines, and may cause our revenues and operating results to fluctuate from period to period.

The COVID-19 pandemic also had an adverse effect on our ability to attract, recruit, interview and hire for key roles necessary to support our operations. To the extent that any governmental authority imposes additional regulatory requirements or changes existing laws, regulations and policies that apply to our business and operations, such as additional workplace safety measures, our product development plans may be delayed, and we may incur further costs in bringing our business and operations into compliance with changing or new laws, regulations and policies.

Further, the effect of the COVID-19 pandemic and mitigation efforts on our customers' and on consumer demand for their products could materially and adversely affect us, particularly to the extent our customers experience declines in demand for their goods that contain our products.

The COVID-19 pandemic has negatively impacted the global economy, disrupted global supply chains and created significant volatility and disruption of financial markets. The ultimate impact of the COVID-19 pandemic is highly uncertain and subject to sudden change, including as a result of the spread of the Delta and other variants. We are following and plan to continue to follow, recommendations from federal, state and local governments regarding workplace policies, practices and

procedures. We are continuing to monitor the potential impact of the pandemic, including on global supply chains for some of our lab materials and manufacturing capacity, but we cannot be certain what the overall impact will be on our business, financial condition, results of operations and prospects on a go-forward basis.

Our revenue, results of operations, cash flows and reputation in the marketplace may suffer upon the loss of a significant customer.

Substantially all of our revenue to date has been generated from R&D service contracts and collaboration arrangements. We have derived, and may continue to derive, a significant portion of our revenue from a limited number of large customers. In 2019, we had three customers that each represented more than 10% of our total revenue, including two customers that each represented over 20% of our total revenue. In 2020, we had three customers that each represented more than 10% of our total revenue, including one customer that represented over 35% of our total revenue. In the nine months ended September 30, 2021, we had three customers that together represented 65% of our total revenue, including one customer that represented 28% of our total revenue. Due to the significant time required to develop and commercialize new pipeline products, or to acquire new customers, the loss of any one or more of these customers, or the loss of any other significant customer or a significant reduction in the amount of product ordered by a significant customer would adversely affect our revenue, results of operations, cash flows and reputation in the marketplace.

In addition, we generally do not have long-term contracts with our customers requiring them to purchase any specified quantities from us, and without such contracts our customers are not obligated to order or reorder our products. As a result, we cannot accurately predict our customers' decisions to reduce or cease purchasing our products. Even where we enter into contracts with our customers, there is no guarantee that such agreements will be negotiated on terms that are commercially favorable to us in the long-term. Our customers may buy less of our products depending on their own technological developments, end-user demand for our products and internal budget cycles. In addition, existing customers may choose to produce some or all of the products they purchase from us internally by using or developing manufacturing capabilities organically or by using capabilities from acquisitions of assets or entities from third parties with such capabilities. Therefore, if our customers were to substantially reduce their transaction volume or cease ordering products from us, this could materially and adversely affect our financial performance.

Our pipeline products may cause undesirable side effects or environmental effects which may delay or prevent marketing approval, or, if approval is received, require them to be taken off the market, require them to include safety warnings or otherwise limit their sales.

Undesirable side effects from our pipeline products could arise either during development or after product has been marketed. Similarly, undesired environmental effects from agricultural or other pipeline products could arise after a pipeline product is commercialized. The results of future safety or environmental studies may show that our pipeline products cause undesirable side effects or environmental harm, which could interrupt, delay or halt the development and commercialization of our products, resulting in delay of, or failure to obtain, marketing approval from applicable regulatory authorities.

If any of our pipeline products cause undesirable side effects or environmental effects or suffer from quality control issues:

- regulatory authorities may impose a hold or risk evaluation and mitigation strategies which could result in substantial delays, significantly increase the cost of development and/or adversely impact our ability to continue development of the product;
- regulatory authorities may require the addition of statements, specific warnings, or contraindications to the product label;
- we may be required to conduct additional safety, or environmental studies;
- we may be required to implement a risk minimization action plan, which could result in substantial cost increases and have a negative impact on our ability to commercialize the product;
- we may be subject to limitations on how we promote the product;
- we may, voluntarily or involuntarily, initiate product recalls;
- sales of the product and interest in collaborations may decrease significantly;
- regulatory authorities may require us to take our product off the market;
- we may be subject to litigation or product liability claims; and
- our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of the affected pipeline products, cause injury to our reputation, or substantially increase commercialization costs and expenses, which in turn could delay or prevent us from generating significant revenue from the sale of our products.

Our products, or the end products of which they are components, could have defects or errors, which may give rise to claims against us or delays in production and adversely affect our business, financial condition and results of operations.

Some applications of our technology or pipeline products are components of end products and therefore our success is tied to the success of such end products. Material performance problems, defects, errors or delays could arise in our products or the end products in which they are components, and as we commercialize our products, these risks may increase. We expect to provide warranties that our products will meet performance expectations and will be free from defects. The costs incurred in correcting any defects or errors may be substantial and could adversely affect our operating margins.

In manufacturing our products, we depend upon third parties for the supply of our instruments and various components, many of which require a significant degree of technical expertise to produce. If our suppliers fail to produce our product components to specification or provide defective products to us and our quality control tests and procedures fail to detect such errors or defects, or if we or our suppliers use defective materials or workmanship in the manufacturing process, the reliability and performance of our products will be compromised.

If our products or the end products of which they are components contain defects or are delayed, we may experience:

- a failure to achieve market acceptance for our products or expansion of our products sales;
- the development of new technology rendering our products, or the end products of which they are components, obsolete;
- loss of customer orders and delay in order fulfillment;
- damage to our brand or reputation;
- increased warranty and customer service and support costs due to product repair or replacement;
- product recalls or replacements;
- inability to attract new customers and collaboration opportunities;
- diversion of resources from our manufacturing and R&D departments into our service department; and
- legal and regulatory claims against us, including product liability claims, which could be costly, time consuming to defend, result in substantial damages and result in reputational damage.

We may become subject to lawsuits or indemnity claims in the ordinary course of business, which could materially and adversely affect our business and results of operations.

From time to time, we may in the ordinary course of business be named as a defendant in lawsuits, indemnity claims and other legal proceedings. These actions may seek, among other things, compensation for alleged product liability, personal injury, employment discrimination, breach of contract, property damage and other losses or injunctive or declaratory relief. See the risk factors titled "*—Theft, loss, or misuse of personal data about our employees, customers, or other third parties could increase our expenses, damage our reputation, or result in legal or regulatory proceedings*," and "*—Our use of open source software could compromise our ability to use our biofacturing platform and subject us to possible litigation"* for a discussion of intellectual property infringement lawsuits.

The marketing, sale and use of our products and services could lead to the filing of product liability claims were someone to allege that our products or services failed to perform as designed or intended or caused injury or other harms. A product liability claim could result in substantial damages and be costly and time-consuming for us to defend.

Regardless of merit or eventual outcome, product liability claims may result in:

- decreased demand for any products that we have developed or may develop;
- loss of revenue;
- substantial monetary payments;
- significant time and costs to defend related litigation;
- the inability to commercialize any products that we have developed or may develop; and
- injury to our reputation and significant negative media attention.

In the event that such actions, claims or proceedings are ultimately resolved unfavorably to us at amounts exceeding our accrued liability, or at material amounts, the outcome could materially and adversely affect our business and results of operations. In addition, payments of significant amounts, even if reserved, could adversely affect our liquidity position. We maintain product liability insurance, but this insurance may not fully protect us from the financial impact of defending against product liability claims. Any product liability claim brought against us, with or without merit, could increase our insurance rates or prevent us from securing insurance coverage in the future. Additionally, any product liability lawsuit could cause current collaborators to terminate existing agreements or potential collaborators to seek other companies, any of which could impact our business and results of operations.

We are involved in securities litigation and other related matters that are expensive and time-consuming. Such litigation and other related matters could harm our business.

We are involved in securities litigation and we may continue to be a target for securities and shareholder lawsuits in the future. For example, on August 4, 2021, we, certain of our officers and directors, and the underwriters of our IPO were named as defendants in a securities class action purportedly brought on behalf of purchasers of our common stock. On November 9, 2021, certain of our officers and directors were named in a shareholder derivative lawsuit purportedly brought on behalf of the Company, which is named as a nominal defendant. These and future litigation, including any related shareholder litigation or governmental or regulatory investigation, could have a material adverse effect on our business, results of operations, financial condition, reputation and cash flows, as well as on the market price of our common stock. Although the results of lawsuits and claims cannot be predicted with certainty, defending these claims is costly and can impose a significant burden on management and employees. Any litigation to which we are a party may result in an onerous or unfavorable judgment that may not be reversed on appeal, or we may decide to settle lawsuits on similarly unfavorable terms. Any such negative outcome could result in payments of substantial monetary damages or fines, or changes to our business practices, and accordingly our business could be seriously harmed.

We may face risks relating to the use of our genetically modified organisms and microorganisms and if we are not able to secure regulatory approval or if we face material ethical, legal and social concerns about use of our GMO or GMM technology, our business could be adversely affected.

Our technologies and products involve the use of genetically modified organisms (“GMOs”) and genetically modified microorganisms (“GMMs”). The use of GMOs and GMMs is subject to laws and regulations in many countries, some of which are new and some of which are still evolving. In the United States, the Food and Drug Administration (“FDA”), the Environmental Protection Agency (“EPA”) and the U.S. Department of Agriculture (“USDA”) are the primary agencies that regulate the use of GMOs, GMMs, as well as potential products or substances derived from GMOs or GMMs. If regulatory approval of the GMOs, GMMs, or resulting products or substances is not secured, our business operations, financial condition and our ability to grow as a business could be adversely affected. We expect to encounter GMO and GMM regulations in most if not all of the countries in which we may seek to establish production capabilities or sell our products and the scope and nature of these regulations will likely be different from country to country. Governmental authorities could, for safety, social or other purposes, impose limits on, or implement regulation of, the use of GMOs or GMMs. If we cannot meet the applicable requirements in other countries in which we intend to produce or sell our products, or if it takes longer than anticipated to obtain such approvals, our business could be adversely affected.

In addition, public attitudes about the safety and environmental hazards of and ethical concerns over genetic research, GMOs and GMMs could influence public acceptance of our technology and products. These concerns could result in increased expenses, regulatory scrutiny, delays or other impediments to our programs. The use of GMOs and GMMs has in the past received negative publicity, which could lead to greater regulation or restrictions on imports of our products. Such concerns or governmental restrictions could limit the use of GMOs or GMMs in our products, which could have a material adverse effect on our business, financial condition and results of operations.

We may engage in strategic transactions, including acquisitions, that could disrupt our business, cause dilution to our stockholders, reduce our financial resources, or prove not to be successful.

From time to time, we have entered, and may in the future enter, into transactions to acquire other businesses, products or technologies, and our ability to do so successfully cannot be ensured. In December 2017, we acquired Radiant Genomics, Inc. which allowed us to add desired technology and talent related to metagenomics and associated building of metagenomic libraries. In March 2020, we acquired EnEvolv, Inc., which allowed us to acquire desired technology and talent related to the development and use of biosensors in development of pipeline products. In May 2021, we acquired Lodo Therapeutics Corporation, a company that uses its proprietary bacterial metagenomics discovery platform to develop novel therapeutics from nature. Even if we identify suitable opportunities, we may not be able to make such acquisitions on favorable terms or at all. Any acquisitions we make may not strengthen our competitive position, and these transactions may be viewed negatively by customers or investors. We may decide to incur debt in connection with an acquisition or issue our common stock or other

equity securities to the stockholders of the acquired company, which would reduce the percentage ownership of our existing stockholders. We could incur losses resulting from undiscovered liabilities of the acquired business that are not covered by any indemnification we may obtain from the seller. In addition, we may not be able to successfully integrate the acquired personnel, technologies and operations into our existing business in an effective, timely and non-disruptive manner. Acquisitions may also divert management attention from day-to-day responsibilities, increase our expenses and reduce our cash available for operations and other uses. In addition, we may not be able to fully recover the costs of such acquisitions or be successful in leveraging any such strategic transactions into increased business, revenue or profitability. We also cannot predict the number, timing or size of any future acquisitions or the effect that any such transactions might have on our operating results.

Accordingly, although there can be no assurance that we will undertake or successfully complete any acquisitions, any transactions that we do complete may be subject to the foregoing or other risks and have a material and adverse effect on our business, financial condition, results of operations and prospects. Conversely, any failure to pursue any acquisition or other strategic transaction that would be beneficial to us could delay the development and potential commercialization of our products.

Our headquarters and other facilities are located in active earthquake and tsunami or in active hurricane or wildfire zones, and an earthquake, tsunami, hurricane, wildfire or other type of natural disaster affecting us or our suppliers could cause resource shortages, disrupt our business and harm our results of operations.

We conduct our primary R&D operations in the San Francisco Bay Area in an active earthquake and tsunami zone, and certain of our suppliers conduct their operations in the same region or in other locations that are susceptible to natural disasters. In addition, California and some of the locations where certain of our suppliers and manufacturers are located have experienced shortages of water, electric power and natural gas from time to time. The occurrence of a natural or other disaster, such as an earthquake, tsunami, hurricane, drought, flood, fire, wildfire or any potential effects of climate change or localized extended outages of critical utilities or transportation systems, or any critical resource shortages, affecting us or, our suppliers or manufacturers could cause a significant interruption in our business, damage or destroy our facilities, production equipment or inventory or those of our suppliers and cause us to incur significant costs or result in limitations on the availability of our raw materials, any of which could harm our business, financial condition and results of operations. The insurance we maintain against fires, earthquakes and other natural disasters may not be adequate to cover our losses in any particular case. Accordingly, an earthquake or other disaster could materially and adversely harm our ability to conduct business.

We depend on sophisticated information technology and equipment systems, and any failure of these systems could harm our business.

We depend on various information technology and equipment systems, including services licensed, leased or purchased from third parties such as cloud computing infrastructure, operating systems and artificial intelligence platforms, for significant elements of our operations.

We use complex software processes to manage samples and evaluate sequencing result data. These software processes are subject to initial design challenges and may require ongoing modifications, each of which may result in unanticipated issues, leading to service disruptions or errors, resulting in liability. Our ability to maintain these processes depends on our ability to recruit and retain highly skilled employees in a competitive market and after recently reducing our workforce and, if we are successful in reducing our operating costs, on our ability to allocate sufficient resources to support the needs of this area. See the risk factor titled "*—Our efforts to reduce our operating costs may not be successful*."

