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 March 31, 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 May 14, 2021, there were approximately 100,324,768 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, including Hyaline, which is the first product we launched in December 2020;
- our ability to generate revenues from our products (including Hyaline) on the timelines we anticipate;
- our plans for the development, launch and commercialization of the products in our current and future product pipeline;
- our ability to successfully produce products (including Hyaline) through fermentation that we initially launch using non-fermentation monomers;
- 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 create products in about half the time and 1/10th of the cost of what traditional chemicals and materials companies can deliver and to launch our products in roughly five years and $50 million;
- our ability to find and qualify an alternate source of manufacturing after 2021;
- our ability to successfully complete the expected 6-18 month product qualification process with customers;
- the potential benefits of our existing and potential future R&D collaborations and other partner relationships;
- our ability to address the market opportunity in the electronics, consumer care and agriculture sectors, as well as the total market opportunity across numerous sectors;
- the size and growth potential of the markets for our products and our ability to serve those markets;
- our capital requirements and our needs for additional financing;
- 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 our international expansion;

- our financial performance;
- our ability to generate revenue and obtain funding for our operations, including funding necessary to complete further development of our current and future products;
- our estimates regarding margins, future revenue, expenses, capital requirements and needs for additional financing;
- the success of our significant investments in our continued R&D of new products; and
- the impact of COVID-19 on our business.

You should refer to the "*Risk Factors*" section of this Quarterly Report on Form 10-Q for a discussion of other 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 March 31, 2021	As of December 31, 2020 (1)
ASSETS		
Current assets:		
Cash and cash equivalents	$ 121,035	$ 210,205
Accounts receivable	2,422	2,516
Accounts receivable, unbilled	1,694	1,659
Prepaid expenses	5,987	7,024
Inventories	5,683	4,969
Restricted cash, current	20	—
Other current assets	2,889	2,201
Total current assets	139,730	228,574
Restricted cash	10,777	9,605
Property and equipment, net	55,462	48,718
Goodwill	11,604	11,604
Intangible assets, net	4,443	4,790
Deferred offering cost	4,098	509
Deposits	1,118	1,121
Total assets	$ 227,232	$ 304,921
LIABILITIES AND CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT		
Current liabilities:		
Accounts payable	$ 16,578	$ 12,097
Accrued and other liabilities	20,942	26,888
Short-term debt, net	—	79,331
Short-term deferred rent	688	494
Deferred revenue	2,102	2,648
Total current liabilities	40,310	121,458
Long-term debt, net	79,615	—
Long-term deferred rent	12,866	9,916
Warrant liabilities	11,952	14,231
Other long-term liabilities	2,624	2,254
Total liabilities	147,367	147,859
Commitments and contingencies		
Convertible preferred stock, $0.001 par value, 214,181,024 shares authorized as of March 31, 2021 and December 31, 2020, respectively; 68,093,280 shares issued and outstanding as of March 31, 2021 and December 31, 2020, respectively	900,798	900,798
Stockholders' deficit		
Common stock, $0.001 par value, 286,477,669 shares authorized as of March 31, 2021 and December 31, 2020, respectively; 13,473,832 and 12,812,109 shares issued and outstanding as of March 31, 2021 and December 31, 2020, respectively	13	13
Additional paid-in capital	37,379	29,991
Accumulated deficit	(858,325)	(773,740)
Total stockholders' deficit	(820,933)	(743,736)
Total liabilities and convertible preferred stock and stockholders' deficit	$ 227,232	$ 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 March 31, 2021	Three Months Ended March 31, 2020
Revenues from research and development service agreements	$ 2,614	$ 1,904
Collaboration revenue	1,121	1,050
Total revenues	3,735	2,954
Cost and operating expenses:		
Cost of service revenue	21,130	24,576
Research and development	39,811	21,802
Sales and marketing	6,872	5,541
General and administrative	19,331	13,693
Total cost and operating expenses	87,144	65,612
Operating loss	(83,409)	(62,658)
Other income (expense):		
Interest income	43	377
Interest expense	(2,727)	(2,684)
Gain (loss) on change in fair value of warrant liabilities	2,279	(450)
Other expense, net	(763)	(32)
Total other expense	(1,168)	(2,789)
Loss before income taxes	(84,577)	(65,447)
(Provision for) benefit from income taxes	(8)	107
Net loss and comprehensive loss	$ (84,585)	$ (65,340)
Net loss per share attributable to common stockholders, basic	$ (6.51)	$ (5.77)
Net loss per share attributable to common stockholders, diluted	$ (6.51)	$ (5.77)
Weighted-average shares used in computing net loss per share to common stockholders, basic	12,996,344	11,322,626
Weighted-average shares used in computing net loss per share to common stockholders, diluted	13,340,457	11,322,626

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' DEFICIT
(Unaudited)
(in thousands, except share data)

	Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' 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)

	Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' 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)

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

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

	Three Months Ended March 31, 2021	Three Months Ended March 31, 2020
Operating activities		
Net loss	$ (84,585)	$ (65,340)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization expense	4,412	4,564
Stock-based compensation expense	2,253	1,042
Non-cash interest expense	283	213
(Gain) loss on change in fair value of warrant liabilities	(2,279)	450
Unrealized foreign exchange loss	661	—
Benefit from income tax	—	(107)
Other	(2)	(52)
Changes in operating assets and liabilities:		
Accounts receivable	94	2,368
Accounts receivable, unbilled	(35)	(1,313)
Prepaid expenses	1,037	230
Inventories	(714)	(451)
Other current assets	(685)	(253)
Deposits	3	—
Accounts payable	1,223	(1,969)
Accrued and other liabilities	(7,682)	(2,849)
Deferred revenue	(348)	(65)
Deferred rent	3,144	565
Other long-term liabilities	172	40
Net cash used in operating activities	(83,048)	(62,927)
Investing activities		
Purchases of property and equipment	(8,639)	(6,176)
Proceeds from sale of property and equipment	—	13
Business acquisition, net of cash acquired	—	80
Net cash used in investing activities	(8,639)	(6,083)
Financing activities		
Proceeds from exercise of common stock options, net of repurchases	3,189	172
Proceeds from repayment of non-recourse loan to employee	1,946	—
Payment of deferred offering costs	(806)	(6)
Net cash provided by financing activities	4,329	166
Effect of exchange rate changes on cash	(620)	—
Change in cash and cash equivalents	(87,978)	(68,844)
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	$ 131,832	$ 94,198
Cash and cash equivalents	$ 121,035	$ 78,899
Restricted cash, current	20	5,931
Restricted cash, non-current	10,777	9,368
Total cash, cash equivalents, and restricted cash shown in the statement of cash flows	$ 131,832	$ 94,198

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

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

	Three Months Ended March 31, 2021	Three Months Ended March 31, 2020
Supplemental disclosure of cash flow information:		
Cash paid during the period for interest, net of interest capitalized	$ 3,285	$ 1,982
Supplemental disclosure of non-cash investing and financing activities:		
Acquisitions of property and equipment under accounts payable and accrued and other liabilities	$ 6,095	$ 6,022
Issuance of common stock in business combination	$ —	$ 10,395
Deferred offering cost under accounts payable and accrued and other liabilities	$ 2,843	$ —

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, including electronics, consumer care and agriculture. The Company has developed a platform that treats the genome as a search space, utilizing proprietary machine learning algorithms and advanced automation to identify genetic changes that improve the economics for its customers’ 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 $530.1 million, net of underwriting discounts, commissions, and estimated 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 $121.0 million as of March 31, 2021 and the Company obtained net cash proceeds of approximately $530.1 million from the Company’s IPO, which closed on April 26, 2021. Since inception through March 31, 2021, the Company has incurred cumulative net losses of $858.3 million.

