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

FORM 10-Q

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

For the quarterly period ended September 30, 2023

OR

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

For the transition period from _____ to _____.

Commission File Number: 001-36042

PRECIGEN, INC.
(Exact name of registrant as specified in its charter)

Virginia	**26-0084895**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification Number)**
20374 Seneca Meadows Parkway Germantown, Maryland	**20876**
(Address of principal executive offices)	**(Zip Code)**

(301) 556-9900

(Registrant's telephone number, including area code)

N/A

(Former name, former address and former fiscal year, if changed since last report)

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

Title of each class	**Trading Symbol(s)**	**Name of each exchange on which registered**
Common Stock, no par value	PGEN	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 13(a) of the Exchange Act. ☐

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

As of October 31, 2023, 248,919,096 shares of common stock, no par value per share, were issued and outstanding.

PRECIGEN, INC.

FORM 10-Q
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Special Note Regarding Forward-Looking Statements

This Quarterly Report contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, which statements involve substantial risks and uncertainties. All statements, other than statements of historical facts, included in this Quarterly Report, including statements regarding our strategy; future events, including their outcome or timing; future operations; future financial position; future revenue; projected costs; prospects; plans; objectives of management; and expected market growth, are forward-looking statements. The words "aim", "anticipate", "assume", "believe", "continue", "could", "due", "estimate", "expect", "intend", "may", "plan", "positioned", "potential", "predict", "project", "seek", "should", "target", "will", "would", and the negatives of these terms or similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. These statements may relate to, among other things: (i) the timeliness of regulatory approvals; (ii) our strategy and overall approach to our business model, our efforts to realign our business, and our ability to exercise more control and ownership over the development process and commercialization path; (iii) our ability to successfully enter new markets or develop additional product candidates, including the expected timing and results of investigational studies and preclinical and clinical trials, whether with our collaborators or independently; (iv) our ability to consistently manufacture our product candidates on a timely basis or to establish agreements with third-party manufacturers; (v) our ability to successfully enter into optimal strategic relationships with our subsidiaries and operating companies that we may form in the future; (vi) our ability to hold or generate significant operating capital, including through partnering, asset sales, and operating cost reductions; (vii) actual or anticipated variations in our operating results; (viii) actual or anticipated fluctuations in competitors' or collaborators' operating results or changes in their respective growth rates; (ix) our cash position; (x) market conditions in our industry; (xi) the volatility of our stock price; (xii) the ability, and the ability of our collaborators, to protect our intellectual property and other proprietary rights and technologies; (xiii) outcomes of pending and future litigation; (xiv) the rate and degree of market acceptance of any products developed by us, our subsidiaries, collaborations, or joint ventures, or JVs, and competition from existing technologies and products or new technologies and products that may emerge; (xv) our ability to retain and recruit key personnel; (xvi) expectations related to the use of proceeds from public offerings and other financing efforts; and (xvii) estimates regarding expenses, future revenue, capital requirements, and needs for additional financing.

Forward-looking statements are based on our beliefs, assumptions, and expectations of our future performance, and may also concern our expectations relating to our subsidiaries and other affiliates. We caution you that the foregoing list may not contain all of the forward-looking statements made in this Quarterly Report.

We may not actually achieve the plans, intentions, or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions, and expectations disclosed in the forward-looking statements we make. We have included important factors in the cautionary statements included in this Quarterly Report, particularly in Part II, Item 1A, "Risk Factors," that could cause actual results or events to differ materially from the forward-looking statements that we make. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, JVs, or investments that we may make.

You should read this Quarterly Report, the documents that we reference in this Quarterly Report, our Annual Report on Form 10-K for the year ended December 31, 2022, the other reports we have filed with the Securities and Exchange Commission, or SEC, and the documents that we have filed as exhibits to our filings with the SEC completely and with the understanding that our actual future results may be materially different from what we expect. We do not assume any obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

PART I. FINANCIAL INFORMATION

Item 1. Condensed Consolidated Financial Statements

Precigen, Inc. and Subsidiaries
Condensed Consolidated Balance Sheets
(Unaudited)

(Amounts in thousands, except share data)	September 30, 2023	December 31, 2022
Assets		
Current assets		
Cash and cash equivalents	$ 10,076	$ 4,858
Restricted cash	—	43,339
Short-term investments	63,679	51,092
Receivables		
Trade, less allowance for credit losses of $184 as of both September 30, 2023 and December 31, 2022	988	978
Other	13,117	12,826
Prepaid expenses and other	5,128	5,066
Total current assets	92,988	118,159
Long-term investments	5,271	—
Property, plant and equipment, net	7,115	7,329
Intangible assets, net	40,426	44,455
Goodwill	36,894	36,923
Right-of-use assets	7,197	8,086
Other assets	797	1,025
Total assets	$ 190,688	$ 215,977

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

Precigen, Inc. and Subsidiaries
Condensed Consolidated Balance Sheets
(Unaudited)

(Amounts in thousands, except share data)	September 30, 2023	December 31, 2022
Liabilities and Shareholders' Equity		
Current liabilities		
Accounts payable	$ 2,351	$ 4,068
Accrued compensation and benefits	6,621	6,377
Other accrued liabilities	4,119	4,997
Settlement and indemnification accruals	18,075	18,750
Deferred revenue	509	25
Current portion of long-term debt	—	43,219
Current portion of lease liabilities	1,200	1,209
Total current liabilities	32,875	78,645
Deferred revenue, net of current portion	1,818	1,818
Lease liabilities, net of current portion	6,192	6,992
Deferred tax liabilities	2,125	2,263
Total liabilities	43,010	89,718
Commitments and contingencies (Note 14)		
Shareholders' equity		
Common stock, no par value, 400,000,000 shares authorized as of September 30, 2023 and December 31, 2022; 256,398,527 shares and 208,150,021 shares issued and outstanding as of September 30, 2023 and December 31, 2022, respectively	—	—
Additional paid-in capital	2,082,654	1,998,314
Accumulated deficit	(1,931,415)	(1,868,567)
Accumulated other comprehensive loss	(3,561)	(3,488)
Total shareholders' equity	147,678	126,259
Total liabilities and shareholders' equity	$ 190,688	$ 215,977

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

Precigen, Inc. and Subsidiaries
Condensed Consolidated Statements of Operations
(Unaudited)

(Amounts in thousands, except share and per share data)	Three Months Ended September 30, 2023	Three Months Ended September 30, 2022	Nine Months Ended September 30, 2023	Nine Months Ended September 30, 2022
Revenues				
Collaboration and licensing revenues	$ —	$ 14,561	$ —	$ 14,561
Product revenues	82	342	730	1,455
Service revenues	1,296	1,750	4,261	8,896
Other revenues	1	69	6	234
Total revenues	1,379	16,722	4,997	25,146
Operating Expenses				
Cost of products and services	1,537	1,577	4,761	5,082
Research and development	11,583	12,622	35,620	36,377
Selling, general and administrative	9,196	10,137	30,150	36,496
Impairment of goodwill	—	—	—	482
Impairment of other noncurrent assets	—	—	—	638
Total operating expenses	22,316	24,336	70,531	79,075
Operating loss	(20,937)	(7,614)	(65,534)	(53,929)
Other income (Expense), Net				
Interest expense	(1)	(2,036)	(461)	(6,137)
Interest income	856	56	2,316	131
Other income, net	281	1,038	705	1,276
Total other income (expense), net	1,136	(942)	2,560	(4,730)
Equity in net income (loss) of affiliates	—	862	—	861
Loss from continuing operations before income taxes	(19,801)	(7,694)	(62,974)	(57,798)
Income tax benefit	6	50	126	197
Loss from continuing operations	(19,795)	(7,644)	(62,848)	(57,601)
Income from discontinued operations, net of income taxes	—	95,023	—	108,094
Net (loss) income	$ (19,795)	$ 87,379	$ (62,848)	$ 50,493
Net (loss) income per share				
Net loss from continuing operations per share, basic and diluted	$ (0.08)	$ (0.04)	$ (0.26)	$ (0.29)
Net income from discontinued operations per share, basic and diluted	—	0.48	—	0.54
Net (loss) income per share, basic and diluted	$ (0.08)	$ 0.44	$ (0.26)	$ 0.25
Weighted average shares outstanding, basic and diluted	248,520,724	200,670,590	243,075,262	200,256,046

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

Precigen, Inc. and Subsidiaries
Condensed Consolidated Statements of Comprehensive Loss
(Unaudited)

(Amounts in thousands)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Net (loss) income	$ (19,795)	$ 87,379	$ (62,848)	$ 50,493
Other comprehensive income (loss):				
Unrealized gain (loss) on investments	123	99	614	(905)
Loss on foreign currency translation adjustments	(1,166)	(2,724)	(687)	(6,479)
Comprehensive (loss) income	$ (20,838)	$ 84,754	$ (62,921)	$ 43,109

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

Precigen, Inc. and Subsidiaries
Condensed Consolidated Statements of Shareholders' Equity
(Unaudited)

(Amounts in thousands, except share data)	Common Stock Shares	Common Stock Amount	Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Shareholders' Equity
Balances at June 30, 2023	255,482,753	$ —	$2,080,348	$ (2,518)	$ (1,911,620)	$ 166,210
Stock-based compensation expense	—	—	2,306	—	—	2,306
Shares issued upon vesting of restricted stock units	53,418	—	—	—	—	—
Shares issued for accrued compensation	862,356	—	—	—	—	—
Net loss	—	—	—	—	(19,795)	(19,795)
Other comprehensive loss	—	—	—	(1,043)	—	(1,043)
Balances at September 30, 2023	256,398,527	$ —	$2,082,654	$ (3,561)	$ (1,931,415)	$ 147,678

(Amounts in thousands, except share data)	Common Stock Shares	Common Stock Amount	Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Shareholders' Equity
Balances at June 30, 2022	208,150,021	$ —	$1,993,979	$ (4,556)	$ (1,933,770)	$ 55,653
Stock-based compensation expense	—	—	2,125	—	—	2,125
Net income	—	—	—	—	87,379	87,379
Other comprehensive loss	—	—	—	(2,625)	—	(2,625)
Balances at September 30, 2022	208,150,021	$ —	$1,996,104	$ (7,181)	$ (1,846,391)	$ 142,532

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

Precigen, Inc. and Subsidiaries
Condensed Consolidated Statements of Shareholders' Equity
(Unaudited)

(Amounts in thousands, except share data)	Common Stock Shares	Common Stock Amount	Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Shareholders' Equity
Balances at December 31, 2022	208,150,021	$ —	$1,998,314	$ (3,488)	$ (1,868,567)	$ 126,259
Stock-based compensation expense	—	—	7,626	—	—	7,626
Shares issued upon vesting of restricted stock units	751,233	—	—	—	—	—
Shares issued for accrued compensation	3,068,825	—	3,361	—	—	3,361
Shares issued as payment for services	465,808	—	545	—	—	545
Shares issued in public offering, net of issuance costs	43,962,640	—	72,808	—	—	72,808
Net loss	—	—	—	—	(62,848)	(62,848)
Other comprehensive loss	—	—	—	(73)	—	(73)
Balances at September 30, 2023	256,398,527	$ —	$2,082,654	$ (3,561)	$ (1,931,415)	$ 147,678

(Amounts in thousands, except share data)	Common Stock Shares	Common Stock Amount	Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Shareholders' Equity
Balances at December 31, 2021	206,739,874	$ —	$2,022,701	$ 203	$ (1,915,556)	$ 107,348
Cumulative effect of adoption of ASU 2020-06	—	—	(36,868)	—	18,672	(18,196)
Stock-based compensation expense	—	—	7,996	—	—	7,996
Shares issued upon vesting of restricted stock units and for exercises of stock options	354,089	—	1	—	—	1
Shares issued for accrued compensation	772,071	—	1,698	—	—	1,698
Shares issued as payment for services	283,987	—	576	—	—	576
Net income	—	—	—	—	50,493	50,493
Other comprehensive loss	—	—	—	(7,384)	—	(7,384)
Balances at September 30, 2022	208,150,021	—	$1,996,104	$ (7,181)	$ (1,846,391)	$ 142,532

Precigen, Inc. and Subsidiaries
Condensed Consolidated Statements of Cash Flows
(Unaudited)