We have installed, and expect to expand, a number of enterprise software systems that affect a broad range of business processes and functional areas, including systems handling human resources, financial controls and reporting, contract management, regulatory compliance and other infrastructure operations. In addition to these business systems, we have installed, and intend to extend, the capabilities of both our preventative and detective security controls by augmenting the monitoring and alerting functions and the network design of our technical systems. These information technology and telecommunications systems support a variety of functions, including data and cybersecurity, laboratory operations, quality control, R&D activities and general administrative activities. In addition, our third-party billing and collections provider depends upon technology and telecommunications systems provided by outside vendors.

Information technology and telecommunications systems are vulnerable to damage from a variety of sources, including telecommunications or network failures, malicious acts and natural disasters. In addition to traditional computer "hackers", malicious code (such as viruses and worms), employee theft or misuse, and denial-of-service attacks, sophisticated nation-state and nation-state supported actors also now engage in attacks (including advanced persistent threat intrusions), each of which could impair our ability to prevent the theft or misappropriation of our intellectual property, know-how or technologies. Moreover, despite network security and back-up measures, some of our servers are potentially vulnerable to physical or electronic break-ins, computer viruses and similar disruptive problems. Despite the precautionary measures we take to prevent unanticipated problems that could affect our information technology and telecommunications systems, failures or significant

downtime of these systems or those used by our collaborators or subcontractors could prevent us from conducting our operations. Any disruption or loss of information technology or telecommunications software and systems on which critical aspects of our operations depend could have an adverse effect on our business, our reputation, and we may be unable to regain or repair our reputation in the future.

Our use of open source software could compromise our ability to use our biofacturing platform and subject us to possible litigation.

We use open source software in connection with our biofacturing platform. Use of open source software may entail greater risks than use of third-party commercial software, as open source licensors generally do not provide support, updates, warranties, or other contractual protections regarding infringement claims or the quality of the code, and the wide availability of source code to components used in our products could expose us to security vulnerabilities. Furthermore, the terms of many open source licenses have not been interpreted by U.S. courts, and there is a risk that such licenses could be construed in a manner that imposes unanticipated conditions or restrictions on our ability to market or commercialize our products. As a result, we could be subject to lawsuits by parties claiming ownership of what we believe to be open source software or claiming noncompliance with open source licensing terms. Some open source software licenses require users who distribute software containing open source software to publicly disclose all or part of the source code to the licensee's software that incorporates, links or uses such open source software, and make available to third parties for no cost, any derivative works of the open source code created by the licensee, which could include the licensee's own valuable proprietary code. While we monitor our use of open source software and try to ensure that none is used in a manner that would require us to disclose our proprietary source code or that would otherwise breach the terms of an open source agreement, such use could inadvertently occur, or could be claimed to have occurred, in part because open source license terms are often ambiguous. There is little legal precedent in this area and any actual or claimed requirement to disclose our proprietary source code or pay damages for breach of contract could harm our business and could help third parties, including our competitors, develop technologies that are similar to or better than ours. Any of the foregoing could harm our business, financial condition, results of operations and prospects.

Our audited consolidated financial statements for the year ending December 31, 2020 contained a going concern qualification.

The audit report with respect to our audited financial statements for the year ended December 31, 2020 included an explanatory paragraph stating that there are material uncertainties which caused substantial doubt about our ability to continue as a going concern, in the absence of additional financing and cost reduction or cost management measures. We are subject to various covenants related to the Perceptive Credit Agreement, and given the substantial doubt about our ability to continue as a going concern, there was a risk that we would not meet our covenants in the future. Following the issuance of our audited financial statements, we raised net proceeds of approximately $529.9 million in our IPO. We have not yet generated revenue from product sales (except for nominal revenue related to the sale of samples), do not expect to generate revenue from product sales in 2021 and expect product revenue to be immaterial in 2022. In the future, we expect to need to raise additional cash through debt, equity or other forms of financing to fund future operations, which may not be available on acceptable terms, or at all. If sufficient funds on acceptable terms are not available when needed, we will be required to significantly reduce our operating expenses. See the risk factor titled "*—We expect to need to raise additional capital to fund our operations, which may cause dilution to our stockholders or cause us to further limit our operations*." Further, if at any time in the future we are unable to continue as a going concern, we may be forced to discontinue operations and liquidate our assets and may receive less than the value at which those assets are carried on our audited financial statements, which would cause our shareholders to lose some or all of their investment.

Risks Related to Our Intellectual Property

Our proprietary rights may not adequately protect our technologies and pipeline products.

Our commercial success will depend substantially on our ability to obtain patents and maintain adequate legal protection for the intellectual property we may own solely or jointly with, or license from, third parties, including our technologies and pipeline products in the United States and other countries. Our ability to protect our proprietary rights from unauthorized use by third parties relies on our ability to obtain and maintain valid and enforceable patents covering our proprietary technologies and future products and to maintain the confidentiality of information and technology that we maintain as either confidential or as trade secrets.

We apply for patents covering both our technologies and pipeline products, as we deem appropriate. However, filing, prosecuting, maintaining and defending patents in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States are less robust than those in the United States. We may also fail to apply for patents on important technologies or pipeline products in a timely fashion, or at all. Our existing and future patents may not be sufficiently broad to prevent others from practicing our technologies or from designing products around our

patents or otherwise developing competing products or technologies. In addition, the breadth of protections offered by patents is highly uncertain and involves complex legal and factual questions for which important legal principles remain unresolved. Additional uncertainty may result from legal decisions by the United States Federal Circuit and Supreme Court as they determine legal issues concerning the scope and construction of patent claims and inconsistent interpretation of patent laws or from legislation enacted by the U.S. Congress. For instance, the availability of patent protection with respect to software and claims reciting abstract ideas, laws of nature, natural phenomena and/or natural products, regardless of whether the claimed subject matter is otherwise novel and inventive, is uncertain and subject to change. The patent situation outside of the United States is also changing and difficult to predict. As a result, the validity and enforceability of patents cannot be predicted with certainty.

We do not know whether any of our pending patent applications or any pending patent applications that we license from others will result in the issuance of any patents. Even if patents are issued, they may not be sufficient to protect our technology or pipeline products. The patents we own or take licenses to and those that may be issued in the future may be challenged, invalidated, rendered unenforceable or circumvented, and the rights granted under any issued patents may not provide us with proprietary protection or competitive advantages. Moreover, third parties could practice our inventions in territories where we do not have patent protection or in territories where they could obtain a compulsory license to our technology even when patented. Such third parties may then try to import products made using our inventions into the United States or other territories. Accordingly, we cannot ensure that any of our pending patent applications will result in issued patents, or even if issued, that we will be able to predict the breadth, validity and enforceability of the claims upheld in those patents.

If any of our confidential proprietary information were to be lawfully obtained or independently developed by a competitor or other third party, absent patent protection, we would have no right to prevent such competitor from using that technology or information to compete with us, which could harm our competitive position. If any of our confidential information or trade secrets were to be disclosed to or independently discovered by a competitor or other third party, it could harm our business, financial condition, results of operations and prospects.

If competitors are able to copy and use our technology, our ability to compete effectively could be harmed. Others may independently develop and obtain patents for technologies that are similar to, or superior to, our technologies. If that happens, their owners may demand that we take a license, or refuse to grant us a license on reasonable terms or an exclusive license, if at all, which could cause harm to our business.

We have pursued in the past and may pursue additional U.S. Government contracting and subcontracting opportunities in the future, and as a U.S. Government contractor and subcontractor, we would be subject to a number of procurement rules and regulations.

We have entered into agreements with governmental entities and contractors in the past to serve as a U.S. Government contractor or subcontractor and may do so again in the future. U.S. Government procurement contractors and subcontractors must comply with specific procurement regulations and other requirements. These requirements, although customary in U.S. Government contracts, could impact our performance and compliance costs, including by limiting or delaying our ability to share information with business partners, customers and investors. The U.S. Government has in the past and may in the future demand contract terms that are less favorable than comparable arrangements with private sector customers and may have statutory, contractual, or other legal rights to terminate contracts with us for convenience or for other reasons. Any such termination may adversely affect our ability to contract with other government customers as well as our reputation, business, financial condition and results of operations. In addition, changes in U.S. Government budgetary priorities could lead to changes in the procurement environment, affecting availability of U.S. Government contracting, subcontracting or funding opportunities, which could lead to modification, reduction or termination of our U.S. Government contracts or subcontracts. If and to the extent such changes occur, they could impact our results and potential growth opportunities.

In addition, failure by us, our employees, representatives, contractors, channel partners, agents, intermediaries or other third parties to comply with these regulations and requirements could result in reductions of the value of contracts, contract modifications or termination, claims for damages, refund obligations, the assessment of civil or criminal penalties and fines, loss of exclusive rights in our intellectual property and temporary suspension or permanent debarment from government contracting, all of which could negatively impact our results of operations and financial condition. See the risk factor titled "*—We do not have exclusive rights to intellectual property we develop under U.S. federally funded research grants and contracts, including with DARPA, and we could ultimately share or lose the rights we do have under certain circumstances.*" Any such damages, penalties, disruptions or limitations in our ability to do business with the public sector could result in reduced sales of our products, reputational damage, penalties and other sanctions, any of which could harm our business, reputation and results of operations.

We rely in part on trade secrets to protect our products and technology, and our failure to obtain or maintain trade secret protection, or a competitor independently developing technology we protect through trade secrets, could adversely affect our competitive business position.

Others may attempt to copy or otherwise improperly obtain and use our products or technology and trade secrets. We seek to preserve the integrity and confidentiality of our confidential proprietary information and trade secrets by maintaining physical security of our premises and physical and electronic security of our information technology systems, but it is possible that these security measures could be breached. Monitoring unauthorized access and use is difficult, and we cannot be certain that the steps we have taken will prevent that, particularly in certain foreign countries where the local laws may not protect our proprietary rights as fully as in the United States. Moreover, in some cases our ability to determine if our intellectual property is being unlawfully used by a competitor may be limited.

We rely heavily on confidentiality agreements and confidentiality terms in our other agreements to protect unpatented trade secrets, know-how and confidential technology including parts of our biofacturing platform, molecule identity and production organisms, which help us maintain our competitive position. This is particularly relevant where patent protection may not be available, for example, aspects of our biofacturing platform that are naturally occurring. We regularly enter into agreements to maintain and protect our intellectual property and proprietary technology, including confidentiality agreements, non-disclosure agreements with our employees, consultants, academic institutions, corporate partners and when needed, our advisers. However, we cannot be certain that such agreements have been entered into with all relevant parties, and we cannot be certain that our trade secrets and other confidential proprietary information will not be disclosed or that competitors will not otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. For example, any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. Such agreements may not be enforceable or may not provide meaningful protection for our trade secrets or other proprietary information in the event of unauthorized use or disclosure or other breaches of the agreements, and we may not be able to prevent such unauthorized disclosure, which could adversely impact our ability to establish or maintain a competitive advantage in the market.

Trade secrets and know-how can be difficult to maintain and protect. Monitoring unauthorized disclosure is difficult, and despite the steps we have taken and the employee education we also conduct, we do not know whether the steps we have taken to prevent such disclosure are, or will be, adequate. If we were to enforce a claim that a third party had improperly obtained and was using our trade secrets, the lawsuit would be expensive and time-consuming, and the outcome would be unpredictable. In addition, courts outside the United States may be less willing to protect trade secrets.

We face risks related to cybersecurity threats and incidents, as well as significant disruptions of our information technology systems or data security incidents that could result in significant financial, legal, regulatory, business and reputational harm.

We may face attempts by others to gain unauthorized access through the Internet or to introduce malicious software, to our IT systems. Additionally, individuals or organizations, including malicious hackers, state-sponsored organizations, insider threats including employees and third-party service providers or intruders into our physical facilities, may attempt to gain unauthorized access and try to steal our technology and data. We are also a potential target of malicious attackers who attempt to gain access to our network or data centers or those of our customers or end users; steal proprietary information related to our business, products, employees and customers; interrupt our systems and services or those of our customers or others; or demand ransom to return control of such systems and services. Such attempts by malicious attackers in general are increasing in number and in technical sophistication, and if successful, expose us and the affected parties to risk of loss or misuse of proprietary or confidential information or disruptions of our business operations, including our technology operations. Furthermore, malicious online actors may employ false pretenses or technical measures in an attempt to induce our employees to use IT systems in a manner contrary to our benefit, such as, by authorizing payment of false bills or to run software that would encrypt our information in such a way that it cannot be used by us without paying ransom. While we have implemented security measures and employee training programs intended to protect our information technology systems and infrastructure, there can be no assurance that such measures will successfully prevent service interruptions or further security incidents. We have also outsourced elements of our operations (including elements of our information technology infrastructure) to third parties, and as a result, we manage a number of third-party vendors who may or could have access to our computer networks or our confidential information. Many of those third parties in turn subcontract or outsource some of their responsibilities to third parties. These providers can experience breaches of their systems and products that impact the security of our systems and our proprietary or confidential information.

Our information systems may also experience interruptions, delays, or cessations of service or produce errors in connection with system integration, software upgrades, or system migration work that takes place from time to time. While all information technology operations are inherently vulnerable to inadvertent or intentional security breaches, incidents, attacks and exposures, the size, complexity, accessibility and distributed nature of our information technology systems, and the large amounts of

sensitive information stored on those systems, make such systems potentially vulnerable to unintentional or malicious, internal and external attacks on our technology environment. While we have implemented security measures intended to protect our information technology systems and infrastructure, there can be no assurance that such measures will successfully prevent service interruptions or further security incidents.

Should we fail to maintain required security qualifications, we may face regulatory concerns or be in breach of contract, which may trigger regulatory action, litigation and/or damages, reputational harm, or loss of certain contracts. While we actively work to manage our information security compliance program, we cannot guarantee that we will always meet the certification standard going forward.