While the Company has signed a number of initial customer 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. 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 may need to raise additional equity and debt financing that may not be available, if at all, at terms acceptable to the Company to fund future operations. The Company expects that its cash and cash equivalents, including the funds obtained from the IPO in April 2021, 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 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 are impacted for an extended period, 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 three months ended March 31, 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").

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 our 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 our financial information. The results of operations for the three months ended March 31, 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 our 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 March 31, 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, the average period of benefit associated with costs capitalized to obtain revenue contracts, useful life of property and equipment, allowance for doubtful accounts, net realizable value of inventories, the valuation of goodwill and intangible assets, 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 and the settlement of certain vendor costs in preferred stock. 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 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). Assets and liabilities denominated in foreign currency are remeasured at period-end exchange rates for monetary assets. 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.

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 March 31, 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 adoptions 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 adoptions 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 required to adopt the new standard for 2022 and is currently evaluating the effect that Topic 842 will have on its financial statements and related disclosures.

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 August 2020, the FASB issued ASU 2020-06, *Debt—Debt with Conversion and Other Options (Subtopic 470-20)* and *Derivatives and Hedging —Contracts in Entity's Own Equity (Subtopic 815-40):Accounting for Convertible Instruments and Contracts in an Entity's Own Equity*. This standard amends the guidance on convertible instruments and the derivatives scope exception for contracts in an entity's own equity and improves and amends the related earnings per share EPS guidance for both subtopics. This standard will be effective for annual reporting periods beginning after December 15, 2023 and interim periods within those annual periods, and early adoption is permitted in annual reporting periods ending after December 15, 2020. The Company is currently evaluating the impact of this standard on the Company's financial statements and related disclosures, but does not expect the adoption of ASU 2020-06 to be material.

3. Business Combination

On March 10, 2020, the Company completed an 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 statements of operations. 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. Intangible Assets

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

	Cost		Accumulated Amortization		Intangible Assets, Net	
	March 31, 2021	December 31, 2020	March 31, 2021	December 31, 2020	March 31, 2021	December 31, 2020
Developed technology	$ 6,900	$ 6,900	$ (2,732)	$ (2,460)	$ 4,168	$ 4,440
Customer relationships	980	980	(705)	(630)	275	350
Net carrying value	$ 7,880	$ 7,880	$ (3,437)	$ (3,090)	$ 4,443	$ 4,790

5. 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 March 31, 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 March 31, 2021
Financial Assets				
Cash equivalents	$ 107,032	$ —	$ —	$ 107,032
Total financial assets	$ 107,032	$ —	$ —	$ 107,032
Financial Liabilities				
Warrant derivative liability	$ —	$ —	$ 11,952	$ 11,952
Total financial liabilities	$ —	$ —	$ 11,952	$ 11,952

	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, trade receivables, accounts payable, accrued liabilities, debt, and warrant derivative liability. The estimated fair value of trade receivables, accounts payable, and accrued liabilities approximates their carrying value due to the short period of time to their maturities.

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	(2,279)
Balance at March 31, 2021	$ 11,952

The warrant derivative liability represents the fair value of the warrants issued in conjunction with the term loan agreement entered into in 2019 (Note 7).

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

Accounts receivable, accounts payable, and accrued expenses: 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: The Company estimated the fair value of outstanding warrants using a weighted average between the value 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 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 discussed above. The weighted average 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 March 31, 2021 and December 31, 2020:

	March 31, 2021	December 31, 2020
Value per Series C Preferred share (fully-diluted)	$ 31.29	$ 35.46
Exercise price	$ 16.98	$ 16.98
Expected volatility	82.0 %	77.0 %
Risk-free rate	0.01 %	0.79 %
Time to liquidity (years)	0.04	8.97

6. Balance Sheet Components

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

	March 31, 2021	December 31, 2020
Machinery and equipment	$ 57,853	$ 54,999
Leasehold improvements	26,763	24,192
Furniture and office equipment	2,737	2,743
Computers and software	2,693	2,677
	90,046	84,611
Less accumulated depreciation and amortization	(52,000)	(47,977)
	38,046	36,634
Construction in progress	17,416	12,084
Total property and equipment, net	$ 55,462	$ 48,718

Depreciation and amortization expense was $4.1 million and $4.3 million for the periods ended March 31, 2021 and 2020, respectively.

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

	March 31, 2021	December 31, 2020
Accrued compensation cost	$ 7,975	$ 15,211
Other accrued operating expenses	9,087	9,616
Accrued offering costs	2,790	—
Accrued legal service fees	1,009	1,105
Accrued interest	—	842
Accrued tax liabilities	81	114
Accrued and other current liabilities	$ 20,942	$ 26,888

7. Term Loans

The debt consists of the following as of March 31, 2021 and December 31, 2020 (in thousands):

	March 31, 2021	December 31, 2020
Senior secured delayed draw term loan facility bearing interest equal to 11.5% as of March 31, 2021 and December 31, 2020; final maturity December 19, 2024	$ 85,000	$ 85,000
Unamortized discount and offering cost	(5,385)	(5,669)
Senior secured delayed draw term loan facility, net	79,615	79,331
Less current portion	—	79,331
Long-term debt, net	$ 79,615	$ —

Except as described below, the Company's debt is described in Note 9 of the "Notes to Consolidated Financial Statements" in the Prospectus.

As of the date of issuance of the Company's audited annual financial statements, due to the substantial doubt about the Company's ability to continue operating as a going concern and the material adverse change clause in the senior secured delayed draw term loan facility agreement with our lender, the amounts outstanding as of December 31, 2020 were classified as current. The lender did not invoke the material adverse change clause. The Company was in compliance with all covenants of the senior secured delayed draw term loan facility as of March 31, 2021.

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

	Three Months Ended March 31, 2021	Three Months Ended March 31, 2020
Coupon interest	$ 2,444	$ 2,471
Amortization of debt discount and offering costs	283	213
Total interest expense on term loan	$ 2,727	$ 2,684

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. As of March 31, 2021, the following common stock warrants were outstanding:

Number of Warrants as of March 31, 2021	Exercise Price	Expiry Date	Weighted Average Remaining Contractual Life
25,000	$0.35	November 17, 2024	3.63
90,000	$1.70	August 5, 2025	4.35
90,146	$4.47	November 14, 2027	6.63
37,176	$4.95	April 30, 2028	7.09
242,322			5.54

Warrants Related to Current Loan Facility

On December 2019, the Company entered into a credit agreement for a senior secured delayed draw term loan facility (the "2019 Loan Facility"). In connection with the 2019 Loan Facility, the Company issued a warrant to purchase the Company's Series C Preferred Stock (the "2019 Warrants"). As of March 31, 2021, and after the partial transfer of the 2019 Warrants from the original holder, 883,332 of the 2019 Warrants were outstanding.

8. 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 March 31, 2021 and 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

9. Equity

Stock Option Plan

In July 2014, the Company adopted the 2014 Stock Plan (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 March 31, 2021, there were 2,376,979 shares of common stock available for grant, under the 2014 Plan.