(Amounts in thousands)	Nine Months Ended September 30, 2023	2022
Cash flows from operating activities		
Net (loss) income	$ (62,848)	$ 50,493
Adjustments to reconcile net (loss) income to net cash used in operating activities:		
Depreciation and amortization	5,054	9,044
(Gain) Loss on disposals of assets, net	(68)	421
Impairment of goodwill	—	482
Impairment of other noncurrent assets	—	638
Gain on sale of discontinued operations	—	(94,702)
Gain on debt retirement	(60)	(1,285)
Amortization of (discounts) premiums on investments, net	(1,294)	667
Equity in net income (loss) of affiliates	—	(861)
Stock-based compensation expense	7,626	7,996
Shares issued as payment for services	545	576
Provision for credit losses	—	944
Accretion of debt discount and amortization of deferred financing costs	60	934
Deferred income taxes	(126)	(162)
Other noncash items	3	105
Changes in operating assets and liabilities:		
Receivables:		
Trade	(10)	(2,446)
Other	(267)	284
Prepaid expenses and other	(62)	1,103
Other assets	83	(1)
Accounts payable	(1,759)	728
Accrued compensation and benefits	3,620	(578)
Other accrued liabilities	(1,550)	(479)
Deferred revenue	484	(23,343)
Lease liabilities	80	(79)
Settlement and indemnification accruals	(675)	—
Related party payables	—	(78)
Other long-term liabilities	—	(50)
Net cash used in operating activities	(51,164)	(49,649)

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

Precigen, Inc. and Subsidiaries
Condensed Consolidated Statements of Cash Flows
(Unaudited)

(Amounts in thousands)	Nine Months Ended September 30, 2023	2022
Cash flows from investing activities		
Purchases of investments	$ (153,698)	$ —
Sales and maturities of investments	137,748	56,967
Purchases of property, plant and equipment	(491)	(4,871)
Proceeds from sale of assets	61	594
Proceeds from sale of discontinued operations, net of cash sold	—	162,306
Net cash (used in) provided by investing activities	(16,380)	214,996
Cash flows from financing activities		
Proceeds from issuance of shares, net of issuance costs	72,808	—
Payments of long-term debt and convertible notes, including cost to retire of $120 in 2023	(43,219)	(116,011)
Proceeds from stock option exercises	—	1
Net cash provided by(used in) financing activities	29,589	(116,010)
Effect of exchange rate changes on cash, cash equivalents, and restricted cash	(306)	(804)
Net (decrease) increase in cash, cash equivalents, and restricted cash	(38,261)	48,533
Cash, cash equivalents, and restricted cash		
Beginning of period	48,596	43,343
End of period	$ 10,335	$ 91,876
Supplemental disclosure of cash flow information		
Cash paid during the period for interest	$ 1,159	$ 8,187
Significant noncash activities		
Accrued compensation paid in equity awards	$ 3,361	$ 1,698
Purchases of property and equipment included in accounts payable and other accrued liabilities	772	199
Proceeds from sale of assets included in accounts receivable	16	147

The following table provides a reconciliation of the cash, cash equivalents, and restricted cash balances as of September 30, 2023 and December 31, 2022 as shown above:

	September 30, 2023	December 31, 2022
Cash and cash equivalents	$ 10,076	$ 4,858
Restricted cash	—	43,339
Restricted cash included in other assets	259	399
Cash, cash equivalents, and restricted cash	$ 10,335	$ 48,596

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

Precigen, Inc. and Subsidiaries
Notes to the Condensed Consolidated Financial Statements
(Unaudited)
(Amounts in thousands, except share and per share data)

1. Organization

Precigen, Inc. ("Precigen"), a Virginia corporation, is a dedicated discovery and clinical-stage biopharmaceutical company advancing the next generation of gene and cell therapies with the overall goal of improving outcomes for patients with significant unmet medical needs. Precigen is leveraging its proprietary technology platforms to develop product candidates designed to target urgent and intractable diseases in its core therapeutic areas of immuno-oncology, autoimmune disorders, and infectious diseases. Precigen has developed an extensive pipeline of therapies across multiple indications within these core focus areas. Precigen's primary operations are located in the State of Maryland.

Precigen also has two wholly owned operating subsidiaries: Precigen ActoBio, Inc. ("ActoBio"), and Exemplar Genetics, LLC, doing business as Precigen Exemplar ("Exemplar").

ActoBio is pioneering a proprietary class of microbe-based biopharmaceuticals that enable expression and local delivery of disease-modifying therapeutics, with its primary operations located in Ghent, Belgium.

Exemplar is committed to enabling the study of life-threatening human diseases through the development of Yucatan MiniSwine preclinical research models and services, as well as enabling the production of cells and organs in its genetically engineered MiniSwine for regenerative medicine applications. Exemplar's primary operations are located in the State of Iowa.

Precigen and its consolidated subsidiaries are hereinafter referred to as the "Company."

2. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying condensed consolidated financial statements are unaudited and have been prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP"). Certain information and footnote disclosures normally included in the Company's annual financial statements have been condensed or omitted. These interim condensed consolidated financial statements, in the opinion of management, reflect all normal recurring adjustments necessary for fair statement of the Company's financial position as of September 30, 2023 and results of operations and cash flows for the interim periods ended September 30, 2023 and 2022. The year-end condensed consolidated balance sheet data was derived from the Company's audited financial statements but does not include all disclosures required by U.S. GAAP. These interim financial results are not necessarily indicative of the results to be expected for the year ending December 31, 2023, or for any other future annual or interim period. The accompanying interim unaudited condensed consolidated financial statements should be read in conjunction with the audited consolidated financial statements and related notes thereto included in the Company's Annual Report on Form 10-K for the year ended December 31, 2022.

The accompanying condensed consolidated financial statements reflect the operations of Precigen and its majority-owned subsidiaries. All intercompany accounts and transactions have been eliminated.

Liquidity

Management believes that existing liquid assets as of September 30, 2023 will allow the Company to continue its operations for at least a year from the issuance date of these condensed consolidated financial statements. These condensed consolidated financial statements are presented in United States dollars. Additionally, the condensed consolidated financial statements have been prepared on a going concern basis, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. During the nine months ended September 30, 2023, the Company incurred a net loss of $62,848 and, as of September 30, 2023, had an accumulated deficit of $1,931,415. Management expects operating losses and negative cash flows to continue for the foreseeable future and, as a result, the Company will require additional capital to fund its operations and execute its business plan. In the absence of a significant source of recurring revenue, the Company's long-term success is dependent upon its ability to continue to raise additional capital in order to fund ongoing research and development (which could occur through debt or equity issuances, sales or partnerships of non-core assets, collaborations or out-licensing of core or non-core assets, or other transactions), obtain regulatory approval of its therapeutic product candidates, successfully commercialize its therapeutic product candidates, generate revenue, meet its obligations and, ultimately, attain profitable operations.

Risks and Uncertainties

The Company is subject to a number of risks similar to those of other companies conducting high-risk, early-stage research and development of therapeutic product candidates. Principal among these risks are dependence on key individuals and intellectual property, competition from other products and companies, and the technical risks associated with the successful research, development, and clinical manufacturing of its and its collaborators' therapeutic product candidates.

Research and Development

The Company considers that regulatory requirements inherent in the research and development of new products preclude it from capitalizing such costs. Research and development expenses include salaries and related costs of research and development personnel, including stock-based compensation expense, costs to acquire technology rights, contract research organizations and consultants, facilities, materials and supplies associated with research and development projects as well as various laboratory studies. Costs incurred in conjunction with collaboration and licensing arrangements are included in research and development. Indirect research and development costs include depreciation, amortization, and other indirect overhead expenses.

The Company has research and development arrangements with third parties that include upfront and milestone payments. As of September 30, 2023 and December 31, 2022, the Company had research and development commitments with third parties that had not yet been incurred totaling $16,766 and $19,909, respectively. The commitments are generally cancellable by the Company by providing written notice at least sixty days before the desired termination date.

Cash and Cash Equivalents

All highly liquid investments with an original maturity of three months or less at the date of purchase are considered to be cash equivalents. Cash balances at a limited number of banks may periodically exceed insurable amounts. The Company believes that it mitigates its risk by investing in or through major financial institutions. Recoverability of investments is dependent upon the performance of the issuer.

Restricted Cash

Included in the condensed consolidated balance sheet as of December 31, 2022, is restricted cash of $43,339. This cash was restricted for the permitted purposes related to our Convertible Notes, including the resolution of such notes.

Short-term and Long-Term Investments

As of September 30, 2023 and December 31, 2022 short-term and long-term investments include United States government debt and agency securities and certificates of deposit. The Company determines the appropriate classification as short-term or long-term at the time of purchase based on original maturities and management's reasonable expectation of sales and redemption. The Company reevaluates such classification at each balance sheet date.

Fair Value of Financial Instruments

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset and liability. As a basis for considering such assumptions, the Company uses a three-tier fair value hierarchy that prioritizes the inputs used in its fair value measurements. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to unobservable inputs (Level 3 measurements). The three levels of the fair value hierarchy are as follows:

Level 1:	Quoted prices in active markets for identical assets and liabilities;
Level 2:	Other than quoted prices included in Level 1 inputs that are observable for the asset or liability, either directly or indirectly; and
Level 3:	Unobservable inputs for the asset or liability used to measure fair value to the extent that observable inputs are not available.

Net (Loss) Income per Share

Basic net (loss) income per share is calculated by dividing net loss attributable to common shareholders by the weighted average shares outstanding during the period, without consideration of common stock equivalents. Diluted net (loss) income per share is calculated by adjusting weighted average shares outstanding for the dilutive effect of common stock equivalents outstanding for the period, using the treasury-stock method and the if-converted method. For purposes of the diluted net (loss) income per share calculation, shares to be issued pursuant to convertible debt, stock options, RSUs, and warrants are considered to be common stock equivalents but are excluded from the calculation of diluted net (loss) income per share because their effect would be anti-dilutive as described in the next paragraph. Therefore, basic and diluted net (loss) income per share were the same for all periods presented. See Note 11 for further discussion of the Company's Share Lending Agreement.

In accordance with Accounting Standards Codification (“ASC”) 260, the control number for determining whether including potential common shares in the diluted earnings per share, or EPS, computation would be anti-dilutive is income (loss) from continuing operations. As a result, if there is a loss from continuing operations, diluted EPS would be computed in the same manner as basic EPS is computed, even if the entity has net income after including discontinued operations. The following potentially dilutive securities as of September 30, 2023 and 2022, have been excluded from the above computations of diluted weighted average shares outstanding for the three and nine months then ended as they would have been anti-dilutive:

	September 30,	
	2023	**2022**
Options	21,951,340	15,317,186
Restricted stock units	961,534	697,815
Warrants	—	121,888
Total	22,912,874	16,136,889

In addition, the Company's Convertible Notes, prior to their retirement in the second quarter of 2023, were convertible at an exercise price of approximately $17.05 per share of common stock, representing approximately 4,836,111.77 shares at September 30, 2022. The shares underlying the Convertible Notes were considered for the dilutive calculation but were excluded in all periods presented as their effect was anti-dilutive. See Note 9 for further discussion of the Convertible Notes.

Segment Information

The Company's chief operating decision maker ("CODM") regularly reviews disaggregated financial information for various operating segments. The financial information regularly reviewed by the CODM consists of (i) Biopharmaceuticals and (ii) Exemplar, each an operating segment that was also determined to be a reportable segment. The Biopharmaceuticals reportable segment is primarily comprised of the Company's legal entities of Precigen and ActoBio. See Note 1 for a description of Precigen, ActoBio and Exemplar. Prior to January 1, 2023, corporate expenses were not allocated to the segments and were managed at a consolidated level. Corporate expenses include costs associated with general and administrative functions, including the Company's finance, accounting, legal, human resources, information technology, corporate communication, and investor relations functions. Corporate expenses exclude interest expense, depreciation and amortization, gain or loss on disposals of assets, stock-based compensation expense, loss on settlement agreement, and equity in net income or loss of affiliates and include unrealized and realized gains and losses on the Company's securities portfolio as well as dividend income. Beginning in the first quarter of 2023, the Company allocated certain corporate expenses to Precigen as its operations directly benefited from these expenditures, and are now included in the Biopharmaceuticals reportable segment. As presented in Note 15, the prior year period has been reclassified to conform to the current period’s presentation.

Use of Estimates

The preparation 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, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting periods. Actual results could differ from those estimates.