We may encounter intrusions or unauthorized access to our network, services or infrastructure. Any such incidents, whether or not successful, could result in our incurring significant costs related to, for example, rebuilding internal systems, implementing additional threat protection measures, defending against litigation, responding to regulatory inquiries or actions, paying damages, providing customers with incentives to maintain the business relationship, or taking other remedial steps with respect to third parties, as well as reputational harm. In addition, these threats are constantly evolving, thereby increasing the difficulty of successfully defending against them or implementing adequate preventative measures. While we seek to detect and investigate all unauthorized attempts and attacks against our network, products and services and to prevent their recurrence where practicable through changes to our internal processes and tools and changes or updates to our products and services, we may not be successful in doing so and remain potentially vulnerable to additional known or unknown threats. In some instances, we, our customers and the users of our products and services can be unaware of an incident or its magnitude and effects.

While we maintain cyber liability insurance with coverage we believe adequate to cover our risk profile, we cannot guarantee that tail risks, should they occur, would not cause us to incur significant losses or liabilities resulting from data security incidents. Any litigation or regulatory review arising from these types of data security incidents could result in significant legal exposure to us. In addition, information technology system disruptions, whether from attacks on our technology environment or from computer viruses or malware, natural disasters, terrorism, war and telecommunication and electrical failures, could result in a material disruption of our facilities, R&D activities, manufacturing activities and general business operations. Any event that leads to unauthorized access to, use or disclosure of personal information could, among other consequences, disrupt our business, harm our reputation and/or compel us to comply with applicable federal and/or state breach notification laws and foreign law equivalents. In addition, failure to maintain effective internal accounting controls related to security breaches and cybersecurity in general could impact our ability to produce timely and accurate financial statements and subject us to regulatory scrutiny.

Theft, loss, or misuse of personal data about our employees, customers, or other third parties could increase our expenses, damage our reputation, or result in legal or regulatory proceedings.

The theft, loss, or misuse of personal data collected, used, stored or transferred by us to run our business could result in significantly increased business and security costs or costs related to defending legal claims or implementing remedial or punitive measures. Global privacy legislation, enforcement and policy activity in this area are rapidly expanding and creating a complex regulatory compliance environment. Costs to comply with and implement these privacy-related and data protection measures could be significant and noncompliance could expose us to significant monetary penalties, damage to our reputation, suspension of online services or sites in certain countries, mandatory changes in business processes and even criminal sanctions. Even our inadvertent failure to comply with federal, state, or international privacy-related or data-protection laws and regulations could result in audits, regulatory inquiries or proceedings against us by governmental entities or other third parties.

Breaches of physical security systems and/or theft of physical materials could result in significant financial, legal, regulatory, business and reputational harm to us.

We seek to preserve the integrity and confidentiality of our and our partners', suppliers' and customers' data, trade secrets, proprietary chemical and biological materials (e.g., genetically modified host microbes) by maintaining physical security of our premises, biological materials storage systems and information technology systems. While we have confidence in these physical security systems, they may in the future be breached. In addition, we use third party vendors for certain services (e.g., DNA synthesis and sequencing or archiving of samples of engineered organisms) that require us to send or receive physical samples of materials that may constitute or contain proprietary or confidential information, and such third-party vendors may experience breaches. We also exchange physical samples of materials that may constitute or contain proprietary or confidential information with our customers and business partners. In many cases, these customers, partners, and third-party vendors are located internationally, sometimes in areas that are particularly susceptible to malicious physical security breaches.

Any breach of our own physical security, or that of a third party supplier, customer, or business partner, could adversely affect our business operations and/or result in the loss, misappropriation and/or unauthorized access to, or use or disclosure of, confidential or proprietary information (including trade secrets), which could result in financial and reputational harm to us,

significant legal exposure to us, and/or compel us to comply with applicable federal and/or state breach notification laws and foreign law equivalents.

See also the risk factor titled, "*—We face risks related to cybersecurity threats and incidents, as well as significant disruptions of our information technology systems or data security incidents that could result in significant financial, legal, regulatory, business and reputational harm.*"

We may need to commence or defend litigation to enforce our intellectual property rights, which would divert resources and management's time and attention and the results of which would be uncertain.

Any litigation arising from our enforcement of claims that a third party is infringing, misappropriating or otherwise violating our proprietary rights without permission or defending claims by a third party that we are infringing, misappropriating or otherwise violating their proprietary rights without permission would be expensive, time consuming and uncertain. There can be no assurances that we would prevail in any suit brought by us or against us by third parties, or successfully settle or otherwise resolve those claims. Significant litigation would have substantial costs, even if the eventual outcome is favorable to us, and would divert management's attention from our business objectives.

Parties making claims against us may be able to obtain injunctive or other relief, which could block our ability to develop, commercialize and sell products or use our technologies, and could result in the award of substantial damages against us, including treble damages, attorney's fees, costs and expenses if we are found to have willfully infringed. In the event of a successful claim against us, we may be required to pay damages and ongoing royalties, and obtain one or more licenses from third parties, or be prohibited from selling certain products or using certain technologies. We may not be able to obtain these licenses on acceptable or commercially reasonable terms, if at all. In addition, we could encounter delays in product or service introductions while we attempt to develop alternative or redesign existing products or technologies to avoid or resolve these claims. Our loss in any lawsuit or failure to obtain a license, could prevent us from commercializing the products or using the technologies (or, in the case of a suit we make against a third party, our failure to prevent their commercialization of product or use of technologies we believe to be in violation of our intellectual property rights) and the prohibition of sale of any of our products or use of technologies (or our failure to prohibit a third party's sales of competitive products or use of competing technologies) could materially affect our business, our ability to gain market acceptance for our products and our ability to use our technologies for the development of our pipeline products.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, during the course of this kind of litigation, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock.

In addition, our agreements with some of our customers, suppliers or other entities with whom we do business require us to defend or indemnify these parties if they become involved in infringement claims that target our products, services or technologies, including the types of claims described above. We could also voluntarily agree to defend or indemnify third parties even if we are not obligated to do so if we determine it would be important to our business relationships to do so. If we are required or agree to defend or indemnify third parties in connection with any infringement claims, we could incur significant costs and expenses that could adversely affect our business, operating results or financial condition.

Furthermore, the laws of some foreign countries do not protect intellectual property rights to the same extent as do the laws of the United States or apply differing rules concerning effective assignment of intellectual property rights. Many companies have encountered significant problems in protecting and defending intellectual property rights in certain foreign jurisdictions. We may encounter similar difficulties, particularly as we expand to work with foreign employees and contractors and expand sales into foreign markets. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents by foreign holders and other intellectual property protection, particularly those relating to biotechnology and bioindustrial technologies. This could make it difficult for us to stop the infringement of our patents or misappropriation or other violation of our other intellectual property rights. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business.

We do not have exclusive rights to intellectual property we develop under U.S. federally funded research grants and contracts, including with DARPA, and we could ultimately share or lose the rights we do have under certain circumstances.

Some of our intellectual property has been or may be developed during the course of research funded by the U.S. government, including under our agreements with the U.S. Defense Advanced Research Projects Agency ("DARPA"). As a result, the U.S. government may have certain rights to intellectual property that we use in our current or future products pursuant to the Bayh-Dole Act of 1980, as amended (the "Bayh-Dole Act"). Under the Bayh-Dole Act, U.S. Government rights in certain "subject inventions" developed under a government-funded program include a nonexclusive, non-transferable and irrevocable worldwide license to use inventions for any governmental purpose. In addition, the U.S. government has the right to

require us, or an assignee or exclusive licensee to such inventions, to grant licenses to any of these inventions to the government or a third party if the government determines that: (i) adequate steps have not been taken to commercialize the invention; (ii) government action is necessary to meet public health or safety needs; (iii) government action is necessary to meet requirements for public use under federal regulations; or (iv) the right to use or sell such inventions is exclusively licensed to an entity within the United States and substantially manufactured outside the United States without the U.S. government's prior approval. Additionally, we may be restricted from granting exclusive licenses for the right to use or sell our inventions created pursuant to such agreements unless the licensee agrees to comply with relevant Bayh-Dole Act restrictions (e.g., manufacturing substantially all of the invention in the United States) and reporting requirements. The U.S. government also has the right to take title to these inventions if we fail to disclose the invention to the government or fail to file an application to register for a patent for the intellectual property within specified time limits. In addition, the U.S. government may acquire title in any country in which a patent application is not filed. Certain technology and inventions are also subject to transfer restrictions during the term of these agreements with the U.S. government and for a period thereafter. These restrictions may limit sales of products or components, transfers to foreign subsidiaries for the purpose of the relevant agreements and transfers to certain foreign third parties. If any of our intellectual property becomes subject to any of the rights or remedies available to the U.S. government or third parties pursuant to the Bayh-Dole Act, this could impair the value of our intellectual property and could adversely affect our business.

We use naturally occurring materials that are not patentable and changes to patent laws in the United States and other jurisdictions could diminish the value of patents in general, thereby impairing our ability to protect our products.

Changes in either the patent laws or interpretation of patent laws in the United States, could increase the uncertainties and costs surrounding the prosecution of our owned and in-licensed patent applications and the maintenance, enforcement or defense of our owned and in-licensed issued patents. The Leahy-Smith Act also included changes that affect the way patent applications are prosecuted, redefine prior art, provide more efficient and cost-effective avenues for competitors to challenge the validity of patents, and enable third-party submission of prior art to the United States Patent and Trademark Office ("USPTO") during patent prosecution and additional procedures to attack the validity of a patent at USPTO-administered post-grant proceedings, including post-grant review, *inter partes* review and derivation proceedings. As such, the Leahy-Smith Act and its continued implementation could continue to increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, all of which could have a material adverse effect on our business, financial condition, results of operations and prospects.

In addition, the patent positions of companies in the development and commercialization of software and biologics are particularly uncertain. Recent U.S. Supreme Court rulings have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. This combination of events has created uncertainty with respect to the validity and enforceability of patents once obtained. Depending on future actions by the U.S. Congress, the federal courts and the USPTO, the laws and regulations governing patents could change in unpredictable ways that could have a material adverse effect on our patent rights and our ability to protect, defend and enforce our patent rights in the future.

Patent terms may be inadequate to protect our competitive position on our products and technologies for an adequate amount of time.

Patents have a limited lifespan. In the United States, if all maintenance fees are timely paid, the natural expiration of a patent is generally 20 years from its earliest U.S. non-provisional filing date. Various extensions may be available, but the life of a patent and the protection it affords, is limited. Even if patents covering our products and technologies are obtained, once the patent life has expired, we may be open to competition from products leveraging the proprietary technologies described in our patents. Given the amount of time required for the development, testing and, in some cases, regulatory review of new products, patents protecting such products might expire before or shortly after such products are commercialized. As a result, our owned and licensed patent portfolio may not provide us with sufficient rights to exclude others from commercializing products, or using technologies, similar or identical to ours.

We may be subject to claims by third parties asserting that our employees, consultants, or contractors have wrongfully used or disclosed confidential information of third parties, or we have wrongfully used or disclosed alleged trade secrets of their current or former employers or claims asserting we have misappropriated their intellectual property, or claiming ownership of what we regard as our own intellectual property.

Certain of our employees, consultants and contractors were previously employed at universities or other software or biopharmaceutical companies, including our competitors or potential competitors. Although we try to ensure that our employees, consultants and contractors do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that these individuals or we have used or disclosed intellectual property, including trade secrets or

other proprietary information, of any such individual's current or former employer. Litigation may be necessary to defend against these claims.

In addition, while it is our policy to require that our employees, consultants and contractors who may be involved in the development of intellectual property, execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who in fact develops intellectual property that we regard as our own. Our intellectual property assignment agreements with them may not be self-executing or may be breached, and we may be forced to bring claims against third parties, or defend claims they may bring against us, to determine the ownership of what we regard as our intellectual property. Such claims could have a material adverse effect on our business, financial condition, results of operations and prospects.

If we fail in prosecuting or defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel, which could have a material adverse effect on our competitive business position and prospects. Such intellectual property rights could be awarded to a third party, and we could be required to obtain a license from such third party to use or commercialize our technology or products, which license may not be available on commercially reasonable terms, or at all. Even if we are successful in prosecuting or defending against such claims, litigation could result in substantial costs and be a distraction to our management and employees.

Our collection, use and disclosure of personal information, including health and employee information, is subject to U.S. state and federal privacy and security regulations, and our failure to comply with those regulations or to adequately secure the information we hold could result in significant liability or reputational harm.

The privacy and security of personal information stored, maintained, received or transmitted, including electronically, is a major issue in the United States and abroad. Numerous federal and state laws and regulations govern the collection, dissemination, use and confidentiality of personal information, including genetic, biometric and health information, including state privacy, data security and breach notification laws, federal and state consumer protection and employment laws, the Health Insurance Portability and Accountability Act of 1996, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009 and the Genetic Information Nondiscrimination Act of 2008. These laws and regulations are increasing in complexity and number, may change frequently and sometimes conflict. Penalties for violations of these laws vary, but can be severe.

While we strive to comply with all applicable privacy and security laws and regulations, including our own posted privacy policies, these laws and regulations continue to evolve and any failure or perceived failure to comply may result in proceedings or actions against us by government entities or others, or could cause us to lose customers, which could have a material adverse effect on our business. Recently, there has been an increase in public awareness of privacy issues in the wake of revelations about the data-collection activities of various government agencies and in the number of private privacy-related lawsuits filed against companies. Concerns about our practices with regard to the collection, use, retention, disclosure or security of personal information or other privacy-related matters, even if unfounded and even if we are in compliance with applicable laws, could damage our reputation and harm our business.

Data collection outside of the United States may be governed by restrictive regulations governing the use, processing and cross-border transfer of personal information.

In the event we decide to conduct business or grow our business in certain territories outside the United States, we may be subject to additional privacy restrictions. For example, the EU General Data Protection Regulation ("GDPR") regulates certain business activities involving the collection, use, storage, disclosure, transfer or other processing of personal data regarding individuals in the European Economic Area ("EEA"). The GDPR is wide-ranging in scope and imposes numerous requirements on companies that process personal data. If we expand our business activities involving the personal data of EEA residents, it may increase our cost of doing business or require us to change our business practices. Compliance with the GDPR and other similar laws and regulations will be a rigorous and time-intensive process that may increase our cost of doing business or require us to change our business practices, and despite those efforts, there is a risk that we may be subject to fines and penalties, litigation and reputational harm in connection with our activities outside the United States, including in the EEA.