Virtually all stock options have ten-year terms and vest over four years, inclusive of a one-year cliff vesting period. Under the 2014 Stock Plan, as amended, employees, directors, and consultants of the Company are able to participate in the Company's future performance through awards of nonqualified stock options, incentive stock options, and stock bonuses at the discretion of management and the Board of Directors. Incentive and non-statutory stock options may be granted with exercise prices not less than 100% of the estimated fair value of the common stock on the date of grant, as determined by the Board of Directors. Options granted to individuals owning over 10% of the total combined voting power of all classes of stock are exercisable up to five years from the date of grant. The exercise price of any option granted to a 10% stockholder may not be less than 110% of the estimated fair value of the common stock on the date of grant, as determined by the Board of Directors. Options granted under the 2014 Plan expire no later than ten years from the date of grant. Options granted under the 2014 Plan vest over periods determined by the Board of Directors, generally over periods of four years.

The following table summarizes option activity under the 2014 Plan as of March 31, 2021:

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	Number of Shares Available for Grant	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	1,694,043	$27.02		
Options exercised	(711,963)	$4.48		
Options cancelled	(50,960)	$13.92		
Outstanding - March 31, 2021	6,429,610	$12.20	8.24	$110,640
Unvested - March 31, 2021	3,789,820	$17.10	9.34	$46,652
Exercisable - March 31, 2021	2,639,790	$5.16	6.67	$63,988

The weighted-average grant-date fair value of options granted during the three months ended March 31, 2021, and 2020, was $17.42 per share and $4.91 per share, respectively.

During the three months ended March 31, 2021, and 2020, the aggregate intrinsic value of stock option awards exercised was $17.8 million and $0.2 million, determined at the date of option exercise. 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.

Valuation of Stock Option Grants

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 being amortized on a straight- line basis over the requisite service period of the awards. The fair value of employee stock options was estimated using the following assumptions:

	Three Months Ended March 31, 2021	Three Months Ended March 31, 2020
Expected dividend yield	— %	— %
Risk-free interest rate	0.77% - 1.04%	0.68% - 1.41%
Expected term (in years)	6.08	6.08
Expected volatility	73.43% - 74.67%	50.43% - 50.85%

As of March 31, 2021, and 2020, the Company has employee stock-based compensation expense of $37.5 million and $8.6 million, respectively, related to unvested stock awards not yet recognized, which is expected to be recognized over an estimated weighted-average period of approximately 3.51 years and 2.70 years, respectively.

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	(16,810)	$4.95		
Forfeited	—			
Non-vested stock as of March 31, 2021	50,430	$4.95	0.75	$1,233

The total intrinsic value of non-vested stock that vested and were released in the periods ended March 31, 2021, and 2020 was $0.4 million and $0.1 million, respectively. The Company recorded $0.1 million of compensation costs related to non-vested stock units for the periods ended March 31, 2021, and 2020, respectively. As of March 31, 2021, and 2020, there was $0.2 million and $0.6 million, respectively, of total unrecognized compensation cost related to non-vested stock. These costs are expected to be recognized over a weighted average period of 0.75 years and 1.75 years for the periods ended March 31, 2021, and 2020, respectively.

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 periods ended March 31 (in thousands):

	2021	2020
Cost of revenue	$ 424	$ 271
Research and development	753	318
Sales and marketing	195	156
General and administrative	881	297
Total stock-based compensation	$ 2,253	$ 1,042

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, 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.

Adoption of 2021 Incentive Award Plan

In April 2021, the 2021 Incentive Award Plan (the "2021 Plan") became effective. The 2021 Plan serves as a successor to the 2014 Plan. The 2021 Plan permits the award of stock options, restricted stock awards, stock appreciation rights, restricted stock units, performance awards, cash awards and stock bonuses. The Company reserved 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 our common stock as of the immediately preceding December 31 or such lesser number as determined by our Board of Directors.

Adoption of 2021 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.

10. 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 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 periods ended March 31:

	2021	2020
Numerator:		
Net loss, basic	$ (84,585)	$ (65,340)
Less: Gain on change in fair value of warrant liabilities	2,279	—
Net loss, diluted	$ (86,864)	$ (65,340)
Denominator:		
Weighted-average shares used in calculating net loss per share, basic	12,996,344	11,322,626
Effect of dilutive securities:		
Warrants to purchase Series C convertible preferred stock	344,113	—
Weighted-average shares used in calculating net loss per share, diluted	13,340,457	11,322,626
Net loss per share, basic	$ (6.51)	$ (5.77)
Net loss per share, diluted	$ (6.51)	$ (5.77)

The following potentially dilutive shares as of the periods ended March 31, 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:

	2021	2020
Shares issuable under convertible preferred stock	68,115,459	54,856,348
Warrants to purchase Series C convertible preferred stock	—	883,332
Options to purchase common stock	6,429,610	5,199,789
Non-vested stock	50,430	117,670
Warrants to purchase common stock	242,322	242,322
Total	74,837,821	61,299,461

11. Revenue, Credit Concentrations and Geographic Information

The Company has primarily earned revenue by engaging in R&D service contracts to help its customers improve the economics of their bio-based products. 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. For the period ended March 31, 2021, the Company recognized $0.3 million in performance bonuses. For the period ended March 31, 2020, performance bonuses the Company recognized were insignificant. For the periods ended March 31, 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 has recognized $0.8 million of revenue at a point in time due to customer acceptance clauses for the period ended March 31, 2021. For the period ended March 31, 2020, revenue recognized at a point in time due to customer acceptance clauses were insignificant.

The following table represents changes in the balances of our contract assets and liabilities during the periods ended March 31, 2021, and 2020 (in thousands):

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	December 31, 2020	Additions	Deletions	March 31, 2021
Contract liabilities:				
Deferred revenue	$ 3,014	$ 1,256	$ (1,604)	$ 2,666

	December 31, 2019	Additions	Deletions	March 31, 2020
Contract liabilities:				
Deferred revenue	$ 1,760	$ 2,228	$ (1,640)	$ 2,348

Additions to contract liabilities during the period ended March 31, 2020 include $0.6 million of deferred revenue through the acquisition of enEvolv Inc. (Note 3). Long-term deferred revenue is included in Other long-term liabilities on the Condensed Consolidated Balance Sheets.

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 March 31, 2021	$ 4,311	$ 2,513	$ 6,824

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

Customers representing 10% or greater of revenue were as follows for the periods ended March 31:

	2021	2020
Customer A	30 %	52 %
Customer B	18 %	— %
Customer C	16 %	20 %
Customer D	11 %	14 %

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

	March 31, 2021	December 31, 2020
Customer A	37 %	37 %
Customer D	25 %	23 %
Customer E	24 %	23 %
Customer F	12 %	— %
Customer G	— %	17 %

The Company's revenues by geographic region are presented in the table below for the periods ended March 31 (in thousands):

	2021	2020
United States of America	$ 1,232	$ 1,111
Asia	1,421	1,338
Europe	1,082	505
Total revenue	$ 3,735	$ 2,954

12. 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 $6.3 million and $3.7 million for the periods ended March 31, 2021 and 2020, respectively.

On February 3, 2021, the Company entered into an operating lease agreement to rent 27,185 square feet of office and laboratory space with rent payments starting at the commencement date of February 24, 2021. The lease agreement terminates on August 31, 2022 and the Company will be paying up approximately $1.7 million for base rent. In accordance with the agreement, the Company entered into a letter of credit in the amount of $0.2 million, naming the Company's landlord as beneficiary.

On February 19, 2021, the Company entered into an amendment to an existing lease to extend the premises leased for an additional 9,337 square feet. The lease expiry date of the original premises was also extended to January 31, 2033, which coincides with the lease expiry date of the additional premises. The Company will pay approximately $5.9 million of additional rent for the extended premises and up to an additional $19.1 million of base rent for the extended term of the previously occupied premises over the new lease term. The Company was also required to increase its letter of credit amount by $1.0 million.