Adopted Accounting Pronouncements

In August 2020, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("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* ("ASU 2020-06"). Under ASU 2020-06, the embedded conversion features are no longer separated from the host contract for convertible instruments with conversion features that are not required to be accounted for as derivatives under Topic 815, or that do not result in substantial premiums accounted for as paid-in capital. Consequently, a convertible debt instrument will be accounted for as a single liability measured at its amortized cost, as long as no other features require bifurcation and recognition as derivatives. The new guidance also requires the if-converted method to be applied for all convertible instruments.

The Company adopted ASU 2020-06 on January 1, 2022 using the modified retrospective transition method, which resulted in an increase to our reported long-term debt outstanding, net of current portion, of $18,196, a decrease to our additional paid-in capital of $36,868, and a corresponding cumulative-effect reduction to our opening accumulated deficit of $18,672. The adoption of ASU 2020-06 was expected to reduce non-cash interest expense related to existing convertible debt outstanding by approximately $11,800 for the year ending December 31, 2022, and did not have an impact on our consolidated cash flows. The use of the if-converted method did not have an impact on our overall earnings per share calculation.

Recently Issued Accounting Pronouncements Not Yet Adopted

There are no accounting standards which have not yet been adopted that are expected to have a significant impact on our financial statements and related disclosures.

3. Discontinued Operations

Trans Ova

As part of the Company's strategic shift to becoming a healthcare company, in August 2022, the Company completed the sale of 100% of the issued and outstanding membership interests in its wholly-owned subsidiary, Trans Ova, to Spring Bidco LLC (the “Buyer”), a Delaware limited liability company for $170,000 and up to $10,000 in cash earn-out payments contingent upon the performance of Trans Ova in each of 2022 and 2023, consisting of $5,000 for each year (the “Transaction”). The Company received $162,306 in proceeds, net of certain transaction costs, on August 18, 2022, after giving effect to the preliminary closing purchase price adjustments. The final working capital adjustment of $936 was received in the fourth quarter of 2022. In February 2023, the buyer notified the Company that Trans Ova did not meet the financial measures required in 2022 in order to require the first $5,000 earn-out payment.

The Company elected to account for the contingent consideration arrangement as a gain contingency in accordance with ASC 450, Contingencies (Subtopic 450-30). Under this approach, the Company recognizes the contingent consideration receivable in earnings after the contingency is resolved. Accordingly, to determine the initial gain on the sale of Trans Ova, the Company did not include an amount related to the contingent consideration arrangement as part of the consideration received.

In connection with the Transaction, the Company held restricted cash in a segregated account to be used for certain permitted purposes, including resolution of the Company’s outstanding Convertible Notes which were retired in the second quarter of 2023, as discussed further in Note 9. In addition, the Company is required to indemnify the Buyer for certain expenses incurred post close (related to covenants and certain additional specified liabilities including certain patent infringement lawsuits), if incurred, in amounts not to exceed $5,750. Such indemnification was recorded as a reduction of the gain on divestiture in the third quarter of 2022. As of September 30, 2023 and December 31, 2022, $5,075 and $5,750 were included in settlement and indemnification accruals on the condensed consolidated balance sheets, respectively, related to this indemnification liability. During the three-months ended September 30, 2023, the Company paid $675 for indemnification claims against this liability.

The following table presents the financial results of discontinued operations related to Trans Ova for the three and nine months ended September 30, 2022:

	Three months ended September 30,	Nine Months Ended September 30,
	2022	
Product revenues	$ 4,322	$ 21,494
Service revenues	7,880	49,657
Total revenues	12,202	71,151
Cost of products and services	8,515	41,335
Research and development	481	2,348
Selling, general and administrative	3,204	15,215
Total operating expenses	12,200	58,898
Operating income	2	12,253
Other income, net	319	1,139
Gain on divesture	94,702	94,702
Income before income taxes	$ 95,023	$ 108,094
Income tax (expense) benefit	—	
Income from discontinued operations	$ 95,023	$ 108,094

The following table presents the significant noncash items, purchases of property, plant and equipment, and proceeds from sales of assets for the discontinued operations related to Trans Ova for the nine months ended September 30, 2022 that are included in the accompanying condensed consolidated statements of cash flows.

Adjustments to reconcile net income to net cash used in operating activities	
Depreciation and amortization	$ 3,574
Loss on disposal of assets	421
Stock-based compensation expense	9
Provision for credit losses	944
Cash flows from investing activities	
Purchases of property, plant and equipment	(3,529)
Proceeds from sale of assets	594

4. Collaboration and Licensing Revenue

The Company's collaborations and licensing agreements may provide for multiple promises to be satisfied by the Company and typically include a license to the Company's technology platforms, participation in collaboration committees, and performance of certain research and development services. Based on the nature of the promises in the Company's collaboration and licensing agreements, the Company typically combines most of its promises into a single performance obligation because the promises are highly interrelated and not individually distinct. Options to acquire additional services are considered to determine if they constitute material rights. At contract inception, the transaction price is typically the upfront payment received and is allocated to the performance obligations. The Company has determined the transaction price should be recognized as revenue based on its measure of progress under the agreement primarily based on inputs necessary to fulfill the performance obligation.

The Company determines whether collaborations and licensing agreements are individually significant for disclosure based on a number of factors, including total revenue recorded by the Company pursuant to collaboration and licensing agreements, collaborators or licensees with equity method investments, or other qualitative factors. Collaboration and licensing revenues generated from consolidated subsidiaries are eliminated in consolidation.

Intrexon Energy Partners and Intrexon Energy Partners II Collaborations

In July 2022, the Company obtained control of the Board of Managers of each of Intrexon Energy Partners, LLC and Intrexon Energy Partners II, LLC via the purchase of membership interests not previously owned for $7,000. The Company had

collaboration agreements with both Intrexon Energy Partners, LLC and Intrexon Energy Partners II, LLC, under which certain revenue had been deferred. Based on the Company's assessment of the status of each collaboration agreement in the third quarter of 2022, the Company determined that there was a substantial likelihood that no further performance obligations would occur under the respective collaboration agreements upon gaining control of those entities. Accordingly, in September 2022, the Company recognized the remaining balance of deferred revenue associated with Intrexon Energy Partners, LLC and Intrexon Energy Partners II, LLC, less the amounts paid to acquire the membership interests of the investors.

For the three and nine months ended September 30, 2022, the Company recognized $3,768 of revenue related to Intrexon Energy Partners, LLC and $10,793 related to Intrexon Energy Partners II, LLC.

There were no amounts recognized as revenue for the three and nine months ended September 30, 2023.

Alaunos License Agreement

On April 3, 2023, the Company entered into an amended and restated exclusive license agreement (the “License Agreement”), with Alaunos Therapeutics (“Alaunos”). The License Agreement amended and replaced the terms of the Exclusive License Agreement by and between the Company and Alaunos, dated October 5, 2018.

Pursuant to the terms of the License Agreement, the Company has granted Alaunos an exclusive, worldwide, royalty-free, sub-licensable license to research, develop and commercialize T-cell receptor products, designed for neoantigens for the treatment of cancer or the treatment and prevention of human papilloma virus, or HPV, to the extent that the primary reason for such treatment or prevention is to prevent cancer, which is referred to as the HPV Field. The Company has also granted Alaunos an exclusive, worldwide, royalty-free, sub-licensable license for certain patents relating to the Sleeping Beauty technology to research, develop and commercialize TCR Products for both neoantigens and shared antigens for the treatment of cancer and in the HPV Field. The Company also granted Alaunos certain non-exclusive rights with respect to shared antigens, NK cells and gamma delta T-cells. Alaunos will be solely responsible for all aspects of the research, development and commercialization of the exclusively licensed products for the treatment of cancer and will not be subject to a diligence obligation with respect to such efforts.

Pursuant to the License Agreement, Alaunos no longer has any rights to certain of the Company’s technology including with respect to (i) products utilizing the Company’s RheoSwitch® gene switch, or RTS to express IL-12, or the IL-12 Products, for the treatment of cancer, (ii) chimeric antigen receptor, or CAR, products including CD19 and BCMA, or (iii) products utilizing an additional construct that expresses RTS IL-12, or Gorilla IL-12 Products, for the treatment of cancer and in the HPV Field. In addition, the Company may research, develop and commercialize products for the treatment of cancer, outside of the products exclusively licensed to Alaunos. Alaunos will provide the Company with certain access to information and materials related to Alaunos’s prior use of the Company’s technologies that is no longer within the scope of the License Agreement.

In consideration of the licenses and other rights granted by the Company, Alaunos will pay the Company an annual license fee of $0.1 million. Neither Alaunos nor the Company will have any other obligations with respect to the payment of milestones or royalties on products developed in connection with the License Agreement.

The Company has agreed that, during the term of the License Agreement, it will not use the licensed intellectual property to research, develop or commercialize any exclusive product for the treatment of cancer. The License Agreement will terminate on a product-by-product and/or country-by-country basis upon the expiration of the last to expire patent claim for a licensed product. In addition, Alaunos may terminate the License Agreement on a country-by-country or program-by-program basis following written notice to the Company, and either party may terminate the License Agreement following notice of a material breach. The License Agreement also contains customary representations, warranties and covenants from Alaunos and the Company, as well as customary provisions related to indemnity, confidentiality and other matters.

Deferred Revenue

Deferred revenue primarily consists of upfront and milestone consideration received for the Company's collaboration and licensing agreements. Revenue is recognized as services are performed. The arrangements classified as long-term are not active while the respective counterparties evaluate the status of the project and its desired future development activities since the Company cannot reasonably estimate the amount of services, if any, to be performed over the next year.

As of September 30, 2023 and December 31, 2022, the Company had long-term deferred revenue for collaboration and licensing arrangements of $1,818, and deferred revenue classified as current related to prepaid products and services of $509 and $25, respectively.

5. Short-term and Long-term Investments

The Company's investments are classified as available-for-sale. The following table summarizes the amortized cost, gross unrealized gains and losses, and fair value of available-for-sale investments as of September 30, 2023:

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Aggregate Fair Value
U.S. government debt securities	$ 61,419	$ 95	$ (234)	$ 61,280
U.S. agency securities	995	—	(3)	992
Certificates of deposit	6,682	—	(4)	6,678
Total	$ 69,096	$ 95	$ (241)	$ 68,950

In addition, at September 30, 2023, the Company held a U.S. government debt security valued at $4,995, which was included in cash and cash equivalents in the condensed consolidated balance sheet as this investment had an original maturity of less than three months when purchased.

The estimated fair value of available-for-sale investments classified by their contractual maturities as of September 30, 2023 was:

Due within one year	$ 63,679
After one year through two years	5,271
Total	$ 68,950

The following table summarizes the amortized cost, gross unrealized gains and losses, and fair value of available-for-sale investments as of December 31, 2022:

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Aggregate Fair Value
U.S. government debt securities	$ 51,755	$ —	$ (760)	$ 50,995
Certificates of deposit	97	—	—	97
Total	$ 51,852	$ —	$ (760)	$ 51,092

Changes in market interest rates and bond yields cause certain investments to fall below their cost basis, resulting in unrealized losses on investments. The Company does not intend to sell these investments nor is it more likely than not that the Company will be required to sell these investments, prior to maturity or recovery of amortized cost.

6. Fair Value Measurements

The carrying amount of cash and cash equivalents, receivables, accounts payable, accrued compensation and benefits, and other accrued liabilities approximate fair value due to the short maturity of these instruments.

Assets

The following table presents the placement in the fair value hierarchy of financial assets that are measured at fair value on a recurring basis as of September 30, 2023:

	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	September 30, 2023
Assets				
U.S. government debt securities	$ —	$ 61,280	$ —	$ 61,280
U.S. agency securities		992		992
Certificates of deposit	—	6,678	—	6,678
Total	$ —	$ 68,950	$ —	$ 68,950

The following table presents the placement in the fair value hierarchy of financial assets that are measured at fair value on a recurring basis as of December 31, 2022:

	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	December 31, 2022
Assets				
U.S. government debt securities	$ —	$ 50,995	$ —	$ 50,995
Certificates of deposit	—	97	—	97
Total	$ —	$ 51,092	$ —	$ 51,092

The method used to estimate the fair value of the Level 2 short-term and long-term debt investments in the tables above is based on professional pricing sources for identical or comparable instruments, rather than direct observations of quoted prices in active markets.