Risks Relating to Government Regulation and Tax Matters

We may not be able to obtain, or may experience significant delays or costs in obtaining, regulatory approval for our products or their components and even if approvals are obtained, complying on an on-going basis with numerous regulatory requirements will be time-consuming and costly.

The product development and manufacturing requirements of the EPA and FDA and other government bodies, and the criteria these authorities use to determine the safety and/or efficacy of pipeline products or its components, vary substantially according to the type, complexity, novelty, intended use and geographic market of said pipeline product or component. It is

difficult to determine the time required or the financial costs to obtain regulatory approvals for our pipeline products or its components or how long it will take to commercialize our pipeline products, even if approved for marketing. In the United States, the EPA administers the Toxic Substances Control Act ("TSCA"), which regulates the commercial registration, distribution and use of many chemicals. Before an entity can manufacture or distribute a new chemical subject to TSCA, it must file a Pre-Manufacture Notice ("PMN"), to add the chemical to the TSCA Inventory. The EPA has 90 days to review the filing but may request additional data or time, which could significantly extend the timeline for approval. As a result, we may not receive EPA approval as expeditiously as we would like. Similar regulations exist in the European Union ("EU"), known as REACH, where regulatory authorization under this program may be delayed or require additional significant costs.

We expect to encounter regulations in most, if not all, of the countries in which we may seek to produce, import, or sell our products, and we cannot guarantee that we will be able to obtain necessary approvals and third- party verifications in a timely manner or at all. If there are delays or failure to obtain, or unexpected costs in obtaining, the regulatory approval necessary in a particular country, then we may not be able to commercialize our products in such country and our business will be adversely affected. In addition, any enforcement action taken by regulators against us or our products for non-compliance could cause us to suffer adverse publicity, which could harm our reputation and our relationship with our customers and vendors.

In addition, many of our products are intended to be a component of our collaboration partners and/or customers' (or their customers') end-use products. Such end-use products may be subject to similar or other various regulations, including regulations promulgated by U.S. or EU regulatory agencies or authorities. If we or our collaboration partners and customers (or their customers) are not successful in obtaining any required regulatory approval or third-party verifications for their end-use products that incorporate our products, or fail to comply with any applicable regulations for such end-use products, whether due to our products or otherwise, demand for our products may decline and our revenue will be adversely affected.

We may incur significant costs to comply with environmental laws and regulations, and failure to comply with these laws and regulations could expose us to significant liabilities.

We use hazardous chemicals and biological materials in our business and are subject to a variety of federal, state, local and international laws and regulations governing, among other matters, the use, generation, manufacture, transportation, storage, handling, disposal of and human and environmental exposure to these materials both in the United States and overseas, including regulation by governmental regulatory agencies, such as the Occupational Safety and Health Administration and the EPA. We have incurred and will continue to incur, capital and operating expenditures and other costs in the ordinary course of our business in complying with these laws and regulations.

Although we have implemented safety procedures for handling and disposing of these materials and waste products in an effort to comply with these laws and regulations, we cannot be sure that our safety measures will be compliant or capable of eliminating the risk of injury or contamination from the generation, manufacturing, use, storage, transportation, handling, disposal of and human and environmental exposure to hazardous materials. Failure to comply with environmental, health and safety laws could subject us to liability and resulting damages. There can be no assurance that violations of environmental, health and safety laws will not occur as a result of human error, accident, equipment failure, contamination or other causes. Compliance with applicable environmental laws and regulations may be expensive, and the failure to comply with past, present or future laws could result in the imposition of fines, regulatory oversight costs, third party property damage, product liability and personal injury claims, investigation and remediation costs, the suspension of production or a cessation of operations, and our liability may exceed our total assets. Liability under environmental laws, such as the Comprehensive Environmental Response Compensation and Liability Act in the United States can impose liability for the full amount of damages without regard to comparative fault for the investigation and cleanup of contamination and impacts to human health and for damages to natural resources. Contamination at properties we will own or operate and at properties to which we send hazardous materials, may result in liability for us under environmental laws and regulations.

Our business and operations may be affected by other new environmental, health and safety laws and regulations, which may require us to change our operations, or result in greater compliance costs and increasing risks and penalties associated with violations, which could impair our research, development or production efforts and harm our business.

We are subject to certain U.S. and foreign anti-corruption, anti-bribery and anti-money laundering laws and regulations. We can face serious consequences for violations.

We are subject to the U.S. Foreign Corrupt Practices Act of 1977, as amended (the "FCPA"), the U.S. domestic bribery statute contained in 18 U.S.C. § 201, the U.S. Travel Act, the U.K. Bribery Act and possibly other anti- corruption, anti-bribery and anti-money laundering laws and regulations in the jurisdictions in which we do business, both domestic and abroad. Anti-corruption and anti-bribery laws have been enforced aggressively in recent years and are interpreted broadly to generally prohibit companies, their employees, agents, representatives, business partners and third-party intermediaries from authorizing, offering, or providing, directly or indirectly, improper payments or offers of improper payments to government officials, political parties, or commercial partners for the purpose of obtaining or retaining business or securing an improper business

advantage, or engaging in certain transactions involving criminally-derived property or the proceeds of criminal activity. We plan to engage third parties to conduct our business abroad, for example, for product trials and/or to obtain necessary permits, licenses, patent registrations and other regulatory approvals. We and our third-party business partners, representatives and agents may have direct or indirect interactions with officials and employees of government agencies or state-owned or affiliated universities or other entities, and we may be held liable for the corrupt or other illegal activities of our employees or such third parties even if we do not explicitly authorize such activities. We expect our non-U.S. activities to increase over time, which may also increase our exposure to these laws.

These laws also require that we keep accurate books and records and maintain internal controls and compliance procedures designed to prevent any such actions in violation of those laws. While we have policies and procedures to address compliance with such laws, we cannot assure you that none of our employees, agents, representatives, business partners or third-party intermediaries will take actions in violation of our policies and applicable law, for which we may be ultimately held responsible.

Any allegations or violation of the FCPA or other applicable anti-bribery, anti-corruption laws and anti-money laundering laws may result in whistleblower complaints, sanctions, settlements, investigations, prosecution, enforcement actions, substantial criminal fines and civil penalties, imprisonment, debarment, tax reassessments, breach of contract and fraud litigation, loss of export privileges, suspension or debarment from U.S. government contracts, adverse media coverage, reputational harm and other consequences, all of which may have an adverse effect on our reputation, business, results of operations and prospects. Responding to an investigation or action will likely result in a materially significant diversion of management's attention and resources and significant defense costs and other professional fees.

Governmental trade controls, including export and import controls, sanctions, customs requirements and related regimes, could subject us to liability or loss of contracting privileges or limit our ability to compete in certain markets.

Our products and technologies are subject to U.S. and non-U.S. export controls. Export authorizations may be required for the products, technologies, or services to be exported outside of the United States, to a foreign person, or outside of a foreign jurisdiction. Our current or future products or technologies are, and may in the future, be subject to the Export Administration Regulations ("EAR"). If a product, technology, or service meets certain criteria for control under the EAR, then that product, technology, or service would be exportable outside the United States or to a foreign person or from one foreign jurisdiction to another foreign jurisdiction only if we obtain the applicable export license or other applicable authorization including qualifying for a license exception, if required. Compliance with the U.S. and foreign export laws and regulations and other applicable regulatory requirements regarding the sales, shipment and use of our products and technology may affect our ability to work with foreign partners, affect the speed at which we can introduce new products into non-U.S. markets, or limit our ability to sell products or services or license technologies into some countries.

Additionally, certain materials that we use in our development and production activities are subject to U.S. import controls. We currently have, and may in the course of business need to procure, certain import authorizations, for example, related to plant pests, chemicals, biological agents and other controlled materials, including from the USDA, EPA and U.S. Centers for Disease Control. Compliance with applicable regulatory requirements regarding the import of such materials may limit our access to materials critical to our development activities or affect the speed at which we can develop new products.

Our activities are also subject to the economic sanctions laws and regulations of the United States and other jurisdictions. Such controls prohibit certain transactions, potentially including financial transactions and the transfer of products, technologies and services, to sanctioned countries, governments and persons, without a license or other appropriate authorization. U.S. sanctions policy changes could affect our ability to interact, directly and indirectly, with targeted companies or companies in sanctioned countries, including Chinese companies.

While we take precautions to comply with U.S. and non-U.S. export control, import control and economic sanctions laws and regulations, we cannot guarantee that such precautions will prevent violations of such laws, including transfers to unauthorized persons or destinations, and including inadvertent violations as a result of a misclassification of a product, technology or service under export control laws. Violations could result in our business being subject to government investigations, denial of export or import privileges, significant fines or penalties, denial of government contracts and reputational harm. Any limitation on our ability to export our products, technology, or services, or import materials critical to our development activities would likely adversely affect our business and financial condition.

We are party to a mitigation agreement with the Committee on Foreign Investment in the United States ("CFIUS") and can face penalties or further restrictions if we fail to comply with that agreement. CFIUS may also condition, modify, delay or prevent our future acquisition or investment activities.

Due to certain foreign ownership interests in our business, we operate pursuant to an agreement with CFIUS agencies that requires us to adhere to certain information and technology protection requirements. This agreement will remain in place until CFIUS agrees to terminate it, which CFIUS might do if it determines that the agreement is no longer necessary due to changed

circumstances, including any changes to the ownership of our business. We have incurred and will continue to incur, incremental additional costs in implementing and complying with these standards, and those costs may increase as we continue to grow our business. If we fail to comply with our obligations under the agreement, we may be subject to penalties, injunctive action, additional mitigation conditions or other restrictions.

Further, subject to any future changes in the foreign ownership interest in our business, CFIUS may interpret its regulations as continuing to give it jurisdiction to review our acquisitions of, or investments in, other US businesses. If CFIUS conducts such a review, it could impose restrictions on the investments or to deny such transactions to address any national security concerns that it determines are posed by such transactions.

Our ability to use our net operating loss carryforwards and certain other tax attributes may be limited.

We have incurred net losses since our inception and we may never achieve or sustain profitability. Generally, for U.S. federal income tax purposes, net operating losses incurred will carry forward. However, net operating loss carryforwards generated prior to January 1, 2018 are subject to expiration for U.S. federal income tax purposes. As of December 31, 2019, we had federal net operating loss carryforwards of approximately $460.0 million of which $96.9 million will begin to expire in 2033 and $363.1 million, which will carryforward indefinitely. As of December 31, 2019, we had a total state net operating loss carryforward of $418.5 million, which will begin to expire in 2027. As of December 31, 2019, we also had federal and state R&D tax credit carryforwards of approximately $19.3 million and $15.9 million, respectively, which may be available to offset future income tax liabilities. The federal R&D tax credit carryforwards would begin to expire in 2034. The state R&D tax credit carryforwards are not subject to expiration.

As of December 31, 2020, we had federal net operating loss carryforwards of $704.1 million of which $99.3 million will begin to expire in 2033 and $604.8 million will carryforward indefinitely. As of December 31, 2020, we had a total state net operating loss carryforward of $515.6 million, which will begin to expire in 2027. As of December 31, 2020, we also had federal and state R&D tax credit carryforwards of $26.8 million and $22.3 million, respectively, which may be available to offset future income tax liabilities. The federal R&D tax credit carryforwards would begin to expire in 2034. The state R&D tax credit carryforwards are not subject to expiration.

In addition, under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended (“Code”), if a corporation undergoes an “ownership change,” generally defined as a greater than 50 percentage point change in its equity ownership by certain shareholders over a three-year period, the corporation’s ability to use its pre-ownership change net operating loss carryforwards and other pre-ownership change tax attributes, such as research tax credits, to offset its post-ownership change income or taxes may be limited. As a result, even if we attain profitability, we may be unable to use a material portion of our net operating loss carryforwards and other tax attributes, which could adversely affect our future cash flows. There is also a risk that due to regulatory changes, such as suspensions on the use of net operating losses or other unforeseen reasons, our existing net operating losses could expire or otherwise be unavailable to offset future U.S. federal and state taxable income. For these reasons, we may not be able to utilize some portion of our net operating losses even if we attain profitability.

At this time, we are unable to determine if an ownership change was triggered at the time of the IPO that could result in a change in our ability to use our net operating loss carryforwards and other tax attributes.

Changes in U.S. and foreign tax laws could have a material adverse effect on our business, cash flow, results of operations or financial conditions.

We are subject to tax laws, regulations and policies of the U.S. federal, state and local governments and of taxing authorities in foreign jurisdictions, including Japan, Spain, the Netherlands and Taiwan. Changes in tax laws, as well as other factors, could cause us to experience fluctuations in our tax obligations and otherwise adversely affect our tax positions and/or our tax liabilities. For example, the Organisation for Economic Co-operation and Development (OECD) has published proposals covering various international tax-related issues, including country- by-country reporting, permanent establishment rules, transfer pricing and tax treaties. Future tax reform resulting from this development may result in changes to long-standing tax principles, which could adversely affect our effective tax rate or result in higher cash tax liabilities in those countries or change the manner in which we operate our business. In addition, the Biden administration has proposed several corporate tax increases, including raising the U.S. corporate income tax rate and greater taxation of international income, which, if enacted, could adversely affect our tax liability. There can be no assurance that our tax payments, tax credits, or incentives will not be adversely affected by these or other initiatives.

Risks Related to Ownership of Our Common Stock

The market price of our common stock may be volatile, which could result in substantial losses for investors in our common stock.

The market price of our common stock is likely to be volatile and could be subject to fluctuations in response to the risk factors described in this report and others beyond our control. Some of the factors that may cause the market price of our common stock to fluctuate include:

- our ability to successfully commercialize or generate revenue from our products;
- our ability to develop and execute on our new strategic plan successfully;
- the success of our efforts to reduce our operating costs to extend our runway;
- the results of our Portfolio Review;
- our ability to identify, recruit and retain skilled personnel, including a permanent Chief Executive Officer;
- the development of our products and the degree to which the timing of launch and commercialization thereof meets the expectations for securities analysts and investors and our ability to achieve market acceptance for our products;
- delays in timing of revenue from future product sales;
- commencement or termination of collaborations for our product development and research programs;
- failure or discontinuation of any of our product development and research programs;
- the success of existing or new competitive products, services or technologies;
- regulatory or legal developments in the United States and other countries;
- developments or disputes concerning patent applications, issued patents, other intellectual property or proprietary rights;
- the impact of COVID-19 on our business and on global economic conditions;
- the level of expenses related to any of our research programs or product development programs;
- actual or anticipated changes in our estimates as to our financial results or development timelines;
- whether our financial results, forecasts and development timelines meet the expectations of securities analysts or investors;
- announcement or expectation of additional financing efforts;
- sales of our common stock by us, our insiders, or other stockholders;
- variations in our financial results or those of companies that are perceived to be similar to us;
- changes in estimates or recommendations by securities analysts, if any, that cover our stock;
- developments with respect to our pending securities litigation and related matters;
- general economic, industry and market conditions; and
- the other factors described in this “Risk Factors” section.