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	$	12,750
2022		27,239
2023		34,003
2024		33,431
2025		33,844
Thereafter		240,810
	$	382,077

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. While it is the opinion of management, after consultation with legal counsel, that the ultimate liability with respect to these actions will not materially affect the Company’s financial position or results of operations, it is not reasonably possible to estimate any potential losses.

13. Subsequent Events

In addition to the completion of the IPO, Reverse Split, and the adoption of the 2021 Plan and 2021 ESPP, which have been disclosed in the footnotes above, the following events have occurred subsequent to March 31, 2021.

- In April 2021, the Company granted options to purchase 2,099,999 shares of common stock to the Company's founders, effective as of the closing of the IPO and adoption of the 2021 Plan, with an exercise price equal to the initial public offering price. The options are divided into five tranches with each tranche vesting when specific market capitalization and minimum price per share milestones are met.
- 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 on April 21, 2021, with aggregate exercise proceeds of $15.0 million.
- 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.
- On May 16, 2021, the Company completed an acquisition of 100% of the equity of Lodo Therapeutics, Inc., which uses its proprietary bacterial metagenomics discovery platform to develop novel therapeutics from nature. The purchase price for the acquisition was primarily comprised of non-cash consideration of approximately 800,000 shares and 100,000 restricted stock units of the Company’s common stock. As of the date these financial statements are issued, the Company has not yet finalized the accounting for the business

acquisition. 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.

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. Our actual results could differ materially from those discussed below. 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 deliver extraordinary value to customers in a broad range of industries. Our first innovations include films designed for electronics companies to use in new categories of smart devices, including rollable tablets, and naturally derived UV protection. 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 expect it will create better products faster, cheaper and more sustainably than traditional chemistry by engineering microbes to make novel biomolecules that are the key ingredients in those products. Our goal is to launch our products in about half the time and 1/10th of the cost of what traditional chemicals and materials companies can deliver, which would allow us to address a wide array of commercial applications. 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 grow our product sales and commercialize additional products and our long-term objective is to generate revenue from the sale of numerous breakthrough products across a variety of industries.

Components of Results of Operations

Revenue

Research and Development Service Agreements Revenue. To date, we have earned revenue by engaging in R&D services to help our customers improve the economics of their 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 additional 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.

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.

We expect research and development expenses to increase as we continue to develop new products through investments in our biofacturing platform and product pipeline.

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. We expect that our sales and marketing expenses will increase as we expand our sales and marketing efforts, our commercial capability and our brand awareness and customer base through targeted marketing initiatives. We plan to invest in sales and marketing initiatives to generate consumer awareness and sales of our new product launches.

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. We expect our general and administrative expenses to increase as a result of operating as a public company, including additional costs to comply with the rules and regulations of the SEC and stock exchange rules; for legal and auditing services; for additional insurance; for investor relations activities; and for other administrative and professional services. We also expect our intellectual property expenses to increase as we expand and protect our intellectual property portfolio.

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 preferred Series C Preferred Stock. The change in value reflects the change in fair value of the underlying shares of Series C Preferred Stock through that 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 March 31, 2021 and 2020

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

	Three Months Ended March 31,		Change	
	2021	2020	$	%
Revenues from research and development service agreements	$ 2,614	$ 1,904	$ 710	37.3 %
Collaboration revenue	1,121	1,050	71	6.8 %
Total revenues	3,735	2,954	781	26.4 %
Cost and operating expenses:				
Cost of service revenue	21,130	24,576	(3,446)	(14.0)%
Research and development	39,811	21,802	18,009	82.6 %
Sales and marketing	6,872	5,541	1,331	24.0 %
General and administrative	19,331	13,693	5,638	41.2 %
Total cost and operating expenses	87,144	65,612	21,532	32.8 %
Operating loss	(83,409)	(62,658)	(20,751)	33.1 %
Other income (expense):				
Interest income	43	377	(334)	(88.6)%
Interest expense	(2,727)	(2,684)	(43)	1.6 %
Gain (loss) on change in fair value of warrant liabilities	2,279	(450)	2,729	(606.4)%
Other expense, net	(763)	(32)	(731)	2,284.4 %
Total other expense	(1,168)	(2,789)	1,621	(58.1)%
Loss before income taxes	(84,577)	(65,447)	(19,130)	29.2 %
(Provision for) benefit from income taxes	(8)	107	(115)	(107.5)%
Net loss	$ (84,585)	$ (65,340)	$ (19,245)	29.5 %

Revenue

Revenue from research and development service agreements increased by $0.7 million, or 37%, for the quarter ended March 31, 2021 compared to the same period of the prior year. This increase was primarily due to the following:

- $0.8 million increase as a result of new contracts, $0.7 million of which was a point in time bonus for work earned in Q4 of 2020 but recognized in Q1 2021, due to a delay in contract signing until Q1 2021;
- $0.5 million increase in revenue from acquired contracts, including a point in time bonus of $0.3 million recognized in Q1 2021;

Off-set by:

- $0.5 million decrease in revenue from contracts ending in 2020.

Collaboration revenue increased by $0.1 million, or 7%, for the quarter ended March 31, 2021 compared to the same period of the prior year. This increase was due to the increased research activity under the partnership with Sumitomo Chemical.

Cost of Revenue

Cost of service revenue decreased by $3.4 million, or 14%, for the quarter ended March 31, 2021 compared to the same period of the prior year. This decrease was primarily due to a $2.9 million decrease in labor cost and a $0.9 million decrease in lab consumables costs associated with a shift of resources from performing research and development activities for third parties to performing research and development activities on our own product. In addition there was $0.3 million decrease in other costs, primarily driven by a reduction in travel costs in 2021 as a result of the COVID-19 pandemic. This was offset by an increase in the use of contract research resources of $0.5 million due mainly to the engagement of contract research resources to accelerate a client early stage development work and an increase in rent allocation of $0.2 million due to the expansion of the Zymergen real estate costs.

Operating Expenses

Research and development

Research and development expense increased by $18.0 million, or 83%, in the quarter ended March 31, 2021 compared to the same period of the prior year. The overall increase is primarily due to the increase in resources allocated to our own product development from customer research and development activities, along with the further development of new products in our product pipeline, including continued development of Hyaline. The overall increase includes $7.5 million increase in manufacturing and lab consumables, largely attributable to the development of Hyaline, ZYM0107, ZYM0101 and ZYM0301 products, and a $4.3 million increase in labor costs. The focus in Q1 2021 for Hyaline was to ensure that full-scale production can be achieved. In addition, there has been a $3.5 million increase in expense related to utilization of subcontractors in developmental activities. Further, there has been a $1.4 million increase in allocated rent, and a $0.7 million increase in depreciation attributable to new equipment and leasehold improvements entered into service throughout 2020 and 2021.

Sales and marketing

Sales and marketing expense increased by $1.3 million, or 24%, in the quarter ended March 31, 2021 compared to the same period of the prior year. This increase was primarily due to a $1.0 million increase in expense related to subcontractors. This was largely due to an increase in customer and brand marketing activities.

General and administrative

General and administrative expense increased by $5.6 million or 41%, in the quarter ended March 31, 2021 compared to the same period of the prior year. The increase in general and administrative expenses was primarily attributable to the following:

- a $2.6 million increase in legal, strategy, investor relations and accounting service fees, mainly associated with becoming a public company;
- a $2.4 million increase in labor costs and stock option expense, due to higher allocation of common costs to G&A;
- an $0.8 million increase in rent and facilities costs. This was largely driven by the increase in the property costs year on year, including the lease commencement of the new Zymergen headquarters in mid-February 2021. This property is under development and is expected to be available for occupancy in early 2022.