Liabilities

The calculated fair value of the Convertible Notes (Note 9) was approximately $43,000 as of December 31, 2022, and was based on the recent third-party trades of the instrument as of the balance sheet date. The fair value of the Convertible Notes is classified as Level 2 within the fair value hierarchy as there is not an active market for the Convertible Notes, however, third-party trades of the instrument are considered observable inputs. The Convertible Notes are reflected on the accompanying condensed consolidated balance sheets at amortized cost, which was $43,219 as of December 31, 2022.

See Note 8 for discussion of non-recurring fair value estimates used in calculating an impairment charge recorded during the nine months ended September 30, 2022.

7. Property, Plant and Equipment, Net

Property, plant and equipment consist of the following:

	September 30, 2023	December 31, 2022
Land and land improvements	$ 164	$ 164
Buildings and building improvements	2,629	2,592
Furniture and fixtures	503	457
Equipment	18,449	18,006
Leasehold improvements	4,324	4,333
Breeding stock	133	123
Computer hardware and software	3,682	4,562
Construction and other assets in progress	892	531
	30,776	30,768
Less: Accumulated depreciation and amortization	(23,661)	(23,439)
Property, plant and equipment, net	$ 7,115	$ 7,329

Depreciation expense was $434 and $564 for the three months ended September 30, 2023 and 2022, respectively, and $1,415 and $1,833 for the nine months ended September 30, 2023 and 2022, respectively.

8. Goodwill and Intangible Assets, Net

The changes in the carrying amount of goodwill for the nine months ended September 30, 2023 were as follows:

Balance at December 31, 2022	$ 36,923
Foreign currency translation adjustments	(29)
Balance at September 30, 2023	$ 36,894

The Company recorded $482 of goodwill impairment related to the total goodwill assigned to one reporting unit within the biopharmaceutical segment during the first quarter of 2022.

The Company had $14,483 of cumulative impairment losses as of both September 30, 2023 and December 31, 2022.

Intangible assets consist of the following as of September 30, 2023:

	Gross Carrying Amount	Accumulated Amortization	Net
Patents, developed technologies and know-how	$ 79,746	$ (39,320)	$ 40,426
Customer relationships	1,600	(1,600)	—
Trademarks	200	(200)	—
Total	$ 81,546	$ (41,120)	$ 40,426

Intangible assets consist of the following as of December 31, 2022:

	Gross Carrying Amount	Accumulated Amortization	Net
Patents, developed technologies and know-how	$ 80,892	$ (36,437)	$ 44,455
Customer relationships	1,600	(1,600)	—
Trademarks	200	(200)	—
Total	$ 82,692	$ (38,237)	$ 44,455

Amortization expense was $1,217 and $1,151 for the three months ended September 30, 2023 and 2022, respectively, and $3,639 and $3,637 for the nine months ended September 30, 2023 and 2022, respectively.

9. Lines of Credit and Short-Term Debt

Lines of Credit

Exemplar had a $2,500 revolving line of credit that matured on October 31, 2023. As of September 30, 2023, the line of credit bore interest at a stated rate of 7.00% per annum. As of September 30, 2023 and December 31, 2022, there was no outstanding balance on the line of credit. On October 20, 2023, the Company entered into a new $5,000 revolving line of credit, which bears interest of 8.5% per annum and matures on November 1, 2024.

Short-Term Debt

As of December 31, 2022, $43,219 of short-term debt consisted solely of the Company's Convertible Notes.

Precigen Convertible Notes

In July 2018, Precigen completed a registered underwritten public offering of $200,000 aggregate principal amount of Convertible Notes and issued the Convertible Notes under an indenture between Precigen and The Bank of New York Mellon Trust Company, N.A., as trustee, as supplemented by the First Supplemental Indenture.

The Convertible Notes were senior unsecured obligations of Precigen and bore interest at a rate of 3.50% per year, payable semiannually in arrears on January 1 and July 1 of each year beginning on January 1, 2019. The Convertible Notes matured on July 1, 2023, although certain notes were repurchased prior to maturity beginning in third quarter of 2022 (as discussed further below). On June 30, 2023, the Company repurchased all remaining outstanding Convertible Notes at par plus accrued interest.

As discussed in Note 3, in connection with the sale of Trans Ova in 2022, the Company transferred a total of $200,000 into a segregated account to be used for certain permitted purposes, including resolution of the Company's outstanding Convertible Notes. During the year December 31, 2022 and subsequently, the Company executed open market purchases of a portion of the outstanding Convertible Notes. During the nine months ended September 30, 2023, the Company retired, through open market purchases and payment upon maturity, $43,340 of principal balance and recorded a gain on extinguishment of debt of approximately $61, which was recorded within Other income (expense), net, within the condensed consolidated statements of operations. The Company had previously retired $156,660 of principal balance from purchases during the year ended December 31, 2022. As of September 30, 2023, no restricted cash remained in the segregated account noted above, as all of the Company's outstanding Convertible Notes had been retired.

The components of interest expense related to the Convertible Notes were as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Cash interest expense	$ —	$ 1,697	$ 397	$ 5,197
Non-cash interest expense	—	338	60	934
Total interest expense	$ —	$ 2,035	$ 457	$ 6,131

10. Income Taxes

For the three and nine months ended September 30, 2023, the Company calculated its tax benefit using the estimated annual effective tax rate method. The rate is the ratio of estimated annual income tax expense related to estimated pretax loss from continuing operations, excluding significant unusual or infrequently occurring items. As a result of the pretax losses anticipated for the full year which are not benefited, this rate has been calculated and applied to the year-to-date interim period's ordinary income or loss on a jurisdiction by jurisdiction basis to determine the income tax expense/benefit allocated to the year-to-date period. The annual effective tax rate is revised, if necessary, at the end of each interim period based on the Company's most current best estimate. The Company recorded $6 and $126 of income tax benefit from continuing operations for the three and nine months ended September 30, 2023, respectively. The effective tax rate differs from the U.S. statutory tax rate, primarily as a result of the change in valuation allowance required.

For the three and nine months ended September 30, 2022, the Company calculated its tax benefit using an estimate of actual taxable income or loss for the period, rather than estimating the Company's annual effective income tax rate, as the Company was unable to reliably estimate its income for the full year. The Company recorded $50 and $197 of income tax benefit from continuing operations for the three and nine months ended September 30, 2022, respectively. The effective tax rate differs from the U.S. statutory tax rate, primarily as a result of the change in valuation allowance required.

The Company's net deferred tax assets are offset by a valuation allowance due to the Company's history of net losses combined with an inability to confirm recovery of the tax benefits of the Company's tax attributes and other net deferred tax assets. A portion of the Company's tax attributes are subject to annual limitations under Section 382 of the Internal Revenue Code. In assessing the realizability of deferred tax assets, management considers whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in making this assessment.

11. Shareholders' Equity

Issuances of Precigen Common Stock

In January 2023, the Company closed a public offering of 43,962,640 shares of its common stock, resulting in net proceeds of $72,808, after deducting underwriting discounts, fees, and other offering expenses. Of the 43,962,640 shares, 11,517,712 shares were purchased by related parties and their affiliates, including the Company's Chief Executive Officer, its Chairman of the Board of Directors and his affiliates, and certain other of the Company's officers.

The Company completed the offering of shares of common stock, utilizing a number of underwriters, with J.P. Morgan Securities LLC acting as representative of the underwriters. The services provided by JP Morgan Securities LLC were in the ordinary course of their role as lead underwriter, for which they received customary fees and commissions.

Share Lending Agreement

Concurrently with the offering of the Convertible Notes (Note 9), Precigen entered into a share lending agreement (the "Share Lending Agreement") with J.P. Morgan Securities LLC (the "Share Borrower") pursuant to which Precigen loaned and delivered 7,479,431 shares of its common stock (the "Borrowed Shares") to the Share Borrower. The Share Lending Agreement terminated on October 1, 2023, and the Borrowed Shares were returned to Precigen on October 5, 2023.

The Share Lending Agreement was entered into at fair value and met the requirements for equity classification. Therefore, the value is netted against the issuance of the Borrowed Shares in additional paid-in capital. Additionally, the Borrowed Shares are not included in the denominator for loss per share attributable to Precigen shareholders.

At-the-Market Sales Agreement

On August 9, 2022, the Company entered into a Controlled Equity Offering Sales Agreement (the "Sales Agreement") with Cantor Fitzgerald & Co. (the "Agent"), pursuant to which the Company may issue and sell from time to time shares of the Company's common stock, no par value per share (the "Shares"), through the Agent. The offering and sale of up to $100,000 of the Shares has been registered under the Securities Act of 1933. The Company has no obligation to sell any of the Shares under the Sales Agreement, and may at any time suspend or terminate the offering of its common stock pursuant to the Sales

Agreement upon notice and subject to other conditions. The Company intends to use the proceeds of any sales to fund the development of clinical and preclinical product candidates and for working capital and other general corporate purposes. On July 1, 2023, the Company's shelf registration statement on Form S-3 (file number 333-239366) expired, thus precluding the Company from selling Shares through the Agent under the Sales Agreement beginning on that date.

No shares were sold in connection with the Sales Agreement during the nine months ended September 30, 2023 nor for the year ended December 31, 2022.

Components of Accumulated Other Comprehensive Loss

The components of accumulated other comprehensive loss are as follows:

	September 30, 2023	December 31, 2022
Unrealized loss on investments	$ (146)	$ (760)
Loss on foreign currency translation adjustments	(3,415)	(2,728)
Total accumulated other comprehensive loss	$ (3,561)	$ (3,488)

12. Share-Based Payments

The Company measures the fair value of stock options and restricted stock units ("RSUs") issued to employees and nonemployees as of the grant date for recognition of stock-based compensation expense. Stock-based compensation expense for employees and nonemployees is recognized over the requisite service period, which is typically the vesting period. Stock-based compensation costs included in the condensed consolidated statements of operations are presented below:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Cost of products and services	20	22	55	85
Research and development	579	524	1,666	1,658
Selling, general and administrative	1,707	1,638	5,905	6,244
Discontinued operations	—	(59)	—	9
Total	$ 2,306	$ 2,125	$ 7,626	$ 7,996

Precigen Equity Incentive Plans

In August 2013, Precigen adopted the 2013 Omnibus Incentive Plan ("the 2013 Plan"), for employees and nonemployees pursuant to which Precigen's board of directors may grant share-based awards, including stock options, restricted stock units, shares of common stock and other awards, to employees, officers, consultants, advisors, and nonemployee directors. Upon the effectiveness of the 2023 Omnibus Incentive Plan in June 2023, as discussed in the next paragraph, (the "2023 Plan"), no new awards may be granted under the 2013 Plan and any awards granted under the 2013 Plan prior to the effectiveness of the 2023 Plan will remain outstanding under such plan and will continue to vest and/or become exercisable in accordance with their original terms and conditions. As of September 30, 2023, there were 18,594,833 stock options and no RSUs outstanding under the 2013 Plan.

In April 2023, Precigen adopted the 2023 Plan, which became effective upon shareholder approval in June 2023. The 2023 Plan permits the grant of share-based awards, including stock options, restricted stock awards, and RSUs and other awards, to officers, employees and nonemployees. The 2023 Plan authorizes for issuance pursuant to awards under the 2023 Plan an aggregate of 16,418,137 shares, which included shares remaining available for issuance under the 2013 Plan as of the adoption of the 2023 Plan. As of September 30, 2023, there were 198,500 stock options and no RSUs outstanding under the 2023 Plan and 16,219,637 shares were available for future grants.

In April 2019, Precigen adopted the 2019 Incentive Plan for Non-Employee Service Providers (the "2019 Plan"), which became effective upon shareholder approval in June 2019. The 2019 Plan permits the grant of share-based awards, including stock options, restricted stock awards, and RSUs, to non-employee service providers, including board members. As of September 30,

2023, there were 12,000,000 shares authorized for issuance under the 2019 Plan, of which 3,158,007 stock options and 961,534 RSUs were outstanding and 4,502,466 shares were available for future grants.