For example, there was a significant decline in the market price for our common stock following our announcement on August 3, 2021, that we had become aware of issues with our commercial product pipeline that impact our product delivery timeline and revenue projections, no longer expect product revenue in 2021 and expect product revenue to be immaterial in 2022.

In recent years, stock markets in general and the market for technology companies (including biopharma companies) in particular have experienced significant price and volume fluctuations that have often been unrelated or disproportionate to changes in the operating performance of the companies whose stock is experiencing those price and volume fluctuations. Broad market and industry factors may seriously affect the market price of our common stock, regardless of our actual operating performance. Following periods of such volatility in the market price of a company’s securities, securities class action litigation has often been brought against that company. For example, on August 4, 2021, following a significant decline in the market price for our common stock, we, certain of our officers and directors, and the underwriters of our IPO were named as defendants in a securities class action purportedly brought on behalf of purchasers of our common stock. Because of the

volatility of our stock price, we expect to continue to be the target of securities litigation in the future. Securities litigation could result in substantial costs and divert management's attention and resources from our business.

An active trading market for our common stock may not be sustained.

Our common stock began trading on the Nasdaq Global Select Market ("Nasdaq") under the symbol "ZY" on April 22, 2021. However, we cannot assure you of the likelihood that an active trading market for our common stock will be maintained, the liquidity of any trading market, your ability to sell your shares of our common stock when desired or the prices that you may obtain for your shares.

We do not expect to pay dividends in the foreseeable future.

You should not rely on an investment in our common stock to provide dividend income. We do not anticipate paying any cash dividends to holders of our common stock in the foreseeable future. Instead, we plan to retain any earnings to maintain and expand our existing operations and continue to invest in commercializing our existing products, launching products in our pipeline and furthering the development of our biofacturing platform and technology. In addition, the Perceptive Credit Agreement includes covenants that restrict our ability to pay cash dividends. Consequently, stockholders must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any future gains on their investment. As a result, investors seeking cash dividends should not purchase our common stock.

If securities or industry analysts publish negative reports about our business or cease publishing research or reports about our business, our share price and trading volume could decline.

The trading market for our common stock depends in part on the research and reports that securities or industry analysts publish about us or our business. We do not have any control over whether analysts cover our company or for how long they cover our company. If one or more of the analysts who cover us downgrade our shares or change their opinion of our shares, our share price would likely decline. For example, several of the analysts who cover our company downgraded our shares following our announcement on August 3, 2021 that we had become aware of issues with our commercial product pipeline that impact our product delivery timeline and revenue projections, no longer expect product revenue in 2021 and expect product revenue to be immaterial in 2022. If one or more of these analysts cease coverage of our company or fail to regularly publish reports on us, we could lose visibility in the financial markets, which could cause our share price or trading volume to decline.

Sales of a substantial number of shares of our common stock by our existing stockholders could cause the price of our common stock to decline.

Sales of a substantial number of shares of our common stock in the public market could occur at any time. Such sales, or the perception in the market that the holders of a large number of shares of common stock intend to sell shares, could reduce the market price of our common stock.

The restrictions on transfer contained in the lock-up agreements and market standoff agreements that were in effect following our IPO have expired, and substantially all of the shares of our common stock outstanding, other than shares held by our affiliates that are subject to securities laws restrictions on resale, may be freely sold in the public market. In addition, shares issued upon the exercise or settlement of outstanding equity awards under our equity incentive plans or pursuant to future awards granted under those plans will be freely available for sale in the public market upon issuance and once vested, subject to volume limitations applicable to affiliates.

Moreover, holders of an aggregate of 68,115,459 shares of our common stock (calculated as of immediately prior to our IPO) have rights, subject to conditions, to require us to file registration statements with the SEC covering their shares or to include their shares in registration statements that we may file for ourselves or other stockholders. If any of these additional shares are sold, or if it is perceived that they will be sold, in the public market, the market price of our common stock could decline.

We expect to need to raise additional capital to fund our operations, which may cause dilution to our stockholders or cause us to further limit our operations.

Following our recent implementation of several cost reduction measures to better align our operating costs to our extended runway, we believe that we will have sufficient capital to support our operations to the middle of 2023. Until such time as we can generate significant revenue from product sales or other customer arrangements to fund operations, we expect to require additional capital to fund our operations, which may include seeking capital from the issuance of additional equity, debt financings or other capital-raising transactions. There can be no assurance that such additional funding will be available on terms attractive to us, or at all. The various ways we could raise additional capital carry potential risks. If we raise funds by issuing equity securities, our shareholders would experience dilution. Any preferred equity securities issued also would likely provide for rights, preferences or privileges senior to those of holders of our common shares. If we raise funds by issuing debt

or convertible debt securities, those securities would have rights, preferences and privileges senior to those of holders of our common shares. Debt and convertible debt financing and preferred equity financing, if available, would increase our fixed payment obligations and may also involve agreements that include covenants restricting our ability to take specific actions, such as incurring additional debt, selling or licensing our assets, making product acquisitions, making capital expenditures or declaring dividends. For example, the Perceptive Credit Agreement contains restrictions on our ability to purchase or dispose of assets and has other affirmative or negative covenants that impact how we run our business. If we raise funds through additional collaborations, strategic alliances or licensing arrangements with third parties, we may have to relinquish valuable rights to our intellectual property, future revenue streams, research programs or pipeline products or to grant licenses on terms that may not be favorable to us. If we are unable to obtain adequate financing or financing on terms satisfactory to us, our ability to continue to pursue our business objectives and to respond to business opportunities, challenges or unforeseen circumstances could be significantly limited and could have a material adverse effect on our business, results of operations, prospects and financial condition.

In addition, because perceptions of our credit risk are an important factor influencing our ability to access capital and the terms of any new indebtedness, including covenants and interest rates, we could be adversely affected if our credit ratings or other third-party reports on our creditworthiness are negative, downgraded or weaker than those of our competitors. For example, certain third parties have issued negative reports regarding our business and financial risk, and any such reports or negative credit ratings could harm our ability to raise additional capital at acceptable cost and as a result adversely affect our business, prospects, results of operations and financial condition. Our existing and potential customers, partners and vendors may also consider our credit profile when considering whether to contract with us or negotiating contract terms, and if they develop a negative perception of our short- or long-term financial prospects, decide not to do business with us or change the terms on which they do business with us, it could have a further adverse effect on our business, prospects, results of operations and financial condition.

Insiders have substantial influence over us, which could limit your ability to affect the outcome of key transactions, including a change of control.

Our directors, executive officers, holders of more than 5% of our outstanding stock and their respective affiliates beneficially owned shares representing approximately 52% of our outstanding common stock (calculated immediately prior to our IPO and without giving effect to the underwriters' exercise of the option to purchase additional shares). As a result, these stockholders, if they act together, will be able to influence our management and affairs and all matters requiring stockholder approval, including the election of directors and approval of significant corporate transactions. This concentration of ownership may have the effect of delaying or preventing a change in control of the Company and might affect the market price of our common stock.

We are an "emerging growth company," and the reduced disclosure requirements applicable to emerging growth companies may make our common stock less attractive to investors.

We are an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012 (the "JOBS Act"). For so long as we remain an emerging growth company, we are permitted by SEC rules and plan to rely on exemptions from certain disclosure requirements that are applicable to other SEC-registered public companies that are not emerging growth companies. These exemptions include not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, as amended, not being required to comply with the auditor requirements to communicate critical audit matters in the auditor's report on the financial statements, reduced disclosure obligations regarding executive compensation and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. As a result, the information we provide stockholders will be different than the information that is available with respect to other public companies. We cannot predict whether investors will find our common stock less attractive if we rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile.

In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have elected to avail ourselves of the exemption regarding the timing of the adoption of accounting standards and, therefore, while we are an EGC we will not be subject to new or revised accounting standards at the same time that they become applicable to other public companies that are not EGCs.

Delaware law and provisions in our amended and restated certificate of incorporation and bylaws might discourage, delay, or prevent a change in control of the Company or changes in our management and, therefore, depress the trading price of our common stock.

Provisions in our amended and restated certificate of incorporation and bylaws may delay, deter or prevent a merger, acquisition or other change in control that stockholders may consider favorable, including transactions in which you might otherwise receive a premium for your shares of our common stock. These provisions may also prevent or frustrate attempts by our stockholders to replace or remove our management. Therefore, these provisions could adversely affect the price of our common stock. Among other things, our organizational documents:

- establish that our board of directors is divided into three classes, Class I, Class II and Class III, with each class serving staggered three-year terms;
- provide that our directors may be removed only for cause;
- provide that vacancies on our board of directors and any newly created directorship may be filled only by a majority of the remaining directors then in office, even though less than a quorum;
- eliminate cumulative voting in the election of directors;
- authorize our board of directors to issue shares of preferred stock and determine the price and other terms of those shares, including preferences and voting rights, without stockholder approval;
- permit stockholders to take actions only at a duly called annual or special meeting and not by unanimous written consent;
- prohibit stockholders from calling a special meeting of stockholders;
- certain litigation against us can only be brought in federal court or in Delaware and certain litigation in Delaware may require minimum ownership thresholds in order to file suit;
- require that stockholders give advance notice to nominate directors or submit proposals for consideration at stockholder meetings;
- authorize our board of directors, by a majority vote, to amend certain provisions of the bylaws; and
- require the affirmative vote of at least 66 2⁄3% or more of the outstanding shares of common stock entitled to vote generally in the election of directors, voting as a single class to amend many of the provisions described above.

In addition, Section 203 of the DGCL prohibits a publicly-held Delaware corporation from engaging in a "business combination" with an "interested stockholder," which is generally a person who, together with its affiliates and associates, owns, or within the last three years has owned, 15% or more of our voting stock, for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner. Generally, a "business combination" includes a merger, asset or stock sale or other transaction resulting in a financial benefit to the interested stockholder.

Any provision of our amended and restated certificate of incorporation, amended and restated bylaws or the DGCL that has the effect of delaying or preventing a change in control could limit the opportunity for our stockholders to receive a premium for their shares of our capital stock and could also affect the price that some investors are willing to pay for our common stock.

Our certificate of incorporation designates the state courts in the State of Delaware as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by our stockholders, which could limit stockholders' ability to obtain a favorable judicial forum for disputes with the Company and our directors, stockholders, officers and employees.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware will be the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law unless we otherwise consent in writing to an alternative forum: (i) any derivative action or proceeding brought on behalf of us; (ii) any action asserting a claim of breach of fiduciary duty owed by, or otherwise wrongdoing by, any director, stockholder, officer or other employee of our company to us or our stockholders; (iii) any action asserting a claim arising pursuant to any provision of the DGCL or our amended and restated certificate of incorporation and bylaws (as each may be amended from time to time); (iv) any action to interpret, apply, enforce or determine the validity of the Certificate of Incorporation or the Bylaws (as either may be amended from time to time); or (v) any action asserting an internal corporate claim (as defined in Section 115 of the DGCL) or a claim otherwise implicating our internal affairs (except for, as to each of (i) to (v) above, any claim as to which the Court of Chancery determines that it does not have subject matter jurisdiction or there is an indispensable party not subject to the personal jurisdiction of the Court of Chancery (and the indispensable party does not consent to the personal jurisdiction of the Court of Chancery within 10 days following such determination), or which is statutorily vested in the exclusive jurisdiction

of a court other than the Court of Chancery. For the avoidance of doubt, this provision would not apply to any direct action brought to enforce a duty or liability created by the Securities Act of 1933, as amended, or any successor thereto (the “Securities Act”) or the Securities Exchange Act of 1934, as amended (the "Exchange Act").

Furthermore, our amended and restated certificate of incorporation provides that unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act. Any person or entity purchasing or otherwise acquiring any interest in our shares of capital stock shall be deemed to have notice of and consented to the foregoing forum selection provisions.

Our exclusive forum provision will not relieve us of our duties to comply with the federal securities laws and the rules and regulations thereunder, and our stockholders will not be deemed to have waived our compliance with these laws, rules and regulations.

This choice of forum provision may limit a Company stockholder’s ability to bring a claim in a judicial forum that stockholder finds favorable for disputes with the Company or any of our directors, officers, other employees or stockholders, which may discourage lawsuits with respect to such claims, although our stockholders will not be deemed to have waived our compliance with federal securities laws and the rules and regulations thereunder. The enforceability of similar federal court choice of forum provisions in other companies’ certificates of incorporation has been challenged in legal proceedings, and it is possible that a court could find this type of provision to be inapplicable or unenforceable. If a court were to find either of the choice of forum provisions contained in our amended and restated certificate of incorporation or amended and restated bylaws to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions which could harm our business, results of operations and financial condition.

Risks Related to being a Public Benefit Corporation

Our status as a public benefit corporation may not result in the benefits that we anticipate.

We are a public benefit corporation under the DGCL. As a public benefit corporation, we are required to have a purpose to produce a public benefit or benefits and to operate in a responsible and sustainable manner. Our public benefit, as provided in our certificate of incorporation, is: to displace the petrochemicals that pollute the Planet by designing, developing, and commercializing bio-based materials that deliver better performance than existing products, at attractive costs. We make products with broad applications and global reach that are safer for the people who manufacture them, healthier for the people who use them and better for the environment. Our directors and officers will be obligated to manage the Company in a manner that balances our stockholders’ pecuniary interests, the best interests of those materially affected by our conduct and the public benefit or benefits identified in our amended and restated certificate of incorporation. There can be no assurance that we will achieve our public benefit purpose or that the expected positive impact from being a public benefit corporation will be realized, which could have a material adverse effect on our reputation, which may have a material adverse effect on our business, results of operations and financial condition.