Interest income (expense)

Interest income decreased by $0.3 million, or 89%, in the quarter ended March 31, 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 quarter ended March 31, 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 $2.3 million was recorded in the quarter ended March 31, 2021, compared to a loss of $0.5 million in the same period of the prior year, a change in the fair value of warrant liability of $2.7 million. This change 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.

Other expense

Other expense increased by $0.7 million in the quarter ended March 31, 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 US dollar primarily against the Japanese Yen.

Income Taxes

Income taxes increased by $0.1 million in the quarter ended March 31, 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 March 31, 2021 we had generated $2,000 revenue from product sales and had incurred significant operating losses and negative cash flows from our operations as we developed our biofacturing platform.

Our Hyaline product, from which we generated the product revenue, is still in the qualification process with customers. If there is a delay in the time required to complete the process it will have an impact on our operating plan, and we may 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 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 March 31, 2021 of $121.0 million. In addition, we raised net cash proceeds of approximately $530.1 million from our IPO, which closed on April 26, 2021.

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 may 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 use proceeds from the issuance of equity, debt financings or other capital 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.

Cash Flows

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

	Three Months Ended March 31,	
	2021	2020
Net cash used in operating activities	$ (83,048)	$ (62,927)
Net cash used in investing activities	$ (8,639)	$ (6,083)
Net cash provided by financing activities	$ 4,329	$ 166

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.

Cash used in operating activities for the quarter ended March 31, 2021 of $83.0 million primarily related to our net loss of $84.6 million, adjusted for non-cash charges of $5.3 million and net cash outflows of $3.8 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, and gain on fair value change of warrant liability. The main drivers of the changes in operating assets and liabilities were a $6.5 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, a $0.7 million increase in other current assets and a decrease of $0.3 million in deferred revenue. These changes resulted in a cash outflow and were partially offset by cash inflows resulting from an increase in deferred rent of $3.1 million, resulting from the straight-line impact of leases, and a reduction in prepaid expenses of $1.0 million.

Cash used in operating activities for the quarter ended March 31, 2020 of $62.9 million primarily related to our net loss of $65.3 million, adjusted for non-cash charges of $6.1 million and net cash outflows of $3.7 million provided by changes in our operating assets and liabilities. Non-cash charges primarily consisted of depreciation and amortization of property and equipment and stock-based compensation. The main drivers of the changes in operating assets and liabilities were a $4.8 million decrease in accounts payable, accrued expenses and other liabilities resulting primarily from a pay down of vendor balances; offset by a $1.1 million decrease in accounts receivable, billed and unbilled, resulting primarily from timing differences in customer billings and cash receipts. In addition there was a $0.6 million inflow resulting from an increase in the deferred rent balance resulting from the straight-line impact of leases.

Net Cash Used in Investing Activities

Cash used in investing activities was $8.6 million for the quarter ended March 31, 2021 related to the purchase of property and equipment.

Net cash used in investing activities was $6.1 million for the quarter ended March 31, 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 $4.3 million for the quarter ended March 31, 2021, which consisted primarily of proceeds from the repayment of non-recourse loans and the exercise of common stock options.

Net cash provided by financing activities was $0.2 million for the quarter ended March 31, 2020, which consists of proceeds from the exercise of common stock options.

Off Balance Sheet Arrangements

As of March 31, 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.

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 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 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 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 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 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. We are not currently subject to any material legal proceedings.

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 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 may make it difficult to evaluate the prospects for our future viability and predict our future performance.
- We may not be able to successfully commercialize or generate revenue from our products, including Hyaline, which we launched in December 2020, as our first product.
- The COVID-19 pandemic has had, and is expected to continue to have, an impact on our business, results of operations and financial condition.
- We may not be successful in our efforts to use and improve our proprietary biofacturing platform to build a pipeline of products.
- 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 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.
- 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 success of our business relies heavily on the performance of our products and developing new products at lower costs and faster development timelines.
- Consistent with our strategy, we have recently launched Hyaline, and may in the future launch other products, with a non-fermentation produced biomolecule and, if we are not successful in our efforts to convert to the fermentation-produced version of our products, our products may not be commercially successful.
- 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.
- 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.
- Our revenue, results of operations, cash flows and reputation in the marketplace may suffer upon the loss of a significant customer.
- If we are unable to obtain and maintain sufficient intellectual property protection for our products and technology, or if the scope of the intellectual property protection obtained is not sufficiently broad, our competitors could develop and commercialize products similar or identical to ours, and our ability to successfully commercialize our products may be impaired.
- 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.

Risks Related to Our Business

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 our products. We incurred net losses of $84.6 million and $65.3 million for the periods ended March 31, 2021 and 2020, respectively. As of March 31, 2021, we had an accumulated deficit of $858.3 million. We launched our first product Hyaline in December 2020, beginning the expected 6-18 month product qualification process with customers. We have not yet generated revenue from product sales (except for nominal revenue related to the sale of samples of Hyaline). We are currently in the qualification process on Hyaline with multiple customers, including sampling and discussions on commercial terms with some of them. Given the importance of this qualification process in our current target markets, we anticipate that, even after we have launched a product, we will only generate revenue after customers have completed all aspects of the qualification process for that product and decided to place an order for our product. In addition, 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 through investments in our biofacturing platform and product pipeline and toward the timely commercialization of new products and improved versions of existing products. We also expect that our operating expenses will increase as a result of becoming a public company and will continue to increase as we grow our business. As we ramp the sale of new products, we expect to initially experience negative product gross margins. Material manufacturing process changes, including launching products using molecules we have identified during the design phase but which are first produced with non-fermentation based methods (which we call our "Launch Acceleration strategy"), 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 one year or more from when we begin generating revenue from such product. We may not achieve the product gross margins that we anticipate. If our revenue and gross profit does not increase sufficiently to keep pace with our investments and expenses, our net losses may not decline, and we may not attain profitability in the future. 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 the impact of market acceptance of our products, product and biofacturing platform development, our ability to develop and commercialize new products in a timely manner, 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. Our failure to achieve or maintain profitability could negatively impact the value of our common stock.

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

We launched our first product Hyaline in December 2020, beginning the expected 6-18 month product qualification process with customers. We have not yet generated revenue from product sales (except for nominal revenue related to the sale of samples of Hyaline). In the case of Hyaline, we expect to begin generating revenue in the second half of 2021, which will be prior to the time we expect to convert the non-fermentation produced biomolecule to the fermentation-produced molecule, which we expect to occur in 2022. We do not expect our estimated revenue from Hyaline to be meaningfully impacted by the conversion to the fermentation-produced molecule. We expect other electronics products, including ZYM0101, which we expect to launch in 2023, to follow a similar 6-18 month qualification process following which we expect to generate revenue. For many of our consumer care and agriculture products, including ZYM0201 which we expect to launch in 2023, a product qualification process will not be similarly necessary because we intend to launch and sell those products directly to the end-user and expect to generate revenue following launch. For our other products in development for which we do not currently have an anticipated launch date, we cannot predict when we expect to begin generating revenue from such products.