Stock option activity was as follows:

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (Years)
Balances at December 31, 2022	15,201,276	$ 10.41	6.87
Granted	7,706,369	1.19	
Exercised	—	—	
Forfeited	(244,000)	2.65	
Expired	(712,305)	20.52	
Balances at September 30, 2023	21,951,340	6.93	7.37
Exercisable at September 30, 2023	11,503,244	10.51	6.02

RSU activity was as follows:

	Number of Restricted Stock Units	Weighted Average Grant Date Fair Value	Weighted Average Remaining Contractual Term (Years)
Balances at December 31, 2022	697,815	$ 2.66	0.13
Granted	4,083,777	1.01	
Vested	(3,820,058)	1.27	
Forfeited	—	—	
Balances at September 30, 2023	961,534	1.17	0.44

Precigen currently uses authorized and unissued shares to satisfy share award exercises.

13. Operating Leases

The Company leases certain facilities and equipment under operating leases. Leases with a lease term of twelve months or less are considered short-term leases and are not recorded on the balance sheet, and expense for these leases is recognized over the term of the lease. All other leases have remaining terms of one to seven years, some of which may include options to extend the lease and some of which may include options to terminate the lease within one year. The Company uses judgment to determine whether it is reasonably possible to extend the lease beyond the initial term or terminate before the initial term ends and the length of the possible extension or early termination. The leases are renewable at the option of the Company and do not contain residual value guarantees, covenants, or other restrictions.

The components of lease costs were as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Operating lease costs	$ 621	$ 600	$ 1,853	$ 1,840
Short-term lease costs	11	53	41	155
Variable lease costs	89	84	295	308
Lease costs	$ 721	$ 737	$ 2,189	$ 2,303

As of September 30, 2023, maturities of lease liabilities, excluding short-term and variable leases, for continuing operations were as follows:

2023	$ 465
2024	2,011
2025	1,886
2026	1,494
2027	1,238
2028	1,260
Thereafter	1,847
Total	10,201
Present value adjustment	(2,809)
Total	$ 7,392
Current portion of operating lease liabilities	$ 1,200
Long-term portion of operating lease liabilities	6,192
Total	$ 7,392

Other information related to operating leases in continuing operations was as follows:

	September 30, 2023	December 31, 2022
Weighted average remaining lease term (years)	5.58	6.09
Weighted average discount rate	11.18 %	11.05 %

	Nine Months Ended September 30,	
	2023	2022
Supplemental disclosure of cash flow information		
Cash paid for operating lease liabilities	$ 1,769	$ 1,877
Operating lease right-of-use assets obtained in exchange for new lease liabilities (includes new leases or modifications of existing leases)	399	466

14. Commitments and Contingencies

Contingencies

In October 2020, several shareholder class action lawsuits were filed in the United States District Court for the Northern District of California on behalf of certain purchasers of the Company's common stock. The complaints name as defendants the Company and certain of its current and former officers. The plaintiffs' claims challenged disclosures about the MBP program from May 10, 2017 to March 1, 2019. In March 2021, the Court granted an order consolidating the claims and, in April 2021, appointed a lead plaintiff and lead counsel in the case, captioned In *re Precigen Securities Litigation*, Case No. 5:20-cv-06936-BLF (N.D. Cal.). On May 18, 2021, the lead plaintiff filed an Amended Class Action Complaint. On August 2, 2021, the defendants moved to dismiss the Amended Class Action Complaint. On September 27, 2021, the lead plaintiff filed a Second Amended Class Action Complaint in lieu of a response to the defendants' motion to dismiss. On November 3, 2021, the defendants moved to dismiss the Second Amended Class Action Complaint and on May 31, 2022, the Court granted the defendants' motion to dismiss the Second Amended Class Action Complaint with leave to amend. On August 1, 2022, the lead plaintiff filed a Third Amended Class Action Complaint.

On August 2, 2022, the Court granted the parties' request to conduct a private mediation session to explore potential resolution of the action. On November 17, 2022, at the conclusion of the mediation session, the parties executed a memorandum of understanding that agreed in principle to resolve the claims asserted in the securities class action. The settlement provides for a payment to the plaintiff class of $13,000. On November 6, 2023, the Court granted final approval of the settlement, dismissed the litigation with prejudice, and entered final judgment. As a result, the shareholder class action lawsuit was resolved. As of both September 30, 2023 and December 31, 2022, the Company recorded an accrual of $13,000 in settlement and

indemnification accruals on the condensed consolidated balance sheets for this matter. In addition, the Company separately recognized an insurance receivable asset of $12,592 and $12,411 within Receivables, other, on the condensed consolidated balance sheets as of September 30, 2023 and December 31, 2022, respectively.

In December 2020, a derivative shareholder action, captioned *Edward D. Wright, derivatively on behalf of Precigen, Inc. F/K/A Intrexon Corp. v. Alvarez et al*, was filed in the Circuit Court for Fairfax County in Virginia on behalf of Precigen, Inc. asserting similar claims under state law against Precigen's current directors and certain officers. The plaintiff seeks damages, forfeiture of benefits received by defendants, and an award of reasonable attorneys' fees and costs. The case was stayed by an order entered on June 14, 2021. On September 24, 2021, an individual shareholder filed a lawsuit in the Circuit Court for Henrico County styled *Kent v. Precigen*, Inc., Case CL21-6349. The *Kent* action demands inspection of certain books and records of the Company pursuant to Virginia statutory and common law. On April 1, 2022, the Court denied the demurrer and referred the matter to a hearing on the merits. The Company intends to defend the lawsuits vigorously; however, there can be no assurances regarding the ultimate outcome of these lawsuits.

In the course of its business, the Company is involved in litigation or legal matters, including governmental investigations. Such matters are subject to many uncertainties and outcomes are not predictable with assurance. The Company accrues liabilities for such matters when it is probable that future expenditures will be made and such expenditures can be reasonably estimated. As of September 30, 2023, the Company does not believe that any such matters, individually or in the aggregate, will have a material adverse effect on the Company's business, financial condition, results of operations, or cash flows.

15. Segments

The Company's CODM assesses the operating performance of and allocates resources for several operating segments using Segment Adjusted EBITDA as a basis. Management believes this financial metric is a key indicator of operating results since it excludes noncash revenues and expenses that are not reflective of the underlying business performance of an individual enterprise. The Company defines Segment Adjusted EBITDA as net income (loss) before (i) interest expense, (ii) income tax expense or benefit, (iii) depreciation and amortization, (iv) stock-based compensation expense, (v) loss on settlement agreements where noncash consideration is paid, (vi) adjustments for accrued bonuses paid in equity awards, (vii) gain or loss on disposals of assets, (viii) loss on impairment of goodwill and other noncurrent assets, (ix) equity in net income loss of affiliates, and (x) recognition of previously deferred revenue associated with upfront and milestone payments as well as cash outflows from capital expenditures and investments in affiliates, but includes proceeds from the sale of assets in the period sold.

Because the Company uses Segment Adjusted EBITDA as its primary measure of segment performance, it has included this measure in its discussion of segment operating results. The Company has also disclosed revenues from external customers and intersegment revenues for each reportable segment. The CODM does not use total assets by segment to evaluate segment performance or allocate resources, and accordingly, these amounts are not required to be disclosed. The Company's segment presentation excludes amounts related to the operations of Trans Ova prior to its sale, which are reported as discontinued operations (Note 3).

For the three and nine months ended September 30, 2023, the Company's reportable segments were (i) Biopharmaceuticals and (ii) Exemplar. These identified reportable segments met the quantitative thresholds to be reported separately for the nine months ended September 30, 2023. See Note 2 for a description of Biopharmaceuticals. See Note 1 for a description of Exemplar.

Segment Adjusted EBITDA by reportable segment was as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Biopharmaceuticals	$ (17,068)	$ (18,082)	$ (56,345)	$ (58,956)
Exemplar	(464)	346	(426)	4,699
Segment Adjusted EBITDA for reportable segments	$ (17,532)	$ (17,736)	$ (56,771)	$ (54,257)

The table below reconciles Segment Adjusted EBITDA for reportable segments to consolidated net loss from continuing operations before income taxes:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Segment Adjusted EBITDA for reportable segments	$ (17,532)	$ (17,736)	$ (56,771)	$ (54,257)
All Other Segment Adjusted EBITDA	—	—	—	—
Remove cash paid for capital expenditures, net of proceeds from sale of assets, and cash paid for investments in affiliates	236	674	491	1,342
Interest Income	856	56	2,317	131
Add recognition of previously deferred revenue associated with upfront and milestone payments	—	14,561	—	14,561
Other expenses:				
Interest expense	(1)	(2,036)	(461)	(6,137)
Depreciation and amortization	(1,650)	(1,717)	(5,054)	(5,470)
Gain (loss) on disposals of assets	28	—	68	—
Impairment losses	—	—	—	(1,120)
Stock-based compensation expense	(2,306)	(2,184)	(7,626)	(7,987)
Adjustment related to accrued bonuses paid in equity awards	—	—	3,361	1,698
Equity in net income (loss) of affiliates	—	862	—	861
Other	—	—	—	(105)
Shares issue for payment of services	—	—	(545)	(576)
Corporate noncash items	568	(168)	1,246	(636)
Eliminations	—	(6)	—	(103)
Consolidated net loss from continuing operations before income taxes	$ (19,801)	$ (7,694)	$ (62,974)	$ (57,798)

Revenues by reportable segment were as follows:

	Three Months Ended September 30, 2023		
	Biopharmaceuticals	Exemplar	Total
Revenues from external customers / Total segment revenues	$ —	$ 1,379	$ 1,379

	Three Months Ended September 30, 2022		
	Biopharmaceuticals	Exemplar	Total
Revenues from external customers / Total segment revenues	$ 14,624	$ 2,098	$ 16,722

	Nine Months Ended September 30, 2023		
	Biopharmaceuticals	Exemplar	Total
Revenues from external customers / Total segment revenues	$ —	$ 4,997	$ 4,997

	Nine Months Ended September 30, 2022		
	Biopharmaceuticals	Exemplar	Total
Revenues from external customers / Total segment revenues	$ 14,778	$ 10,368	$ 25,146

Total segment revenues from reportable segments equal total consolidated revenues on the condensed consolidated statements of operations.

For the three months ended September 30, 2023 and 2022, 78.7% and 41.1%, respectively, of total consolidated revenue was attributable to four customers in 2023 and one customer in 2022 in the Exemplar segment. For the nine months ended September 30, 2023 and 2022, 78.2% and 62.4%, respectively, of total consolidated revenue was attributable to four customers in 2023 and one customer in 2022 in the Exemplar segment.

As of September 30, 2023 and December 31, 2022, the Company had $1,908 and $2,591, respectively, of long-lived assets in foreign countries. The Company recognized revenues derived in foreign countries totaling $0 and $63 for the three months ended September 30, 2023 and 2022, respectively, and $0 and $217 for the nine months ended September 30, 2023 and 2022, respectively.

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

The following "Management's Discussion and Analysis of Financial Condition and Results of Operations" should be read in conjunction with the unaudited financial information and the notes thereto included in this Quarterly Report on Form 10-Q, or Quarterly Report, and our Annual Report on Form 10-K for the year ended December 31, 2022, or Annual Report.

The following discussion contains forward-looking statements that reflect our plans, estimates, expectations, and beliefs. Our actual results could differ materially from those discussed in the forward-looking statements and you are cautioned not to place undue reliance on forward-looking statements. Factors that could cause or contribute to these differences include those discussed below and elsewhere in this Quarterly Report, particularly in "Special Note Regarding Forward-Looking Statements" and "Risk Factors." The forward-looking statements included in this Quarterly Report are made only as of the date hereof.

Overview

We are a dedicated discovery and clinical-stage biopharmaceutical company advancing the next generation of gene and cell therapies with the overall goal of improving outcomes for patients with significant unmet medical needs. We are leveraging our proprietary technology platforms to develop product candidates designed to target urgent and intractable diseases in our core therapeutic areas of immuno-oncology, autoimmune disorders, and infectious diseases. We have developed an extensive pipeline of therapies across multiple indications within these core focus areas.

We believe that our array of technology platforms uniquely positions us among other biotechnology companies to advance precision medicine. Precision medicine is the practice of therapeutic product development that takes into account specific genetic variations within populations impacted by a disease to design targeted therapies to improve outcomes for a disease or patient population. Our proprietary and complementary technology platforms provide a strong foundation to realize the core promise of precision medicine by supporting our efforts to construct powerful gene programs to drive efficacy, deliver these programs through viral, non-viral, and microbe-based approaches to maintain lower costs, and control gene expression to ensure safety. Our therapeutic platforms, including UltraCAR-T, AdenoVerse immunotherapy, and ActoBiotics, are designed to allow us to precisely control the level and physiological location of gene expression and modify biological molecules in order to control the function and output of living cells to treat underlying disease conditions.