As a public benefit corporation, we will be required to publicly disclose at least biennially a report on our overall public benefit performance and on our assessment of our success in achieving our specific public benefit purpose, including the objectives established and standards adopted by our Board of Directors and factual information based on the objectives and standards related to the promotion of the public benefits. If we are not timely or are unable to provide this report, if the report does not reflect a positive assessment based on the objectives and standards or if the report is not viewed favorably by parties doing business with us, employees, regulators or others reviewing our credentials, our reputation and status as a public benefit corporation may be harmed.

As a public benefit corporation, our focus on a specific public benefit purpose and producing a positive effect for society may negatively influence our financial performance.

Unlike traditional corporations, whose directors have a fiduciary duty to manage the business in a manner that focuses exclusively on maximizing stockholder value, our directors will have a fiduciary duty to consider not only the stockholders' interests, but also our specific public benefit and the interests of other stakeholders affected by our actions. Therefore, we may take actions that we believe will further our specific public benefit or be in the best interests of those stakeholders materially affected by our conduct, even if those actions do not maximize our financial results or stockholder returns. While we intend for this public benefit designation and obligation to provide an overall net benefit to us and our business and stakeholders, including stockholders, it could instead cause us to make decisions and take actions without seeking to maximize the income generated from our business, and hence available for distribution to our stockholders. Our pursuit of longer-term or non-pecuniary benefits may not materialize within the timeframe we expect, or at all, and may have an immediate negative effect on any amounts available for distribution to our stockholders. Accordingly, being a public benefit corporation and complying with

our related obligations could have a material adverse effect on our business, results of operations and financial condition, which in turn could cause our stock price to decline.

As a public benefit corporation, we may be less attractive as a takeover target than a traditional company would be and, therefore, your ability to realize your investment through an acquisition may be limited. Public benefit corporations may not be attractive targets for activists or hedge fund investors because new directors would still have to consider and give appropriate weight to the public benefit along with stockholder value and stockholders committed to the public benefit can enforce this through derivative suits. Further, by requiring that the board of directors of public benefit corporations consider additional constituencies other than maximizing stockholder value, Delaware public benefit corporation law could potentially make it easier for a board of directors to reject a hostile bid, even where the takeover would provide the greatest short-term financial yield to investors.

Our directors will have a fiduciary duty to consider not only our stockholders' interests, but also our specific public benefit and the interests of other stakeholders affected by our actions. If a conflict between such interests arises, there is no guarantee such a conflict would be resolved in favor of our stockholders.

While directors of traditional corporations are required to make decisions they believe to be in the best interests of their stockholders, directors of a public benefit corporation have a fiduciary duty to consider not only the stockholders' interests, but also the specific public benefit and the interests of other stakeholders affected by the company's actions. Under the DGCL, directors are shielded from liability for breach of these obligations if they make informed and disinterested decisions that serve a rational purpose. Thus, unlike traditional corporations which must focus exclusively on stockholder value, our directors will not merely be permitted, but will be obligated, to consider our specific public benefit and the interests of other stakeholders. In the event of a conflict between the interests of our stockholders and the interests of our specific public benefit or our other stakeholders, our directors must only make informed and disinterested decisions that serve a rational purpose; thus, there is no guarantee such a conflict would be resolved in favor of our stockholders, which could have a material adverse effect on our business, results of operations and financial condition, which in turn could cause our stock price to decline.

As a Delaware public benefit corporation, we may be subject to increased derivative litigation concerning our duty to balance stockholder and public benefit interest, the occurrence of which may have an adverse impact on our financial condition and results of operations.

Stockholders of a Delaware public benefit corporation (if they, individually or collectively, own the lesser of 2% of our outstanding shares or $2,000,000 in market value of our stock) are entitled to file a derivative lawsuit alleging directors failed to balance stockholder and public benefit interests. This potential liability does not exist for traditional corporations. Therefore, we may be subject to the possibility of increased derivative litigation, which would require the attention our management, and, as a result, may adversely impact our management's ability to effectively execute our strategy. Additionally, any such derivative litigation may be costly to defend or increase director and officer liability insurance premiums, which may have an adverse impact on our financial condition and results of operations.

General Risk Factors

We have incurred and will continue to incur increased costs as a result of operating as a public company, and our management will be required to devote substantial time to new compliance initiatives and corporate governance practices.

As a public company, we have incurred and, particularly after we are no longer an emerging growth company, will continue to incur significant legal, accounting and other expenses that we did not incur as a private company. Federal securities laws, including the Exchange Act, Sarbanes-Oxley Act of 2002, the Dodd-Frank Wall Street Reform and Consumer Protection Act and other applicable securities rules and regulations and the listing requirements of Nasdaq impose various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. Our management and other personnel are required to devote a substantial amount of time and resources to these compliance initiatives, potentially at the expense of other business concerns, which could harm our business, financial condition, results of operations and prospects. Moreover, these rules and regulations have increased, and may continue to increase, our legal and financial compliance costs, particularly as we have hired additional financial and accounting employees to meet public company internal control and financial reporting requirements and will make some activities more time-consuming and costly. For example, the costs of our director and officer liability insurance increased as a result of being a public company.

We continue to evaluate these rules and regulations and cannot predict or estimate the amount of additional costs we may incur or the timing of such costs. These rules and regulations are often subject to varying interpretations, in many cases due to their lack of specificity and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices.

As a public company, we must maintain proper and effective internal controls over financial reporting. Any failure to maintain the adequacy of these internal controls may adversely affect investor confidence in our company and, as a result, the value of our common stock.

As a new public reporting company, we recently became subject to the rules and regulations established by the SEC and Nasdaq. These rules and regulations require, among other things, that we establish and periodically evaluate procedures with respect to our internal control over financial reporting. Reporting obligations as a public company are likely to place a considerable strain on our financial and management systems, processes and controls, as well as on our personnel, including senior management. In addition, as a public company, we will be required to document and test our internal control over financial reporting pursuant to Section 404 of the Sarbanes-Oxley Act so that our management can certify as to the effectiveness of our internal control over financial reporting. Management's initial certification under Section 404 of the Sarbanes-Oxley Act will be required with our annual report on Form 10-K for the year ending December 31, 2022. In support of such certifications, we will be required to document and make significant changes and enhancements, including potentially hiring additional personnel, to our internal control over financial reporting. Likewise, our independent registered public accounting firm will not be required to attest to the effectiveness of our internal control over financial reporting until our first annual report required to be filed with the SEC following the date we are no longer an EGC. At such time as we are required to obtain auditor attestation, if we then have a material weakness, we would receive an adverse opinion regarding our internal control over financial reporting from our independent registered accounting firm.

To achieve compliance with Section 404 within the prescribed period, we are engaged in a process to document and evaluate our internal control over financial reporting, which is both costly and challenging. In this regard, we will need to continue to dedicate internal resources, including through hiring additional financial and accounting personnel, engage outside consultants and adopt a detailed work plan to assess and document the adequacy of internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing that controls are functioning as documented and implement a continuous reporting and improvement process for internal control over financial reporting. During our evaluation of our internal control, if we identify one or more material weaknesses in our internal control over financial reporting, we will be unable to assert that our internal control over financial reporting is effective. We cannot assure you that there will not be material weaknesses or significant deficiencies in our internal control over financial reporting in the future. Any failure to maintain internal control over financial reporting could severely inhibit our ability to accurately report our financial condition, or results of operations. If we are unable to conclude that our internal control over financial reporting is effective or if our independent registered public accounting firm determines we have a material weakness or significant deficiency in our internal control over financial reporting, we could lose investor confidence in the accuracy and completeness of our financial reports, the market price of shares of our common stock could decline, and we could be subject to sanctions or investigations by Nasdaq, the SEC or other regulatory authorities. Failure to remedy any material weakness in our internal control over financial reporting or to implement or maintain other effective control systems required of public companies, could also restrict our future access to the capital markets.

Our disclosure controls and procedures may not prevent or detect all errors or acts of fraud.

We became a public company in April 2021 and are subject to the periodic reporting requirements of the Exchange Act. We designed our disclosure controls and procedures to reasonably assure that information we must disclose in reports we file or submit under the Exchange Act is accumulated and communicated to management and recorded, processed, summarized and reported within the time periods specified in the rules and forms of the SEC. We believe that any disclosure controls and procedures or internal controls and procedures, no matter how well-conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns can occur because of simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people or by an unauthorized override of the controls. Accordingly, because of the inherent limitations in our control system, misstatements due to error or fraud may occur and not be detected.

Our results of operations and financial condition could be materially adversely affected by changes in accounting principles.

The accounting for our business is subject to change based on the evolution of our business model, interpretations of relevant accounting principles, enforcement of existing or new regulations and changes in policies, rules, regulations and interpretations of accounting and financial reporting requirements of the SEC or other regulatory agencies. Adoption of a change in accounting principles or interpretations could have a significant effect on our reported results of operations and could affect the reporting of transactions completed before the adoption of such change. For example, in February 2016, the Financial Accounting Standards Board issued ASU 2016-02, *Leases (Topic 842)*, and we are evaluating the effect that Topic 842 and related standards will have on our financial statements, related disclosures and ongoing financial reporting and expect implementation of Topic 842 to result in the recognition of material right-of-use assets and corresponding lease liabilities in our consolidated balance sheets, principally relating to facilities leases. It is difficult to predict the impact of future changes to

accounting principles and accounting policies over financial reporting, any of which could adversely affect our results of operations and financial condition and could require significant investment in systems and personnel.

Item 2. Unregistered Sales of Equity and Use of Proceeds

Unregistered Sales of Equity Securities

During the three months ended September 30, 2021, we issued the following unregistered securities:

- We issued to employees an aggregate of 16,810 shares upon vesting of non-vested stock issued as part of the acquisition of Radiant.

The issuances of these securities were deemed to be exempt from registration under Section 4(a)(2) of the Securities Act as a transaction by an issuer not involving a public offering.

Use of Proceeds from our Initial Public Offering

In April 2021, the Company completed its IPO in which it sold an aggregate of 18,549,500 shares of its common stock (inclusive of 2,419,500 shares pursuant to the underwriters' option to purchase additional shares) at a price of $31.00 per share for aggregate cash proceeds of approximately $529.9 million, net of $40.3 million in underwriting discounts, commissions, and $4.9 million in offering costs. The offer and sale of the shares in our IPO were registered under the Securities Act pursuant to a registration statement on Form S-1 (File No. 333-254612), which was declared effective by the SEC on April 21, 2021 and a supplemental Registration Statement on Form S-1 (file No. 333-255425) which became automatically effective upon filing on April 21, 2021). The IPO closed on April 26, 2021. The representatives of the underwriters of our IPO were J.P. Morgan Securities LLC and Goldman Sachs & Co. LLC. No payments were made by us to directors, officers or persons owning ten percent or more of our common stock or to their associates, or to our affiliates, other than payments in the ordinary course of business to officers for salaries and to non-employee directors pursuant to our director compensation policy.

Upon receipt, the net proceeds from our IPO were held in cash and cash equivalents. There has been no material change in the planned or actual use of proceeds from our IPO from that described in the Prospectus.

Item 3. Defaults Upon Senior Securities

None.

Item 4. Mine Safety Disclosures

None.

Item 5. Other Information

None.

EXHIBIT INDEX

Exhibit Number	Description	Incorporated by Reference				Filed Herewith
		Form	File Number	Exhibit	Filing Date	
3.1	Amended and Restated Certificate of Incorporation of Zymergen Inc.	8-K	001-40354	3.1	April 26, 2021	
3.2	Amended and Restated Bylaws of Zymergen Inc.	8-K	001-40354	3.2	April 26, 2021	
10.1+	Letter Agreement with Jay Flatley.	8-K	001-40354	10.1	August 3, 2021	
10.2+	Employment Separation Letter Agreement with Josh Hoffman.	8-K	001-40354	10.2	August 3, 2021	
10.3**	Amendment No. 1, Waiver And Consent To Amended And Restated Credit Agreement And Guaranty.					X
31.1	Certification of the Principal Executive Officer pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.					X
31.2	Certification of the Principal Financial Officer pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.					X
32.1*	Certifications of the Principal Executive Officer and Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.					
101.INS	XBRL Instance Document					
101.SCH	XBRL Taxonomy Extension Schema Document					
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document					
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document					
101.LAB	XBRL Taxonomy Extension Label Linkbase Document					
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document					

\+ Management contract or compensatory plan or arrangement.

* The certifications attached as Exhibit 32.1 that accompany this Quarterly Report on Form 10-Q are deemed furnished and not filed with the Securities and Exchange Commission and are not to be incorporated by reference into any filing of Zymergen, Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, whether made before or after the date of this Quarterly Report on Form 10-Q, irrespective of any general incorporation language contained in such filing.

** Portions of this exhibit have been omitted pursuant to Item 601 of Regulation S-K promulgated under the Securities Act because the information (i) is not material and (ii) would be competitively harmful if publicly disclosed.

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.

Zymergen Inc.

Date:	November 15, 2021	By:	/s/ Jay Flatley
		Name:	Jay Flatley
		Title:	Acting Chief Executive Officer (Principal Executive Officer)
Date:	November 15, 2021	By:	/s/ Enakshi Singh
		Name:	Enakshi Singh
		Title:	Chief Financial Officer (Principal Accounting and Financial Officer)

Exhibit 10.3

[***] Certain information in this document has been excluded pursuant to Regulation S-K, Item (601)(b)(10). Such excluded information is not material and would likely cause competitive harm to the registrant if publicly disclosed.

Execution Version

AMENDMENT NO. 1, WAIVER AND CONSENT TO AMENDED AND RESTATED CREDIT AGREEMENT AND GUARANTY

This AMENDMENT NO. 1, WAIVER AND CONSENT TO AMENDED AND RESTATED CREDIT AGREEMENT AND GUARANTY, dated as of October 20, 2021 (this "***Amendment***"), is made by and among ZYMERGEN INC., a Delaware corporation (the "***Borrower***"), certain Subsidiaries of the Borrower, and PERCEPTIVE CREDIT HOLDINGS II, LP, a Delaware limited partnership, in its capacity as administrative agent for the Lenders (in such capacity, together with its successors and assigns, the "***Administrative Agent***") and as the Lenders. Unless otherwise defined, capitalized terms used herein have the meanings ascribed to them in the Credit Agreement (defined below).