Our long-term objective is to generate revenue from the sale of numerous breakthrough products across a variety of industries. Our goal is to launch our products in about half the time and 1/10th of the cost of what traditional chemicals and materials companies can deliver, which would allow us to address a wide array of commercial applications. Using our biofacturing platform, we estimate the timelines and costs of launching our products to be roughly five years and $50 million. Once we have launched a product, we begin a product qualification process with customers, which based on our experience to date since the launch of Hyaline in December 2020, we expect to last 6-18 months, but it could be longer, depending on the customer and end device requirements. We only generate revenue after customers have completed all aspects of the qualification process for that product and decided to place an order for our product, which is typically done on a purchase order basis rather than a long-term contractual commitment. Certain products will not require a product qualification process and can be sold directly to the end-user following launch. Although there is variability between individual products with respect to the timelines and costs for launching a product, our estimated costs and timelines for launch are based on our experience to date with Hyaline and our expectations for each stage of the development process with three of our other early products, which are electronic films and insect repellent products (see the immediately preceding paragraph). In addition, our costs and timelines

may be greater where regulatory requirements lead to longer timelines, which could apply to certain of our products, including, for example, our agriculture 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. We are now shifting our business focus to develop products that we will offer to a wider market. Our prospects must be considered in light of the uncertainties, risks, expenses and difficulties frequently encountered by companies in their early stages of operations, and following shifts in business models. 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 of Hyaline), 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. Consequently, 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 for a mass market.

In addition, as a business with a limited operating history, we may encounter unforeseen expenses, difficulties, complications, delays and other known and unknown obstacles. We will eventually need to transition from a company with a focus on deriving revenue from R&D service contracts and collaboration agreements to a company capable of developing and commercializing its own products as well, and we may not be successful in such a transition. 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. 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 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.

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. 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. 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. In addition, the inability to travel has delayed the establishment of our Hyaline manufacturing capacity and delayed the process of selecting and vetting contract manufacturing organizations ("CMOs") for our ZYM0201 insect repellent product. For example, we experienced delays of approximately three months at our new U.S. CMO site for our Hyaline product and at a key supplier of a raw material for Hyaline and ZYM0107. As a result of the restrictions, we 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, we suffered a delay in establishing our Japan manufacturing capacity, which in turn led to delays in launching Hyaline. We have also suffered a delay in the establishment of our U.S. manufacturing capacity for Hyaline. However, Hyaline production became fully operational in Japan in December 2020 and we have continued to develop our product sales pipeline, despite the restrictions on travel and the restrictions on in-person meetings. Following the launch of Hyaline, we have also experienced

delays in the product qualification process due to the limitations on travel and the restrictions on work practices. Difficulties and delays such as those we have experienced and may experience in the future may 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 has also had an adverse effect on our ability to attract, recruit, interview and hire at the pace we would typically expect to support our rapidly expanding 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. 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.

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 use our experienced management, engineering and scientific teams 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 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. 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 highly skilled employees in a competitive market. Identifying and developing commercially viable pipeline products may require us to make continued advancements in our biofacturing platform to lower costs, reduce development time or otherwise more quickly identify pipeline products. See the risk factor 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*.". 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.

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 have concentrated our R&D efforts to date on a select number of pipeline products based on technical feasibility and market opportunity. We launched our first product Hyaline in December 2020, beginning the expected 6-18 month product qualification process with customers. We have not yet generated revenue from product sales (except for nominal revenue related to the sale of samples of Hyaline). We have 10 other products in development, consisting of three in electronics, four with consumer care applications and three in agriculture.

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. As we ramp the sale of new products, we expect to initially experience negative product gross margins. Material manufacturing process changes, including using our Launch Acceleration strategy, 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 one year or more from when we begin generating revenue from such product. 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, leads to challenges in scaling production across the portfolio as well as adapting our biofacturing platform to solve different development problems arising in the development process. 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, the inability to travel delayed the establishment of our Hyaline manufacturing capacity and delayed the process of selecting and vetting CMOs for our ZYM0201 insect repellent product. We experienced delays of approximately three months at our new U.S. CMO site for our Hyaline product and at a key supplier of a raw material for Hyaline and ZYM0107. If we experience problems or delays in developing our pipeline products, we may be subject to unanticipated costs, including the loss of 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. 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 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.

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 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 order for novel materials to get designed into new electronics products, dialogue across the relevant supply chain is needed. For example, the display market has a range of players that span component makers, subsystem assemblers, panel makers and the device manufacturers. While the ultimate customers for our films may only be specific parts of the display 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 devices. Another example of the need for new materials to enable next generation technologies is in microLEDs, however we cannot predict whether such products can or will successfully integrate our products. If we are unable to convince these potential customers, including the consumers who purchase end-products containing our products and the customers of our direct-to-consumer products, of the utility and value of our products or the end products in which they are a component 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.

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, Hyaline is specifically designed for the flexible electronic device market, which is an emerging and fast-moving product category. Another example of the need for new materials to enable next generation technologies is in microLEDs, however we cannot predict whether such products can or will successfully integrate our products. The ultimate success of our films, even if successful in meeting the technical needs of our customers, is dependent on the success of the flexible electronics device market, microLED market and 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 are 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 continue 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, our future profitability 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. We launched our first product Hyaline in December 2020, beginning the expected 6-18 month product qualification process with customers. We have not yet generated revenue from product sales (except for nominal revenue related to the sale of samples of Hyaline). We are currently in the qualification process on Hyaline with multiple customers, including sampling and discussions on commercial terms with some of them. Given the importance of this qualification process in our current target markets, we anticipate that, even after we have launched a product, we will only generate revenue after customers have completed all aspects of the qualification process for that product and decided to place an order for our product. 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 long-term success. However, 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.

Consistent with our strategy, we have recently launched Hyaline, and may in the future launch other products, with a non-fermentation produced biomolecule and, if we are not successful in our efforts to convert to the fermentation-produced version of our products, our products may not be commercially successful.

During the design phase of our development cycle, we identify molecules capable of production through fermentation. We then identify the microbe to be used for fermentation-based production of these biomolecules and develop commercial scale processes for manufacturing the end product. In some cases, we may initially launch products using molecules we have identified during the design phase but which are first produced with traditional, non-fermentation based methods. We will do this when use of the non-fermentation produced biomolecules allows for faster commercial launch, even if the cost of production of these molecules is more expensive than can be achieved with fermentation-based production. We plan to do this only where we believe we will be able to replace these non-fermentation produced biomolecules or components with fermentation-produced versions in 12-24 months. We expect fermentation-produced molecules will drive better economics or improved margins. For example, we have used Launch Acceleration successfully on our first product, Hyaline, which we have launched with a non-fermentation produced biomolecule sourced from a third party and are executing on a process to convert to a fermentation-produced molecule, which we expect to occur in 2022. While the use of the non-fermentation produced monomer can accelerate product launch, it may result in consumer confusion or misperceptions about the characteristics of our products, as well as the features that differentiate our products and company from others in the marketplace. 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 current and future products at necessary volumes to meet commercial demand, which may result in lost revenue opportunities.

We do not have our own commercial scale manufacturing capability. Currently we contract with CMOs to manufacture Hyaline and our other electronic films primarily in Japan but we have established a CMO site for Hyaline in the United States. However, our U.S. CMO has informed us that we only have committed supply through the end of 2021. If we do not find and qualify an alternate source of manufacturing, are unable to obtain or increase capacity at our existing CMOs in Japan, or do not invest in our U.S. CMO to support and increase production, acquire our U.S. CMO or otherwise manufacture Hyaline and our other films products on our own, we may not have the capacity required to meet our commercial needs after the end of this

year. We currently contract with our Japanese CMOs under purchase orders, and do not have agreements in place that contractually require such CMOs to supply us with product on an ongoing basis. Our existing CMOs in Japan may not be able to meet our demand or may not do so at a reasonable cost or in a timely fashion. Identifying a suitable replacement CMO is a burdensome and time-consuming process that could take up to 24 months 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. From time to time, product owners invest in their manufacturers to support production. We may consider doing so, including through an equity investment or acquisition. If we invest in or acquire any manufacturing capability, we may experience increased costs and reduced margins, and delays as we ramp up our own manufacturing capabilities without prior experience doing so.