We are advancing our lead clinical programs, including: PRGN-3005, PRGN-3006 and PRGN-3007, which are built on our UltraCAR-T platform; and PRGN-2009 and PRGN-2012, which are based on our AdenoVerse immunotherapy platform. In addition, we have completed a Phase 1b/2a study of AG019, which is built on our ActoBiotics platform. We also have a robust pipeline of preclinical programs that we are pursuing in order to drive long-term value creation.

We have developed a proprietary electroporation device, UltraPorator, designed to further streamline the rapid and cost-effective manufacturing of UltraCAR-T therapies. UltraPorator has received U.S. Food and Drug Administration, or FDA, clearance for manufacturing UltraCAR-T cells in clinical trials, and we have been dosing patients with UltraCAR-T cells manufactured with UltraPorator in our UltraCAR-T clinical trials.

We exercise discipline in our portfolio management by systematically evaluating data from our preclinical programs in order to make rapid "go" and "no go" decisions. Through this process, we believe we can more effectively allocate resources to programs that we believe show the most promise and advance such programs to clinical trials.

Our Biopharmaceuticals reportable segment is primarily comprised of the Company's legal entities of Precigen and ActoBio, as well as royalty interests in therapeutics and therapeutic platforms from companies not controlled by us. Our Exemplar reportable segment is comprised of Exemplar Genetics LLC, doing business as Precigen Exemplar, or Exemplar, our wholly owned subsidiary focused on developing research models and services for healthcare research applications.

Biopharmaceuticals

Precigen

We are developing therapies built on our UltraCAR-T therapeutics platform and our "off-the-shelf" AdenoVerse immunotherapy platform. Through our UltraCAR-T therapeutics platform, we are able to precision-engineer UltraCAR-T cells to produce a homogeneous cell product that simultaneously expresses antigen-specific chimeric antigen receptor, or CAR, kill switch, and our proprietary membrane-bound interleukin-15, or mbIL15, genes in any genetically modified UltraCAR-T cell. Our decentralized and rapid proprietary manufacturing process allows us to manufacture UltraCAR-T cells overnight at a medical center's current good manufacturing practices facility, or cGMP, and reinfuse the patient the following day after gene transfer. This process improves upon current approaches to CAR-T manufacturing, which require extensive *ex vivo* expansion following viral vector transduction to achieve clinically relevant cell numbers that we believe can result in the exhaustion of

CAR-T cells prior to their administration, limiting their potential for persistence in patients. We have developed a proprietary electroporation device, UltraPorator, designed to further streamline and ensure the rapid and cost-effective manufacturing of UltraCAR-T therapies. The UltraPorator system includes proprietary hardware and software solutions and potentially represents major advancements over current electroporation devices by significantly reducing the processing time and contamination risk. UltraPorator is intended to be a viable scale-up and commercialization solution for decentralized UltraCAR-T manufacturing. Our AdenoVerse immunotherapy platform utilizes a library of proprietary adenovectors for the efficient gene delivery of therapeutic effectors, immunomodulators, and vaccine antigens. We have established proprietary manufacturing cell lines and production methodologies from our AdenoVerse immunotherapy platform, which we believe are easily scalable for commercial supply. We believe that our proprietary gorilla adenovectors, part of the AdenoVerse technology, have superior performance characteristics as compared to current competition, including standard human adenovirus serotype 5, rare human adenovirus types and other non-human primate adenovirus types.

Our most advanced programs are as follows:

PRGN-2012 is a first-in-class, investigational "off-the-shelf" AdenoVerse immunotherapy for the treatment of recurrent respiratory papillomatosis, or RRP. PRGN-2012 is an innovative therapeutic vaccine with optimized antigen design that uses our gorilla adenovector technology, part of our proprietary AdenoVerse platform, to elicit immune responses directed against cells infected with HPV type 6 and HPV type 11. PRGN-2012 is in a Phase 1/2 clinical trial for adult patients with RRP. This clinical trial is being conducted in collaboration with the Center for Cancer Research at the NCI pursuant to a CRADA. We have completed the Phase 1 clinical trial. The Phase 2 clinical trial is ongoing. We recently announced that the FDA has agreed that the ongoing Phase 1/2 study of PRGN-2012 will serve as pivotal study for the purpose of filing an accelerated approval request for licensure. PRGN-2012 has been granted Breakthrough Therapy Designation for the treatment of RRP by the FDA. Previously, PRGN-2012 was granted Orphan Drug designation by the FDA.

PRGN-2009 is a first-in-class, "off-the-shelf" investigational immunotherapy designed to activate the immune system to recognize and target human papillomavirus-positive, or HPV+, solid tumors. PRGN-2009 leverages our UltraVector and AdenoVerse platforms to optimize HPV type 16 and HPV type 18, antigen designed for delivery via a proprietary gorilla adenovector with a large genetic payload capacity and the ability for repeat administrations. We have completed a Phase 1 clinical trial of PRGN-2009 as a monotherapy or in combination with bintrafusp alfa, or M7824, an investigational bifunctional fusion protein, for patients with HPV-associated cancers in collaboration with the National Cancer Institute, or NCI, pursuant to a cooperative research and development arrangement, or CRADA. A Phase 2 clinical trial of PRGN-2009 in newly diagnosed oropharyngeal squamous cell carcinoma patients is ongoing in collaboration with the NCI pursuant to a CRADA. In addition, we have received FDA clearance of an IND to initiate a Phase 2 clinical trial of PRGN-2009 in combination with pembrolizumab to treat patients with recurrent or metastatic cervical cancer.

PRGN-3006 is a first-in-class, investigational autologous CAR-T therapy that utilizes our UltraCAR-T platform to express a CAR to target CD33 (Siglec-3), mbIL15 and a kill switch gene. PRGN-3006 is currently being evaluated in a Phase 1/1b clinical trial for the treatment of relapsed or refractory, or r/r, acute myeloid leukemia, or AML, and high-risk myelodysplastic syndromes, or MDS. PRGN-3006 has been granted Fast Track designation in patients with r/r AML by the FDA. Previously PRGN-3006 was granted Orphan Drug Designation in patients with AML by the FDA. We have completed the Phase 1 dose escalation trial. The Phase 1b dose expansion trial is ongoing where PRGN-3006 is being evaluated following lymphodepletion.

PRGN-3005 is a first-in-class, investigational autologous CAR-T therapy that utilizes our UltraCAR-T platform to simultaneously express a CAR targeting the unshed portion of the Mucin 16 antigen, mbIL15, and kill switch genes. PRGN-3005 is currently being evaluated in a Phase 1/1b clinical trial for the treatment of advanced, recurrent platinum-resistant ovarian , fallopian tube, or primary peritoneal cancer. We have completed enrollment in the Phase 1 dose escalation cohorts of the intraperitoneal (IP) and intravenous (IV) arms without lymphodepletion as well as in the lymphodepletion cohort in the IV arm. The Phase 1b dose expansion trial is ongoing where PRGN-3006 is being evaluated following lymphodepletion and IV administration.

PRGN-3007 is a first-in-class, investigational autologous CAR-T therapy that utilizes the next generation UltraCAR-T platform to express a CAR which targets ROR1, mbIL15, a kill switch, and a novel mechanism for the intrinsic blockade of the programmed death 1, or PD-1, gene expression. PRGN-3007 is being evaluated in a Phase 1/1b clinical trial for patients with advanced receptor tyrosine kinase-like orphan receptor 1-positive, or ROR1^{+}, hematological (Arm 1) and solid tumors (Arm 2). The target patient population for Arm 1 includes relapsed or refractory CLL, relapsed or refractory MCL, relapsed or refractory B-ALL, and relapsed or refractory DLBCL. The target patient population for Arm 2 includes locally advanced unresectable or metastatic histologically confirmed TNBC Arm 1 and Arm 2 will enroll in parallel. The study is designed to enroll in two parts: an initial 3+3 dose escalation in each arm followed by a dose expansion at the maximum tolerated dose. The Phase 1 dose escalation trial is ongoing.

In addition to our clinical programs, we have a robust pipeline of preclinical programs in order to drive long-term value creation. Our pipeline includes product candidates based on UltraCAR-T and "off-the-shelf" AdenoVerse immunotherapy

therapeutic platforms. We expect to continue development of a number of potential product candidates in our preclinical pipeline to identify product candidates for evaluation in clinical trials.

Precigen ActoBio, Inc.

ActoBio is pioneering a proprietary class of microbe-based biopharmaceuticals, referred to as ActoBiotics, that enable expression and local delivery of disease-modifying therapeutics. Our ActoBiotics platform is a unique delivery platform precisely tailored for specific disease modification with the potential for superior efficacy and safety. ActoBiotics combine the advantages of highly selective protein-based therapeutic agents with local delivery by the well-characterized, food-grade bacterium *Lactococcus lactis*, or *L. lactis*. ActoBiotics can be delivered orally in a capsule, through an oral rinse, or in a topical solution. We believe ActoBiotics have the potential to provide superior safety and efficacy through the sustained release of appropriate quantities of select therapeutic agents as compared to injectable biologics, while reducing the side effects commonly attributed to systemic delivery and corresponding peaks in concentration. ActoBiotics work via genetically modified bacteria which deliver proteins and peptides at mucosal sites, rather than the insertion of one or more genes into a human cell by means of a virus or other delivery mechanism. By foregoing this insertion, ActoBiotics enable "gene therapy" without the need for cell transformation.

ActoBio's most advanced internal pipeline candidate, AG019, is a first-in-class disease modifying antigen-specific, investigational immunotherapy for the prevention, delay, or reversal of type 1 diabetes mellitus, or T1D. AG019 is an easy-to-take capsule formulation of ActoBiotics engineered to deliver autoantigen human proinsulin, or hPINS, and the tolerance-enhancing cytokine human interleukin-10 to the mucosal lining of gastro-intestinal tissues in patients with T1D. We have completed a Phase 1b/2a clinical trial of AG019 for the treatment of early-onset T1D. The Phase 1b portion of the study evaluated the safety and tolerability of AG019 monotherapy administered both as a single dose and as repeated daily doses in adult and adolescent patients. The Phase 2a double-blind portion of the study investigated the safety and tolerability of AG019 in combination with teplizumab, or PRV-031. The primary endpoint of assessing safety and tolerability in both the Phase 1b AG019 monotherapy and the Phase 2a AG019 combination therapy has been met. AG019 was well-tolerated when administered to adults and adolescents either as monotherapy or in combination with teplizumab. A single 8-week treatment cycle of oral AG019 as a monotherapy and in combination with teplizumab showed stabilization or increase of C-peptide levels during the first 6 months post treatment initiation in recent-onset T1D.

Third Party Licenses

We previously entered into a collaboration with Castle Creek Biosciences, Inc., or Castle Creek, to advance certain product candidates. Pursuant to the collaboration, we licensed our technology platforms to Castle Creek for use in certain specified fields, and in exchange, we received and were entitled to certain access fees, milestone payments, royalties, and sublicensing fees related to the development and commercialization of product candidates. In March 2020, we and Castle Creek terminated the original collaboration agreement by mutual agreement, with the parties agreeing that certain product candidates would be treated as "Retained Products" under the terms of the original agreement. Castle Creek retains a license to continue to develop and commercialize the Retained Products within the field of use for so long as Castle Creek continues to pursue such development and commercialization; we are also entitled to certain royalties with respect to the Retained Products. One such Retained Product is D-Fi (debcoemagene autoficel), formerly designated FCX-007, for the treatment of recessive dystrophic epidermolysis bullosa, or RDEB.

Precigen Exemplar

Exemplar is committed to enabling the study of life-threatening human diseases through the development of Yucatan MiniSwine miniature preclinical research models and services, as well as enabling the production of cells and organs in its genetically engineered MiniSwine for regenerative medicine applications. Historically, researchers have lacked animal models that faithfully represent human diseases. As a result, a sizeable barrier has blocked progress in the discovery of human disease mechanisms; novel diagnostics, procedures, devices, prevention strategies and therapeutics; as well as the ability to predict in humans the efficacy of next-generation procedures, devices, and therapeutics. Exemplar's MiniSwine models are genetically engineered to exhibit a wide variety of human disease states, which provides a more accurate platform to test the efficacy of new medications and devices.