RECITALS

WHEREAS, the Borrower, certain Subsidiaries of the Borrower from time to time party thereto, the lenders from time to time party thereto (the "***Lenders***") and the Administrative Agent are parties to that certain Amended and Restated Credit Agreement and Guaranty, dated as of February 26, 2021 (as subsequently amended or otherwise modified, the "***Credit Agreement***");

WHEREAS, subject to the terms and conditions set forth herein the Borrower, the Lenders and the Administrative Agent desire to amend the Credit Agreement and agree to certain other modifications, waivers and consents as provided herein; and

WHEREAS, the Lender party hereto constitutes the Majority Lenders for purposes of this Amendment.

NOW, THEREFORE, the parties hereto hereby agree as follows:

ARTICLE I
AMENDMENTS TO CREDIT AGREEMENT

SECTION I.01. Amendments to the Credit Agreement. As of, and subject to the occurrence of, the Amendment No. 1 Effective Date, the Credit Agreement is hereby amended as follows:

(a) The following defined terms shall be added to Section 1.01 of the Credit Agreement in their alphabetically appropriate places:

"***Amendment No. 1***" means that certain Amendment No. 1, Waiver and Consent to the Amended and Restated Credit Agreement and Guaranty, dated as of October 20, 2021, by and among the Borrower, certain Subsidiaries of the Borrower, the Lenders and the Administrative Agent.

"***Amendment No. 1 Effective Date***" has the meaning set forth in Section 3.01 of Amendment No. 1.

"***Blocked Account"*** has the meaning set forth in **Section 10.01**.

"***Calculation Date***" means the earlier of (i) the Maturity Date and (ii) the date when all Obligations (other than inchoate indemnification and expense reimbursement obligations for which no Claim has been made) have been paid in full in cash.

"***Exit Fee***" means a fee due and payable on the Calculation Date equal to the difference (which shall not be less than zero) between (i) $123,250,000 and (ii) the sum of (A) all payments of principal and interest on the Loans actually made to the Lenders since the Closing Date (exclusive of any portion of such interest that accrued at the Default Rate), plus (B) an amount equal to the Closing Fee, plus (C) without duplication of any amounts included in the foregoing clauses (ii)(A) or (ii)(B), the aggregate amount of any Prepayment Premiums (or portions thereof) actually paid to the Lenders since the Closing Date.

(b) The following defined terms set forth in Section 1.01 of the Credit Agreement are each hereby amended and restated in its entirety to read as follows:

"***Maturity Date***" means June 30, 2022.

"***Prepayment Premium***" means, with respect to any prepayment of outstanding principal of any Loans and other Obligations prior to the Maturity Date that would not result in the occurrence of the Calculation Date, whether voluntarily or, involuntarily (including as a result of acceleration as a result of an Insolvency Proceeding or other Event of Default), an amount (which shall not be less than zero) equal to the MOIC Amount with respect to such aggregate principal amount being prepaid.

(c) The definition of "MOIC Amount" set forth in Section 1.01 of the Credit Agreement is hereby amended by replacing the number "1.50" set forth in clause (i)(B) of such definition with the number "1.45".

(d) Section 3.03(a)(i) of the Credit Agreement is hereby amended and restated in its entirety to read as follows:

(i) Subject to prior written notice pursuant to **clause (ii)** below, the Borrower shall have the right to optionally prepay, in whole or in part, the outstanding principal amount of the Loans on any Business Day occurring prior to the Maturity Date (a "***Prepayment Date***") for an aggregate amount equal to the sum of (x) the aggregate principal amount of the Loans being prepaid, (y) any accrued but unpaid interest on the principal amount of the Loans being prepaid, and (z) the applicable Prepayment Premium on the principal amount of the Loans being prepaid (such aggregate amount, the "***Prepayment Price***"); provided that, solely in the event the Borrower prepays in full the aggregate outstanding principal amount of the Loans, together with all other outstanding Obligations (other than inchoate indemnification and expense reimbursement obligations for which no Claim has been made), in lieu of the Prepayment Premium referenced in **clause (z)** above the Borrower shall instead be required to pay the Exit Fee as provided in **Section 3.05** below.

(e) Section 3 of the Credit Agreement is hereby amended by adding a new Section 3.05 at the end thereof to read as follows:

3.05 Exit Fee. On the Calculation Date the Borrower shall pay the Exit Fee (to the extent the amount thereof is greater than zero) to the Administrative Agent for the benefit of the Lenders.

(f) Section 14.18 of the Credit Agreement is hereby amended and restated in its entirety to read as follows:

14.18 Prepayment Premium; Exit Fee. The parties hereto acknowledge and agree that, to the extent the Prepayment Premium or Exit Fee is applicable to any repayment or prepayment of principal of any Loan at any time, such Prepayment Premium or Exit Fee is not intended to be a penalty assessed as a result of any such repayment or prepayment of the Loans, but rather is the product of a good faith, arm's length commercial negotiation between the Borrower and the Lenders relating to the mutually satisfactory compensation payable to the Lenders by the Borrower in respect of the Loans made hereunder. In furtherance of the foregoing, to the fullest extent permitted by applicable Law, the Obligors hereby jointly and severally waive any rights or Claims any of them may have under any such Law (whether or not in effect on the Closing Date) that would prohibit or restrict the payment of the Prepayment Premium or the Exit Fee under any of the circumstances provided herein or in any other Loan Document, including payment after acceleration of the Loans.

(g) Part A of Schedule 10 to the Credit Agreement is hereby deleted in its entirety and shall be of no further force or effect, and Section 10.01 of the Credit Agreement is hereby amended and restated in its entirety to read as follows:

Minimum Liquidity. The Borrower shall, at all times, (i) maintain a minimum aggregate balance of [***] comprised of cash or Specified Permitted Cash Equivalent Investments in one or more Controlled Accounts maintained with one or more commercial banks or similar deposit-taking institutions in the U.S. free and clear of all Liens, other than (x) Liens granted hereunder in favor of the Secured Parties and (y) Liens permitted pursuant to **Section 9.02(j)**, and (ii) not less than $63,046,389.00 of such minimum aggregate balance referenced in **clause (i)** above shall be maintained in a Controlled Account under the sole dominion and control of the Administrative Agent (the "***Blocked Account***"), such Blocked Account to be established at Silicon Valley Bank pursuant to documentation satisfactory to the Administrative Agent in all respects. Unless the Administrative Agent otherwise agrees or determines, including pursuant to the terms of Amendment No. 1, all amounts on deposit in the Blocked Account shall be maintained as Collateral for the Obligations until such Obligations are paid in full in cash, and such amounts on deposit in the Blocked Account shall not be available to the Company or any of its Subsidiaries at any time or for any purpose or any other reason.

(h) Part B of Schedule 10 to the Credit Agreement is hereby deleted in its entirety and shall be of no further force or effect, and Section 10.02 of the Credit Agreement is hereby amended and restated in its entirety to read as follows: "[INTENTIONALLY OMITTED]".

ARTICLE II
WAIVERS, CONSENTS, RESCISSION AND REPRESENTATIONS AND WARRANTIES

SECTION II.01. Waivers, Consents, Rescission, etc.

(a) Immediately upon (but not prior to) the effectiveness of this Amendment on the Amendment No. 1 Effective Date, the Notice of Event of Default and Acceleration, dated October 15, 2021, and the notice of default via email on August 16, 2021, delivered by the Administrative Agent to the Borrower shall be rescinded and be of no further force or effect, and the Event of Default referenced in such Notice of Event of Default and Acceleration shall be deemed to have been cured and no longer in effect. The Administrative Agent and the Lenders agree that the circumstances that gave rise to the notices described in the previous sentence shall not serve as the basis of any notice or claim of the occurrence of an Event of Default after the date of this Amendment.

(b) The Administrative Agent shall promptly notify Silicon Valley Bank and its Affiliates (collectively, "***SVB***") that any "Notice of Exclusive Control" previously delivered by the Administrative Agent to SVB with respect to any Controlled Account (other than the Blocked Account, which, except as set forth in **Section 2.01(d)**, shall at all times be subject to the terms and provisions of Section 10.01 of the Credit Agreement (as in effect as of the Amendment No. 1 Effective Date)) shall be rescinded and no longer in force or effect, and the Administrative Agent shall cooperate diligently and in good faith with the Borrower to cause SVB to make amounts on deposit in such Controlled Accounts available to the Borrower for such ordinary course purposes; provided that the Liens and security interests of the Administrative Agent (for the benefit of the Secured Parties) on such Controlled Accounts shall remain in full force and effect, and such accounts shall otherwise remain Controlled Accounts, pursuant to the terms of the Loan Documents.

(c) The Administrative Agent shall work diligently and in good faith with the Borrower to cause SVB to terminate any "block" or other restriction imposed on the Borrower's corporate credit card facility caused as a result of any "Notice of Exclusive Control" delivered by the Administrative Agent to SVB.

(d) Without limiting the requirements of Section 10.01 of the Credit Agreement (as in effect as of the Amendment No. 1 Effective Date), the parties hereto covenant and agree as follows:

(i) The Borrower shall promptly (but in any event within three (3) Business Days following the Amendment No. 1 Effective Date) provide the Administrative Agent with a summary (prepared in reasonable detail and in form reasonably satisfactory to the Administrative Agent) of its and its Subsidiaries' projected usage of cash and cash flow (whether in the ordinary course of business or otherwise) for the period commencing on the date hereof and ending on the Maturity Date (as defined in the Credit Agreement as amended hereby) (the "***Cash Usage Summary***").

(ii) The Administrative Agent shall promptly review the Cash Usage Summary and conduct such other reasonable financial diligence as it deems necessary and, within three (3) weeks after receipt thereof, acting reasonably and in good faith, shall determine whether it is satisfied with the Cash Usage Summary such that it is willing to release the amounts on deposit in the Blocked Account (as defined in the Credit Agreement as amended hereby) to another Controlled Account of the Borrower that is not the Blocked Account. If the Administrative Agent is not initially satisfied with the Cash Usage Summary, it will inform the Borrower of the reasons therefor and the Administrative Agent and the Borrower will attempt to agree on a Cash Usage Summary that is reasonably satisfactory to the Administrative Agent. Until it is reasonably satisfied with the Cash Usage Summary, the Administrative Agent shall not be obligated to release any such amounts from the Blocked Account.

(iii) If the Administrative Agent is satisfied with the Cash Usage Summary, either initially or after further revision, the Administrative Agent shall promptly notify SVB to transfer the amounts on deposit in the Blocked Account to another Controlled Account of the Borrower where such funds are available to the Borrower for use in accordance with the Cash Usage Summary.

SECTION II.02. Each Obligor confirms and agrees that, notwithstanding the effectiveness of this Amendment, the Obligations of such Obligor under the Credit Agreement and each other Loan Document to which it is a party (after giving effect to this Amendment) shall not be impaired, and the Credit Agreement and each other Loan Document to which such Obligor is a party (after giving effect to this Amendment) shall continue to be in full force and effect and are hereby confirmed and ratified in all respects. Each Obligor hereby consents to the amendments and other modifications made to the Credit Agreement and other Loan Documents pursuant to this Amendment.

SECTION II.03. Each Obligor hereby acknowledges and agrees that the Guaranteed Obligations will include all Obligations under, and as defined in, the Credit Agreement as amended or otherwise modified hereby.

SECTION II.04. To induce the Administrative Agent and the Lenders to execute and deliver this Amendment, each Obligor party hereto represents and warrants to the Administrative Agent and the Lenders that as of the Amendment No. 1 Effective Date each of the following statements are true and correct:

(a) The representations and warranties made by each Obligor party hereto in this Amendment or in the Credit Agreement or any other Loan Document (in each case after giving effect to this Amendment) are true and correct in all material respects as if made on and as of such date (or in the case of any representation or warranty qualified by materiality, Material Adverse Effect or similar qualification, true and correct in all respects) unless stated to relate solely to an earlier date, in which case such representations or warranties shall be true and correct in all material respects as of such earlier date.

(b) The execution, delivery and performance of this Amendment by each Obligor party hereto, and the resulting amendment or other modification of the Credit Agreement or any other Loan Document, have been duly authorized by all necessary corporate or other organizational action on the part of such Obligor, and this Amendment, the Credit Agreement and each other Loan Document to which such Obligor is a party each constitutes a legal, valid and binding agreement of such Obligor, enforceable against such Obligor in accordance with its respective terms, except as enforcement may be limited by (i) bankruptcy, insolvency, reorganization, moratorium or similar laws of general applicability affecting the enforcement of creditors' rights generally and (ii) general principles of equity (regardless of whether such enforceability is considered in a proceeding in equity or at law).

(c) The execution, delivery and performance of this Amendment by each Obligor party hereto, and the resulting amendment or other modification of the Credit Agreement or any other Loan Document to which such Obligor is a party, does not (i) violate or conflict with any Law, (ii) result in the creation of any Lien (other than Permitted Liens) on any asset of such Obligor or any of its Subsidiaries or (iii) violate, or result in a default under, any Material Agreement binding upon such Obligor or any of its Subsidiaries that, in the case of clause (i) and (iii) above, individually or in the aggregate, could reasonably be expected to result in a Material Adverse Effect.

(d) No authorization or approval or other action by, and no notice to or filing with, any Governmental Authority or any other Person (other than those that have been duly obtained or made and which are in full force and effect) is required for the due execution, delivery and performance by any Obligor party to this Amendment or any resulting amendment or other modification of the Credit Agreement or any other Loan Document

(e) Immediately before and after giving effect to this Amendment, and without regard to the Event of Default referenced above in **Section 2.01(a)** of this Amendment, no other event has occurred and is continuing that constitutes a Default or an Event of Default.

ARTICLE III
CONDITIONS PRECEDENT

SECTION III.01. Conditions to Effectiveness of this Amendment. This Amendment shall become effective only upon, and shall be subject to, the prior or simultaneous satisfaction or waiver of each of the following conditions precedent in a manner reasonably satisfactory to the Administrative Agent (the date satisfaction of such conditions being referred to as the "***Amendment No. 1 Effective Date***"):

(a) **Executed Amendment**. The Administrative Agent shall have received this Amendment, duly executed by each Obligor party hereto, the Administrative Agent and the Lenders.