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 are just beginning and have not done in the past. If we are having 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 Hyaline or our pipeline products may result in shipment delays, inventory shortages, lot failures, product withdrawals or recalls or other interruptions in the supply of Hyaline and 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 Hyaline and 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 Hyaline or any of our pipeline products or 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, and plan to initially focus product development in the electronics, consumer care an agriculture 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, Hyaline and our other electronic films are manufactured in different facilities than our consumer care products and require completely separate supply chains and manufacturing facilities. If we are unable to successfully establish adequate manufacturing capacity for all of our products and 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 are purchasing the consumables, materials or services where the use, for our purposes, is not a commodity and obtaining such 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, 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 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 March 31, 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 to increase profitability. 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.

Growth and a change to our business focus may place significant demands on our management and our infrastructure.

We have experienced an expansion of our business and a change in focus as we continue to make efforts to develop and commercialize our products. While substantially all of our revenue to date has been generated from R&D service contracts and collaboration arrangements, we launched our first product Hyaline in December 2020, beginning the expected 6-18 month product qualification process with customers. Our growth and diversified operations have placed, and may continue to place, significant demands on our management and our operational and financial infrastructure. Managing our growth and change in business focus will require significant expenditures and allocation of valuable management resources. If we fail to achieve the necessary level of efficiency in our organization as it grows and changes, our business, financial condition and results of operations would be adversely impacted.

Loss of key personnel and/or failure to attract, train and retain additional key personnel 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. 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. In addition, 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. In addition, we are expanding our international operations and will increasingly need to recruit qualified personnel outside the United States. However, doing so may also require us to comply with laws to which we are not currently subject, which 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. Establishing international operations and recruiting personnel has and may continue to be impacted by COVID-19 travel and operational restrictions. Our senior management team is critical to our vision, strategic direction, product development and commercialization efforts. 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 also do not maintain "key man" life insurance on any of our employees. 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 continued growth and ability to successfully transition from a company primarily focused on development to commercialization depends, in part, on recruiting and retaining highly-trained personnel across our various target industries and markets with the necessary scientific background and ability to understand our systems at a technical level to effectively identify and sell to potential new customers. New hires require significant training and, in most cases, take significant time before they achieve full productivity. Our failure to successfully hire and integrate these key personnel into our business could adversely affect our business. 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. If we are unable to offer competitive compensation this may make it more difficult for us to attract and retain key employees. Moreover, if the perceived value of our equity awards declines, it may adversely affect our ability to attract and retain key employees. If we do not maintain the necessary personnel to accomplish our business objectives, we may experience staffing constraints that adversely affect our ability to support our internal R&D programs and operations.

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.

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 few years, as we seek to grow our product sales and commercialize additional products, 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 launch of Hyaline. 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, Hyaline and other film-related pipeline products 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 jointly developed film 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 expect that our products 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. For example, we expect that our insect repellent will compete against DEET-based products as well as new insect repellents. In the markets that we are entering, and in other markets that we may seek to enter in the future, we will compete primarily with the established providers of components currently used in products or finished products in these markets. Producers of these incumbent products include global agricultural companies, large international chemical and materials companies, international personal care companies and companies specializing in specific products.

Some of our current competitors 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.

There are risks that the Chinese government may, among other things, provide government funding or support to Chinese companies to produce new technology, require the use of local suppliers in place of non-Chinese suppliers like us, compel companies that do business in China to partner with local companies to conduct business, provide incentives to government-backed local customers to buy from local suppliers, thereby creating a significant competitive advantage for Chinese companies and creating obstacles for us. Any such actions taken by China (or similar actions taken by other foreign governments) could significantly harm our competitive position and adversely affect our business and results of operations.

We cannot assure investors that our products will compete favorably or that we will be successful in the face of increasing competition from products and technologies introduced by our existing or future competitors, companies entering our markets or developed by our customers internally. In addition, we cannot assure investors that our competitors do not have or will not 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 that are able to 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 and market our products outside of the United States and may market future products outside of the United States, if cleared, authorized or approved, 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 continue to expand our operations, user base and advertiser base globally. These risks include:

- political, social and economic instability;
- 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;
- 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, political and economic instability, including wars, terrorism and political unrest, and outbreak of disease;
- 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 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 and the exact obligations under and enforcement of laws and regulations 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.

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 quarter ended March 31, 2021 we had three customers that each represented 64% of our total revenue, including one customer that represented 30% 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 future consumer care or other 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 products are components of end products and therefore our success is tied to the success of such end products. We cannot assure you that material performance problems, defects, errors or delays will not 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 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 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 a company that uses its proprietary bacterial metagenomics discovery platform to develop novel therapeutics from nature. We are actively considering the acquisition of several businesses to support our strategy, although we do not currently have any commitments for such acquisitions. One or more of these acquisitions could include the payment of the purchase price in whole or in part using our Common Stock, which would have a dilutive impact on existing holders. 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.

The Perceptive Credit Agreement provides our secured lender with liens on substantially all of our assets, including our intellectual property, and 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.

In December 2019, we entered into and in February 2021, we amended and restated a credit and guaranty agreement with Perceptive Credit Holdings II, LP and PCOF EQ AIV II, LP (the “Perceptive Credit Agreement”) pursuant to which the secured lender agreed to provide us with a $100 million credit facility. As of March 31, 2021, our debt under this credit facility totaled $85 million in principal amount outstanding. During the course of 2020 and into 2021, we sought and obtained various default waivers and amendments under this agreement due to our 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 all covenants under the agreement. We may be required to generate cash from operations or raise additional working capital through future financings to enable us to repay this indebtedness as it becomes due. There can be no assurance that we will be able to do so. If we do not generate additional cash or working capital, we may be required to delay, limit, reduce or terminate our product development or operations or grant to others rights to develop and market products that we would otherwise prefer to develop and market ourselves, to enable us to repay this indebtedness as 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 achieve quarterly revenue milestones 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, to meet our revenue targets or cure any

deficiency in our revenue targets within 30 days of the end of a fiscal quarter, would generally result in events of default under such instruments. Although we have obtained waivers from the lender of certain defaults in 2020, 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 lender has not invoked the material adverse change clause to date. The occurrence of any default will cause the interest rate to increase during the period of such default, which could permit acceleration of such indebtedness and could result in a material adverse effect on us. If such indebtedness is accelerated, it would generally also constitute an event of default under our other outstanding indebtedness, permitting acceleration of a substantial portion of our indebtedness. 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.

If we are at any time unable to generate sufficient cash flow from operations 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, 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 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, 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.

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 may not meet our covenants in the future. In the future, we will need to raise adequate capital to pursue our growth strategy and support continuing operations. Following the issuance of our audited financial statements, we raised net proceeds of approximately $530.1 million in our IPO. In the future, we may 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. 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 involve 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 standard 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 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 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 assure you 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 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 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 and 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 U.S. Department of Agriculture, U.S. Environmental Protection Agency 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, the Company operates 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 Company's ownership. 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 the Company, CFIUS may interpret its regulations as continuing to give it jurisdiction to review the Company's 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. 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

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.