Discontinued Operations

In August 2022, Precigen completed the sale of 100% of the issued and outstanding membership interests in its wholly-owned subsidiary, Trans Ova Genetics, L.C. (“Trans Ova”), a provider of reproductive technologies, including services and products sold to cattle breeders and other producers.

See also "Notes to the Condensed Consolidated Financial Statements (Unaudited) - Note 3" appearing elsewhere in this Quarterly Report for additional discussion of our discontinued operations.

Segments

As of September 30, 2023, our reportable segments were (i) Biopharmaceuticals and (ii) Exemplar. These identified reportable segments met the quantitative thresholds to be reported separately for the nine months ended September 30, 2023.

Prior to January 1, 2023, corporate expenses, were not allocated to the segments and were managed at a consolidated level. Corporate expenses, include costs associated with general and administrative functions, including the Company's finance, accounting, legal, human resources, information technology, corporate communication, and investor relations functions. Corporate expenses exclude interest expense, depreciation and amortization, gain or loss on disposals of assets, stock-based compensation expense, loss on settlement agreement, and equity in net income or loss of affiliates and include unrealized and realized gains and losses on the Company's securities portfolio as well as dividend income. Beginning in the first quarter of 2023, we began allocating certain corporate expenses to one of the reporting units within the Biopharmaceuticals reportable segment. As presented in Note 15 to the Condensed Consolidated Financial Statements (Unaudited) appearing elsewhere in this Quarterly Report, the prior year period has been reclassified to conform to the current period’s presentation.

Financial overview

We have incurred significant losses since our inception. We anticipate that we may continue to incur significant losses for the foreseeable future, and we may never achieve or maintain profitability. Our historical collaboration and licensing revenues were generated under a business model from which we have gradually transitioned, and we do not expect to expend significant resources servicing our historical collaborations in the future. We may enter into strategic transactions for individual platforms or programs in the future from which we may generate new collaboration and licensing revenues. We continue to generate product and service revenues through our Exemplar subsidiary. Products currently in our clinical pipeline will require regulatory approval and/or commercial scale-up before they may commence significant product sales and operating profits.

As we continue our efforts to focus our business and generate additional capital, we may be willing to enter into transactions involving one or more of our operating segments and reporting units for which we have goodwill and intangible assets. These efforts could result in us identifying impairment indicators or recording impairment charges in future periods. In addition, market changes and changes in judgements, assumptions, and estimates that we have made in assessing the fair value of goodwill could cause us to consider some portion or all of certain assets to become impaired.

Sources of revenue

Although we have generated revenue in the past from collaboration agreements, our primary current revenues arise from Exemplar, which generates product and service revenues through the development and sale of genetically engineered miniature swine models. We recognize revenue when control of the promised product or service is transferred to the customer.

As we have shifted our focus to our healthcare business, we have and may continue to mutually terminate historical collaboration agreements or repurchase rights to the exclusive fields from collaborators, relieving us of any further performance obligations under the agreement. Upon such circumstances or when we determine no further performance obligations are required of us under an agreement, we may recognize any remaining deferred revenue as either collaboration revenue or as a reduction of operating expense, depending on the circumstances. See "Notes to the Consolidated Financial Statements (Unaudited) - Note 4" appearing elsewhere in this Quarterly Report for a discussion of changes to our significant collaborations.

In future periods, in connection with our focus on healthcare, our revenues will primarily depend on our ability to advance and create our own programs and the extent to which we bring products enabled by our technologies to market. Other than for collaboration revenues recognized upon cancellation or modification of an existing collaboration or for revenues generated pursuant to future strategic transactions for any of our existing platforms or programs, we expect our collaboration revenues will continue to decrease in the near term, although if any new collaboration agreements or strategic transactions are entered

into, revenue could be positively impacted. Our revenues will also depend upon our ability to maintain or improve the volume and pricing of Exemplar's current product and service offerings and to develop and scale up production of new offerings from the various technologies of Exemplar. As we focus on our healthcare business, we anticipate that our expenses will increase substantially if, and as, we continue to advance the preclinical and clinical development of our existing product candidates and our research programs. We expect a significant period of time could pass before commercialization of our various product candidates or before the achievement of contractual milestones and the realization of royalties on product candidates commercialized under our collaborations. Accordingly, there can be no assurance as to the timing, magnitude, and predictability of revenues, if any, to which we might be entitled.

Cost of products and services

Cost of products and services, all which are related to our Exemplar reporting segment, includes primarily labor and related costs, drugs and supplies, feed used in production, and facility charges, including rent and depreciation. Fluctuations in the price of livestock and feed have not had a significant impact on our operating margins and no derivative financial instruments are used to mitigate the price risk.

Research and development expenses

We recognize research and development expenses as they are incurred. Our research and development expenses consist primarily of:

- salaries and benefits, including stock-based compensation expense, for personnel in research and development functions;
- fees paid to consultants and contract research organizations who perform research on our behalf and under our direction;
- costs related to laboratory supplies used in our research and development efforts and acquiring, developing, and manufacturing preclinical study and clinical trial materials;
- costs related to certain in-licensed technology rights or in-process research and development;
- amortization of patents and related technologies acquired in mergers and acquisitions; and
- facility-related expenses, which include direct depreciation costs and unallocated expenses for rent and maintenance of facilities and other operating costs.

Our research and development expenses are generally incurred by our reportable segments and primarily relate to either costs incurred to expand or otherwise improve our technologies or the costs incurred to develop our own products and services. Our Biopharmaceuticals segment is progressing preclinical and clinical programs that target urgent and intractable diseases in our core therapeutic areas of immuno-oncology, autoimmune disorders, and infectious diseases, including PRGN-3005, PRGN-3006, PRGN-3007, PRGN-2009, and PRGN-2012 and AG019. Our Exemplar segment's research and development activities relate to new and improved pig research models. The following table summarizes our research and development expenses incurred by reportable segment and reconciles those expenses to research and development expenses on the condensed consolidated statements of operations for the three and nine months ended September 30, 2023 and 2022.

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Biopharmaceuticals	$ 11,517	$ 12,536	$ 35,411	$ 36,133
Exemplar	66	86	209	244
Total consolidated research and development expenses	$ 11,583	$ 12,622	$ 35,620	$ 36,377

The amount of research and development expenses may be impacted by, among other things, the number and nature of our own proprietary programs, and the number and size of programs we may support on behalf of collaboration agreements. We expect that our research and development expenses will increase as we continue to develop our own proprietary programs, including

progression of these programs into preclinical and clinical stages. We believe these increases will likely include increased costs paid to consultants and contract research organizations and increased costs related to laboratory supplies.

Research and development expenses may also increase as a result of in-licensing of technologies or ongoing research and development operations that we might assume through mergers and acquisitions.

Selling, general and administrative expenses

Selling, general and administrative, or SG&A, expenses consist primarily of salaries and related costs, including stock-based compensation expense, for employees in executive, operational, finance, information technology, legal, and corporate communications functions. Other significant SG&A expenses include rent and utilities, insurance, accounting, and legal services (including the cost of settling any claims and lawsuits), and expenses associated with obtaining and maintaining our intellectual property.

SG&A expenses may fluctuate in the future depending on the scaling of our corporate functions required to support our corporate initiatives and the outcomes of legal claims and assessments against us.

Other income (expense), net

Other income consists of gain on convertible debt retirement and interest earned on our cash and cash equivalents and short-term and long-term investments, and may fluctuate based on amounts invested and current interest rates.

Other expense consists primarily of interest on our Convertible Notes, which decreased in 2023 due to retirements of our Convertible Notes. See "Notes to the Condensed Consolidated Financial Statements (Unaudited) - Note 9" appearing elsewhere in this Quarterly Report for further discussion.

Equity in net income or loss of affiliates

Equity in net income or loss of affiliates is our pro-rata share of our equity method investments' operating results, adjusted for accretion of basis difference. We account for investments in our JVs using the equity method of accounting since we have the ability to exercise significant influence, but not control, over the operating activities of these entities.

Segment performance

We use Segment Adjusted EBITDA as our primary measure of segment performance. We define Segment Adjusted EBITDA as net income (loss) before (i) interest expense, (ii) income tax expense or benefit, (iii) depreciation and amortization, (iv) stock-based compensation expense, (v) loss on settlement agreements where noncash consideration is paid, (vi) adjustments for accrued bonuses paid in equity awards, (vii) gain or loss on disposals of assets, (viii) loss on impairment of goodwill and other noncurrent assets, (ix) equity in net income (loss) of affiliates, and (x) recognition of previously deferred revenue associated with upfront and milestone payments as well as cash outflows from capital expenditures and investments in affiliates, but includes proceeds from the sale of assets in the period sold. See "Notes to the Condensed Consolidated Financial Statements (Unaudited) - Note 15" appearing elsewhere in this Quarterly Report for further discussion of Segment Adjusted EBITDA.

Results of operations

Comparison of the three months ended September 30, 2023 and the three months ended September 30, 2022

The following table summarizes our results of operations for the three months ended September 30, 2023 and 2022, together with the changes in those items in dollars and as a percentage:

	Three Months Ended September 30,		Dollar Change	Percent Change
	2023	2022		
	(In thousands)			
Revenues				
Collaboration and licensing revenues	$ —	$ 14,561	$ (14,561)	(100.0)%
Product revenues	82	342	(260)	(76.0)%
Service revenues	1,296	1,750	(454)	(25.9)%
Other revenues	1	69	(68)	(98.6)%
Total revenues	1,379	16,722	(15,343)	(91.8)%
Operating expenses				
Cost of product and services	1,537	1,577	(40)	(2.5)%
Research and development	11,583	12,622	(1,039)	(8.2)%
Selling, general and administrative	9,196	10,137	(941)	(9.3)%
Impairment of other noncurrent assets	—	—	—	N/A
Total operating expenses	22,316	24,336	(2,020)	(8.3)%
Operating loss	(20,937)	(7,614)	(13,323)	175.0 %
Total other income (expense), net	1,136	(942)	2,078	>200%
Equity in net income (loss) of affiliates	—	862	(862)	(100.0)%
Loss from continuing operations before income taxes	(19,801)	(7,694)	(12,107)	157.4 %
Income tax benefit	6	50	(44)	(88.0)%
Loss from continuing operations	(19,795)	(7,644)	(12,151)	159.0 %
Income from discontinued operations, net of income taxes (1)	—	95,023	(95,023)	(100.0)%
Net income (loss)	$ (19,795)	$ 87,379	$ (107,174)	(122.7)%

(1) See "Notes to the Condensed Consolidated Financial Statements (Unaudited) - Note 3" appearing elsewhere in this Quarterly Report.

Collaboration and licensing revenues

Collaboration and licensing revenues decreased $14.6 million, or 100.0%, from the three months ended September 30, 2022 due to the fact we obtained control of Intrexon Energy Partners and Intrexon Energy Partners II in the third quarter of 2022. Therefore, we recognized the remaining balance of deferred revenue associated with Intrexon Energy Partners and Intrexon Energy Partners II, less the amounts paid to acquire the membership interests of the investors. See "Note to the Condensed Financial Statements (Unaudited) – Note 4" appearing elsewhere in this Quarterly Report for further discussion of Intrexon Energy Partners and Intrexon Energy Partners II.

Product and service revenues and gross margin

Product and service revenues decreased $0.7 million, or 34%, compared to the three months ended September 30, 2022. This decrease is related to reductions in services performed at Exemplar. Gross margin on product and services declined in the current period primarily as a result of the decreased revenues, with a smaller impact due to increases in salaries, benefits, and other personnel costs at Exemplar.

Research and development expenses

Research and development expenses decreased $1.0 million, or 8%, compared to the three months ended September 30, 2022. This decrease was primarily due to continued reprioritization of clinical product candidates.

Selling, general and administrative expenses

SG&A expenses decreased $0.9 million, or 9%, compared to the three months ended September 30, 2022. This decrease was primarily driven by a reduction in professional fees of $0.6 million, due to decreased legal fees associated with certain litigation matters, and $0.3 million in decreased insurance related expenses.

Total other income (expense), net

Total other income, net, increased $2.1 million compared to the three months ended September 30, 2022. This is primarily due to $2.0 million in reduced interest expense associated with the Convertible Notes as they were fully retired in the second quarter of 2023, and $0.8 million increased interest income due to higher interest rates on investments. This increase was offset by a $0.9 million gain recorded on the early retirement of a portion of our Convertible Notes in the third quarter of 2022 that did not occur in the third quarter of 2023.