(b) **Representations and Warranties**. The statements, agreements, representations and warranties contained in **Sections 2.02**, **2.03 and 2.04** above shall each be true and correct, both immediately before and after giving effect to this Amendment, and the Administrative Agent shall have received a certificate executed by a Responsible Officer of each Obligor party hereto, in form and substance reasonably satisfactory to the Administrative Agent, addressed to it and the Lenders and certifying as to the foregoing.

(c) **Blocked Account, etc.** The Blocked Account shall have been opened and established with SVB pursuant to documentation reasonably satisfactory to the Administrative Agent, and not less than $63,046,389.00 in cash shall have been deposited into the Blocked Account.

(d) **Prepayment and Payment of Costs and Expenses, Etc**. A payment in the amount of $41,165,000 shall have been paid to and received by the Administrative Agent (for the benefit of itself and the Lenders), representing a $35,000,000 prepayment of the outstanding principal amount of the Loans, the payment of all fees and accrued interest due and payable as a result of such prepayment, and the payment of documented legal fees, costs and expenses of the Administrative Agent to the extent invoiced at least two (2) Business Days prior to the Amendment No. 1 Effective Date.

ARTICLE IV
MISCELLANEOUS

SECTION IV.01. Governing Law; Jurisdiction; Jury Trial. This Amendment and the rights and obligations of the parties hereunder shall be governed by, and construed in accordance with the laws of the State of New York, without regard to the principal of conflicts of law that would result in the application of the laws of any other jurisdiction; provided that Section 5-1401 of the New York General Obligations Law shall apply. The jurisdiction and waiver of jury trial provisions set forth in Sections 14.10 and 14.11 of the Credit Agreement (after giving effect hereto), respectively, are incorporated herein by reference *mutatis mutandis*.

SECTION IV.02. Effect of Amendment.

(a) On and after the Amendment No. 1 Effective Date, each reference in any Loan Document (other than this Amendment) to the Credit Agreement shall mean and be a reference to the Credit Agreement as amended or otherwise modified hereby.

(b) This Amendment shall constitute a Loan Document for all purposes of the Credit Agreement. Except as expressly amended hereby, the Obligors party hereto agree that all of the representations, warranties, terms, covenants, conditions and other terms and provisions of the Credit Agreement and other Loan Documents shall remain unchanged and shall continue to be, and shall remain, in full force and effect in accordance with their respective terms. Except as expressly provided in **Section 2.01(a)** hereof, this Amendment is not and shall not be deemed to be a waiver of any Default or Event of Default or non-compliance with any term or condition contained in the Credit Agreement or any other Loan Documents.

(c) The execution, delivery and effectiveness of this Amendment shall not, except as expressly provided herein, operate as a waiver of any right, power or remedy of any Secured Party under any Loan Document or applicable Law, nor constitute a waiver of any provision of the Credit Agreement or any other Loan Document, except as expressly set forth herein.

SECTION IV.03. No Novation. This Amendment is not intended by the parties to be, and shall not be construed to be, a novation any Obligations, of the Credit Agreement or any other Loan Documents.

SECTION IV.04. Counterparts; Electronic Signatures. This Amendment may be executed in any number of counterparts, all of which when taken together shall constitute one and the same instrument and any of the parties hereto may execute this Amendment by signing any such counterpart. Delivery of an executed signature page of this Amendment by facsimile transmission or electronic transmission (in PDF format) shall be effective as delivery of a manually executed counterpart hereof. Any signature (including, without limitation, (x) any electronic symbol or process attached to, or associated with, a contract or other record and adopted by a person with the intent to sign, authenticate or accept such contract or record and (y) any facsimile transmission or PDF format signature) hereto or to any other certificate, agreement or document related to this transaction, and any contract formation or record-keeping, in each case, through electronic means, shall have the same legal validity and enforceability as a manually executed signature or use of a paper-based record-keeping system to the fullest extent permitted by applicable law, including the Federal Electronic Signatures in Global and National Commerce Act, the New York State Electronic Signatures and Records Act, or any similar state law based on the Uniform Electronic Transactions Act, and the parties hereto hereby waive any objection to the contrary.

SECTION IV.05. Binding Nature. The provisions of this Amendment shall be binding upon and shall inure to the benefit of the parties hereto and their respective successors and permitted assigns; provided that no Obligor may assign or otherwise transfer any of its rights or obligations hereunder or under the Credit Agreement or any other Loan Document without the prior written consent of the Administrative Agent.

SECTION IV.06. Captions. The captions and section headings appearing herein are included solely for convenience of reference and are not intended to affect the interpretation of any provision of this Amendment.

SECTION IV.07. Severability. If any provision hereof is found by a court to be invalid or unenforceable, to the fullest extent permitted by any applicable Law the parties agree that such invalidity or unenforceability shall not impair the validity or enforceability of any other provision hereof.

SECTION IV.08. Integration. This Amendment, together with the other Loan Documents, constitutes the entire agreement among the parties with respect to the subject matter hereof and supersedes any and all previous agreements and understanding, oral or written, relating to the subject matter hereof.

SECTION IV.09. Costs and Expenses. Each Obligor party hereto agrees to pay or reimburse the Administrative Agent and the Lenders for all of their reasonable and documented out-of-pocket costs of and in connection with the negotiation, preparation, execution and delivery of this Amendment, including, without limitation, the reasonable and documented fees and out-of-pocket fees and expenses of outside counsel for the Administrative Agent and the Lenders.

SECTION IV.10. Waiver and Release.

(a) EFFECTIVE AS OF THE DATE HEREOF, IN ORDER TO INDUCE THE ADMINISTRATIVE AGENT AND THE LENDERS PARTY HERETO TO AGREE TO THE TERMS OF THIS AMENDMENT, EACH OBLIGOR PARTY HERETO REPRESENTS AND WARRANTS THAT, AS OF THE DATE HEREOF, THERE ARE NO CLAIMS OR OFFSETS AGAINST, OR RIGHTS OF RECOUPMENT WITH RESPECT TO, OR DISPUTES OF, OR DEFENSES OR COUNTERCLAIMS TO, ITS OBLIGATIONS UNDER THIS AMENDMENT OR THE OTHER LOAN DOCUMENTS, AND IN ACCORDANCE THEREWITH, TO THE EXTENT PERMITTED BY APPLICABLE LAW, EACH SUCH OBLIGOR, FOR ITSELF AND EACH OF ITS SUBSIDIARIES, HEREBY:

(i) WAIVES ANY AND ALL SUCH CLAIMS, OFFSETS, RIGHTS OF RECOUPMENT, DISPUTES, DEFENSES AND COUNTERCLAIMS, WHETHER KNOWN OR UNKNOWN, ARISING PRIOR TO THE DATE HEREOF; AND

(ii) FOREVER RELEASES, RELIEVES AND DISCHARGES THE ADMINISTRATIVE AGENT, EACH LENDER AND EACH OF THEIR RESPECTIVE OFFICERS, DIRECTORS, SHAREHOLDERS, MEMBERS, PARTNERS, PREDECESSORS, SUCCESSORS, ASSIGNS, ATTORNEYS, ACCOUNTANTS, AGENTS, EMPLOYEES, AND REPRESENTATIVES (COLLECTIVELY, THE "***RELEASED PARTIES***"), AND EACH OF THEM, FROM ANY AND ALL CLAIMS, LIABILITIES, DEMANDS, ACTIONS, CAUSES OF ACTION, DEBTS, OBLIGATIONS, PROMISES, ACTS, AGREEMENTS AND DAMAGES, OF WHATEVER KIND OR NATURE, WHETHER KNOWN OR UNKNOWN, SUSPECTED OR UNSUSPECTED, CONTINGENT OR FIXED, LIQUIDATED OR UNLIQUIDATED, MATURED OR UNMATURED, WHETHER ARISING AT LAW OR IN EQUITY, WHICH ANY SUCH OBLIGOR OR SUBSIDIARY THEREOF EVER HAD, NOW HAS, OR MAY, SHALL OR CAN HEREAFTER HAVE, DIRECTLY OR INDIRECTLY, ARISING OUT OF OR IN ANY WAY BASED UPON, CONNECTED WITH, OR RELATED TO MATTERS, THINGS, ACTS, CONDUCT AND/OR OMISSIONS AT ANY TIME EXISTING OR OCCURRING PRIOR TO THE DATE HEREOF THROUGH AND INCLUDING THE DATE HEREOF, INCLUDING WITHOUT LIMITATION ANY AND ALL CLAIMS AGAINST THE RELEASED PARTIES ARISING UNDER OR RELATED TO ANY OF THE LOAN DOCUMENTS OR ANY OF THE TRANSACTIONS CONTEMPLATED HEREBY OR THEREBY.

(b) IN CONNECTION WITH THE RELEASE CONTAINED HEREIN, EACH OBLIGOR PARTY HERETO ACKNOWLEDGES THAT IT IS AWARE THAT IT MAY HEREAFTER DISCOVER CLAIMS PRESENTLY UNKNOWN OR UNSUSPECTED, OR FACTS IN ADDITION TO OR DIFFERENT FROM THOSE WHICH IT KNOWS OR BELIEVES TO BE TRUE, WITH RESPECT TO THE MATTERS RELEASED HEREIN. NEVERTHELESS, IT IS THE INTENTION OF EACH SUCH OBLIGOR, THROUGH THIS AMENDMENT AND WITH ADVICE OF COUNSEL, FULLY, FINALLY, AND FOREVER TO RELEASE ALL SUCH MATTERS, AND ALL CLAIMS RELATED THERETO, WHICH DO NOW EXIST, OR HERETOFORE HAVE EXISTED. IN FURTHERANCE OF SUCH INTENTION, THE RELEASES HEREIN GIVEN SHALL BE AND REMAIN IN EFFECT AS A FULL AND COMPLETE RELEASE OF SUCH MATTERS NOTWITHSTANDING THE DISCOVERY OR EXISTENCE OF ANY SUCH ADDITIONAL OR DIFFERENT CLAIMS OR FACTS RELATED THERETO.

(c) EACH OBLIGOR PARTY HERETO COVENANTS AND AGREES NOT TO BRING ANY CLAIM, ACTION, SUIT, OR PROCEEDING AGAINST ANY OF THE RELEASED PARTIES, DIRECTLY OR INDIRECTLY, REGARDING OR RELATED IN ANY MANNER TO THE MATTERS RELEASED HEREBY, AND FURTHER COVENANTS AND AGREES THAT THIS AMENDMENT IS A BAR TO ANY SUCH CLAIM, ACTION, SUIT OR PROCEEDING.

(d) EACH OBLIGOR PARTY HERETO REPRESENTS AND WARRANTS TO THE RELEASED PARTIES THAT IT HAS NOT HERETOFORE ASSIGNED OR TRANSFERRED, OR PURPORTED TO ASSIGN OR TRANSFER, TO ANY PERSON OR ENTITY ANY CLAIMS OR OTHER MATTERS HEREIN RELEASED.

(e) EACH OBLIGOR PARTY HERETO ACKNOWLEDGES THAT IT HAS HAD THE BENEFIT OF INDEPENDENT LEGAL ADVICE WITH RESPECT TO THE ADVISABILITY OF ENTERING INTO THIS AMENDMENT AND, AMONG OTHER THINGS, BECOMING BOUND BY THE RELEASE SET FORTH IN THIS **SECTION 4.10**, AND HEREBY KNOWINGLY, AND UPON SUCH ADVICE OF COUNSEL, WAIVE ANY AND ALL APPLICABLE RIGHTS AND BENEFITS UNDER, AND PROTECTIONS OF, CALIFORNIA CIVIL CODE SECTION 1542, AND ANY AND ALL STATUTES AND PRINCIPLES OF COMMON LAW THAT HAVE SIMILAR EFFECT.

[*Signature pages to follow*]

IN WITNESS WHEREOF, the parties hereto have caused this Amendment to be duly executed and delivered as of the date hereof.

BORROWER:

ZYMERGEN INC.

By /s/ Enakshi Singh
Name: Enakshi Singh
Title: Chief Financial Officer

SUBSIDIARY GUARANTORS:

GENESIS ACQUISITION SUB, LLC

By /s/ Enakshi Singh
Name: Enakshi Singh
Title: Manager

ENEVOLV, INC.

By /s/ Enakshi Singh
Name: Enakshi Singh
Title: Chief Executive Officer and Treasurer

LODO THERAPEUTICS CORPORATION

By /s/ Enakshi Singh
Name: Enakshi Singh
Title: Chief Executive Officer and Treasurer

PERCEPTIVE CREDIT HOLDINGS II, LP, as the Administrative Agent and the Lenders

By PERCEPTIVE CREDIT OPPORTUNITIES GP, LLC, its general partner

By /s/ Sandeep Dixit

Name: Sandeep Dixit
Title: Chief Credit Officer

By /s/ Sam Chawla

Name: Sam Chawla
Title: Portfolio Manager

CERTIFICATION OF PERIODIC REPORT UNDER SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Jay Flatley, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Zymergen 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 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)) 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) 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

c) 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 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.

ZYMERGEN INC.

Date: November 15, 2021

By: /s/ Jay Flatley

Jay Flatley

Acting Chief Executive Officer

(Principal Executive Officer)

CERTIFICATION OF PERIODIC REPORT UNDER SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Enakshi Singh, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Zymergen 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 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)) 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) 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

c) 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 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.

ZYMERGEN INC.

Date: November 15, 2021

By: /s/ Enakshi Singh

Enakshi Singh

Chief Financial Officer

(Principal Accounting and Financial Officer)

CERTIFICATIONS OF PRINCIPAL EXECUTIVE OFFICER AND PRINCIPAL FINANCIAL OFFICER
PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

I, Jay Flatley, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Quarterly Report on Form 10-Q of Zymergen Inc. for the fiscal quarter ended September 30, 2021 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in such Quarterly Report on Form 10-Q fairly presents, in all material respects, the financial condition and results of operations of Zymergen Inc.

I, Enakshi Singh, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Quarterly Report on Form 10-Q of Zymergen Inc. for the fiscal quarter ended September 30, 2021 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in such Quarterly Report on Form 10-Q fairly presents, in all material respects, the financial condition and results of operations of Zymergen Inc.

ZYMERGEN, INC.

Date: November 15, 2021

By: /s/ Jay Flatley
Jay Flatley
Acting Chief Executive Officer
(Principal Executive Officer)

Date: November 15, 2021

By: /s/ Enakshi Singh
Enakshi Singh
Chief Financial Officer
(Principal Accounting and Financial Officer)