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:

- the timing of launch of our products and the degree to which the launch and commercialization thereof meets the expectations for securities analysts and investors;
- 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;
- our ability to identify, recruit and retain skilled personnel;
- 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;
- expiration of market standoff or lock-up agreements;
- 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;
- general economic, industry and market conditions; and
- the other factors described in this “Risk Factors” section.

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. Because of the potential volatility of our stock price, we may become 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.

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. 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 do not publish research or reports about our business or publish negative reports about our business, our share price and trading volume could decline.

The trading market for our common stock will depend 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. If one or more of these analysts cease coverage of the 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 following the expiration of the market standoff and lock-up agreements or the early release of these agreements or the perception in the market that the holders of a large number of shares of common stock intend to sell shares and could reduce the market price of our common stock.

Other than the 18,549,500 shares sold in our IPO, which were eligible to be resold in the public market immediately unless purchased by our affiliates, substantially all of the remaining shares of our common stock outstanding are currently prohibited or otherwise restricted under securities laws, market standoff agreements entered into by our stockholders with us or lock-up agreements entered into by our stockholders with the underwriters of our IPO; however, subject to applicable securities law restrictions and excluding shares of restricted stock that will remain unvested, these shares will be able to be sold in the public market beginning on the 181st day after the date of the IPO Prospectus, unless the early release provision of the lock-up agreement applies, in which case they will be able to be sold in the public market as early as the 121st day after the date of the IPO Prospectus. In the event of an early release, the Company will announce the date of the early release at least two trading days prior to the early release. Certain exceptions apply and, in any event, the representatives of the underwriters of our IPO may, in their sole discretion, release all or some portion of the shares subject to lock-up agreements at any time and for any reason. Shares issued upon the exercise of stock options outstanding under our equity incentive plans or pursuant to future awards granted under those plans will become available for sale in the public market to the extent permitted by the provisions of applicable vesting schedules, any applicable market standoff and lock-up agreements and Rule 144 and Rule 701 under the Securities Act.

Moreover, holders of an aggregate of 68,115,459 shares of our common stock (calculated as of immediately prior to our IPO) will 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. We have also registered all shares of common stock that we may issue under our equity compensation plans. These shares can be freely sold in the public market upon issuance and once vested, subject to volume limitations applicable to affiliates and the lock-up and market standoff agreements referred to above. 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 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 our current funding becomes insufficient to support future operating requirements, we will need to obtain additional funding by raising additional debt or additional equity from the private or public capital markets. 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 securities, those debt securities would have rights, preferences and privileges senior to those of holders of our common shares. 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, if we require it, 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.

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 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 SOX, 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, or any successor thereto (the "Securities Act") or the Securities Exchange Act of 1934.

Furthermore, our amended and restated certificate of incorporation will also provide 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. Alternatively, 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 will 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 and particularly after we are no longer an emerging growth company, we will 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 will need 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 will increase our legal and financial compliance costs, particularly as we hire 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, we expect that these rules and regulations may make it more difficult and more expensive for us to obtain director and officer liability insurance, which in turn could make it more difficult for us to attract and retain qualified members of our board of directors.

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 result of becoming 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 will be 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, potentially 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. 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 March 31, 2021, we issued the following unregistered securities:

- We issued to existing and former employees and consultants an aggregate of 711,963 shares of common stock at a weighted average exercise price of $4.48 per share pursuant to the exercise of options granted under the 2014 Stock Plan.
- 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 pursuant to Rule 701 promulgated under the Securities Act of 1933, as amended, as transactions pursuant to compensatory benefit plans.

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 $530.1 million, net of $40.3 million in underwriting discounts, commissions, and $4.7 million in estimated 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	
4.1	Amended and Restated Investors' Rights Agreement, dated July 29, 2020, by and among the Company and certain Investors listed therein.	S-1	333-254612	4.1	March 23, 2021	
4.2	Form of Stock Certificate for common stock of Zymergen Inc.	S-1	333-254612	4.2	March 23, 2021	
4.3	Warrant to Purchase Common Stock, dated November 17, 2014, between Zymergen Inc. and Silicon Valley Bank.	S-1	333-254612	4.3	March 23, 2021	
4.4	Warrant to Purchase Common Stock, dated August 5, 2015, between Zymergen Inc. and Silicon Valley Bank.	S-1	333-254612	4.4	March 23, 2021	
4.5	Warrant to Purchase Common Stock, dated November 14, 2017, between Zymergen Inc. and Silicon Valley Bank.	S-1	333-254612	4.5	March 23, 2021	
4.6	Warrant to Purchase Common Stock, dated April 30, 2018, between Zymergen Inc. and Silicon Valley Bank.	S-1	333-254612	4.6	March 23, 2021	
4.7	Warrant to Purchase Series C Preferred Stock, dated December 19, 2019, between Zymergen Inc. and Perceptive Credit Holdings II, LP.	S-1	333-254612	4.7	March 23, 2021	
10.1*	Amended and Restated Credit Agreement and Guaranty, dated as of February 26, 2021, by and among Zymergen Inc., the Subsidiary Guarantors from time to time party thereto, the Lenders from time to time party thereto and Perceptive Credit Holdings II, LP., as the Administrative Agent.	S-1	333-254612	10.1	March 23, 2021	
10.2*	Strategic Partnership Agreement, dated as of April 9, 2019, by and between Zymergen Inc. and Sumitomo Chemical Co. LTD.	S-1	333-254612	10.2	March 23, 2021	
10.3	Form of Indemnification Agreement between the Company and each of its directors and executive officers.	S-1/A	333-254612	10.3	April 14, 2021	
10.4+	2014 Stock Plan, as amended.	S-1	333-254612	10.4	March 23, 2021	
10.5+	Form of Stock Option Grant Notice and Stock Option Agreement under the 2014 Stock Plan.	S-1	333-254612	10.5	March 23, 2021	
10.6+	2021 Incentive Award Plan.	S-8	333-255450	99.2	April 23, 2021	

10.7+	Form of Stock Option Grant Notice and Stock Option Agreement under the 2021 Incentive Award Plan.	S-1/A	333-254612	10.7	April 14, 2021	
10.8+	Form of Restricted Stock Unit Award Grant Notice and Restricted Stock Unit Award Agreement under the 2021 Incentive Award Plan.	S-1/A	333-254612	10.8	April 14, 2021	
10.9+	2021 Employee Stock Purchase Plan.	S-8	333-255450	99.3	April 23, 2021	
10.10+	Non-Employee Director Compensation Policy.	S-1/A	333-254612	10.10	April 14, 2021	
10.11+	Form of Employment Agreement.	S-1	333-254612	10.11	March 23, 2021	
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.

* 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.

** 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.

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:	May 26, 2021	By:	/s/ Josh Hoffman
		Name:	Josh Hoffman
		Title:	Chief Executive Officer (Principal Executive Officer)
Date:	May 26, 2021	By:	/s/ Enakshi Singh
		Name:	Enakshi Singh
		Title:	Chief Financial Officer (Principal Accounting and Financial Officer)

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

I, Josh Hoffman, 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: May 26, 2021

By: /s/ Josh Hoffman

Josh Hoffman

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: May 26, 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, Josh Hoffman, 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 March 31, 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 March 31, 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: May 26, 2021

By: /s/ Josh Hoffman
Josh Hoffman
Chief Executive Officer
(Principal Executive Officer)

Date: May 26, 2021

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