Segment performance

The following table summarizes Segment Adjusted EBITDA, which is our primary measure of segment performance, for the three months ended September 30, 2023 and 2022, for each of our reportable segments.

	Three Months Ended September 30,		Dollar Change	Percent Change
	2023	2022		
	(In thousands)			
Segment Adjusted EBITDA:				
Biopharmaceuticals	$ (17,068)	$ (18,082)	$ 1,014	5.6 %
Exemplar	(464)	346	(810)	<(200)%

For a reconciliation of Segment Adjusted EBITDA to net loss from continuing operations before income taxes, see "Notes to the Condensed Consolidated Financial Statements (Unaudited) - Note 15" appearing elsewhere in this Quarterly Report.

The following table summarizes revenues from external customers for the three months ended September 30, 2023 and 2022, for each of our reportable segments.

	Three Months Ended September 30,		Dollar Change	Percent Change
	2023	2022		
	(In thousands)			
Biopharmaceuticals	$ —	$ 14,624	$ (14,624)	(100.0)%
Exemplar	1,379	2,098	(719)	(34.3)%

Biopharmaceuticals

Segment Adjusted EBITDA increased primarily due to our reduction in Selling, general and administrative expenses and Research and Development expenses within the reportable segment.

Exemplar

Revenues for Exemplar decreased due to a decrease in services performed resulting from a lower demand from existing customers. The decline in Segment Adjusted EBITDA was primarily due to the decreased revenues.

Comparison of the nine months ended September 30, 2023 and the nine months ended September 30, 2022

The following table summarizes our results of operations for the nine months ended September 30, 2023 and 2022, together with the changes in those items in dollars and as a percentage:

	Nine Months Ended September 30,		Dollar Change	Percent Change
	2023	2022		
	(In thousands)			
Revenues				
Collaboration and licensing revenues	$ —	$ 14,561	$ (14,561)	(100.0)%
Product revenues	730	1,455	(725)	(49.8)%
Service revenues	4,261	8,896	(4,635)	(52.1)%
Other revenues	6	234	(228)	(97.4)%
Total revenues	4,997	25,146	(20,149)	(80.1)%
Operating expenses				
Cost of product and services	4,761	5,082	(321)	(6.3)%
Research and development	35,620	36,377	(757)	(2.1)%
Selling, general and administrative	30,150	36,496	(6,346)	(17.4)%
Impairment of goodwill	—	482	(482)	(100.0)%
Impairment of other noncurrent assets	—	638	(638)	(100.0)%
Total operating expenses	70,531	79,075	(8,544)	(10.8)%
Operating loss	(65,534)	(53,929)	(11,605)	21.5 %
Total other income (expense), net	2,560	(4,730)	7,290	154.1 %
Equity in net income (loss) of affiliates	—	861	(861)	(100.0)%
Loss from continuing operations before income taxes	(62,974)	(57,798)	(5,176)	9.0 %
Income tax benefit	126	197	(71)	(36.0)%
Loss from continuing operations	(62,848)	(57,601)	(5,247)	9.1 %
Income from discontinued operations, net of income taxes (1)	—	108,094	(108,094)	(100.0)%
Net (loss) income	$ (62,848)	$ 50,493	$ (113,341)	<(200)%

(1) See "Notes to the Condensed Consolidated Financial Statements (Unaudited) - Note 3" appearing elsewhere in this Quarterly Report.

Collaboration and licensing revenues

Collaboration and licensing revenues decreased $14.6 million, or 100.0%, from the nine months ended September 30, 2022, due to the fact we obtained control of Intrexon Energy Partners and Intrexon Energy Partners II in the third quarter of 2022. Therefore, we recognized the remaining balance of deferred revenue associated with Intrexon Energy Partners and Intrexon Energy Partners II, less the amounts paid to acquire the membership interests of the investors. See "Note to the Condensed Financial Statements (Unaudited) – Note 4" appearing elsewhere in this Quarterly Report for further discussion of Intrexon Energy Partners and Intrexon Energy Partners II.

Product and services revenues and gross margin

Product and services revenues decreased $5.4 million, or 52%, from the nine months ended September 30, 2022. This decrease primarily related to reductions in services performed at Exemplar as well as the recognition of revenue in the first quarter of 2022 related to agreements for which revenue was previously deferred that did not occur in 2023 of $1.0 million at Exemplar. Gross margin on product and service declined in the current period primarily as a result of the decreased revenues, with a smaller impact due to increases in salaries, benefits, and other personnel costs at Exemplar.

Research and development expenses

Research and development expenses decreased $0.8 million, or 2.1%, compared to the nine months ended September 30, 2022. This decrease was primarily due to continued reprioritization of clinical product candidates.

Selling, general and administrative expenses

SG&A expenses decreased $6.3 million, or 17.4%, compared to the nine months ended September 30, 2022. This decrease was primarily driven by a reduction in professional fees of $4.8 million, due to decreased legal fees associated with certain litigation matters, as well as a $1.2 million reduction in salaries, benefits, and other personnel costs due to reduced head count, and $0.3 million in decreased insurance related expenses.

Total other income (expense), net

Total other income, net, increased $7.3 million compared to the nine months ended September 30, 2022. This is primarily due to $5.7 million in reduced interest expense associated with the Convertible Notes as they were retired in the second quarter of 2023, and $2.1 million in increased interest income due to higher interest rates on the Company's investments. This increase was offset by a $0.8 million reduction in the gain recorded on the early retirement of a portion of our Convertible Notes in 2023 compared to 2022.

Segment performance

The following table summarizes Segment Adjusted EBITDA, which is our primary measure of segment performance, for the nine months ended September 30, 2023 and 2022.

	Nine Months Ended September 30,		Dollar Change	Percent Change
	2023	2022		
	(In thousands)			
Segment Adjusted EBITDA:				
Biopharmaceuticals	$ (56,345)	$ (58,956)	$ 2,611	4.4 %
Exemplar	(426)	4,699	(5,125)	(109.1)%

For a reconciliation of Segment Adjusted EBITDA to net loss from continuing operations before income taxes, see "Notes to the Condensed Consolidated Financial Statements (Unaudited) - Note 15" appearing elsewhere in this Quarterly Report.

The following table summarizes revenues from external customers for the nine months ended September 30, 2023 and 2022, for each of our reportable segments.

	Nine Months Ended September 30,		Dollar Change	Percent Change
	2023	2022		
	(In thousands)			
Biopharmaceuticals	$ —	$ 14,778	$ (14,778)	(100.0)%
Exemplar	4,997	10,368	(5,371)	(51.8)%

Biopharmaceuticals

Segment Adjusted EBITDA increased primarily as a result of a reduction of Selling, general and administrative expenses partially offset by a higher adjustment related to bonuses settled in equity awards in 2023 and other segment EBITDA adjustments.

Exemplar

Revenues for Exemplar decreased due to a decrease in services performed resulting from a lower demand from existing customers. The decline in Segment Adjusted EBITDA was primarily due to the decreased revenues.

Liquidity and capital resources

Sources of liquidity

We have incurred losses from operations since our inception, and as of September 30, 2023, we had an accumulated deficit of $1.9 billion. From our inception through September 30, 2023, we have funded our operations principally with proceeds

received from private and public equity and debt offerings, cash received from our collaborators, and through product and service sales made directly to customers. As of September 30, 2023, we had cash and cash equivalents of $10.1 million and short-term and long-term investments of $69.0 million. Cash in excess of immediate requirements is typically invested primarily in money market funds, certificate of deposits and U.S. government debt securities in order to maintain liquidity and preserve capital.

In January 2023, we closed a public offering of 43,962,640 shares of our common stock, resulting in net proceeds to us of $72.8 million, after deducting underwriting discounts, fees, and other offering expenses.

Cash flows

The following table sets forth the significant sources and uses of cash for the periods set forth below:

	Nine Months Ended September 30,	
	2023	**2022**
	(In thousands)	
Net cash (used in) provided by:		
Operating activities	$ (51,164)	$ (49,649)
Investing activities	(16,380)	214,996
Financing activities	29,589	(116,010)
Effect of exchange rate changes on cash, cash equivalents, and restricted cash	(306)	(804)
Net decrease in cash, cash equivalents, and restricted cash	$ (38,261)	$ 48,533

Cash flows from operating activities:

During the nine months ended September 30, 2023, our net loss was $62.8 million, which includes the following significant noncash expenses totaling $13.2 million: (i) $7.6 million of stock-based compensation expense, (ii) $5.1 million of depreciation and amortization expense, and (iii) $0.5 million of shares issued as payment for services.

During the nine months ended September 30, 2022, our net income was $50.5 million, which includes the gain on sale of discontinued operations of $94.7 million, which is presented as an adjustment to net income to net cash used in operating activities as the cash flows from the sale is presented within cash flows from investing activities; additional significant noncash expenses totaling $19.6 million from both continuing and discontinued operations: (i) $8.0 million of stock-based compensation expense, (ii) $9.0 million of depreciation and amortization expense, (iii) $0.9 million accretion of debt discount and amortization of deferred financing costs, (iv) $0.6 million of shares issued as payment for services, and (vi) $1.1 million of asset impairments.

Our cash outflows from operations during the nine months ended September 30, 2023 were $1.5 million lower than the nine months ended September 30, 2022 primarily due to decreased cash inflows provided by Trans Ova and Exemplar.

Cash flows from investing activities:

During the nine months ended September 30, 2023, we purchased $16.0 million of investments, net of sales and maturities, primarily using the proceeds received from the underwritten public offering discussed below under cash flows from financing activities.

During the nine months ended September 30, 2022, we received $162.3 million of proceeds from the sale of discontinued operations and $57.0 million related to the sale and maturity of investments, partially offset by $4.9 million of purchases of property plant and equipment primarily in Trans Ova.

Cash flows from financing activities:

During the nine months ended September 30, 2023, we received $72.8 million of proceeds from the sale of our common stock in an underwritten public offering and retired $43.2 million of our Convertible Notes using restricted cash.

During the nine months ended September 30, 2022, we repurchased $115.7 million of our Convertible Notes using restricted cash.

Future capital requirements

We believe our existing liquid assets will enable us to fund our operating expenses and capital requirements for at least the next 12 months. Our future capital requirements will depend on many factors, including:

- progress in our research and development programs, as well as the magnitude of these programs;
- the timing of regulatory approval of our product candidates and those of our collaborations;
- the timing, receipt, and amount of any payments received in connection with strategic transactions;
- the timing, receipt, and amount of upfront, milestone, and other payments, if any, from present and future collaborators, if any;
- the timing, receipt, and amount of sales and royalties, if any, from our product candidates;
- the timing and capital requirements to scale up our various product candidates and service offerings and customer acceptance thereof;
- our ability to maintain and establish additional collaborative arrangements and/or new strategic initiatives;
- the resources, time, and cost required for the preparation, filing, prosecution, maintenance, and enforcement of our intellectual property portfolio;
- strategic mergers and acquisitions, if any, including both the upfront acquisition cost as well as the cost to integrate, maintain, and expand the strategic target; and
- the costs associated with legal activities, including litigation, arising in the course of our business activities and our ability to prevail in any such legal disputes.

Until such time, if ever, as we can regularly generate positive operating cash flows, we plan to finance our cash needs through a combination of equity offerings, debt financings, government, or other third-party funding, strategic alliances, sales of assets, and licensing arrangements. We may not be able to raise sufficient additional funds on terms that are favorable to us, if at all. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the ownership interests of our common shareholders will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of our common shareholders. Our current stock price may make it more difficult to pursue equity financings and lead to substantial dilution if the price of our common stock does not increase. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures, or declaring dividends. If we raise additional funds through strategic transactions, collaborations, or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs, or product candidates, or to grant licenses on terms that may not be favorable to us.

We are subject to a number of risks similar to those of other companies conducting high-risk, early-stage research and development of product candidates. Principal among these risks are dependence on key individuals and intellectual property, competition from other products and companies, and the technical risks associated with the successful research, development, and clinical manufacturing of its product candidates. Our success is dependent upon our ability to continue to raise additional capital in order to fund ongoing research and development, adequately satisfy or renegotiate long-term debt obligations, obtain regulatory approval of our products, successfully commercialize our products, generate revenue, meet our obligations, and, ultimately, attain profitable operations.

See the section entitled "Risk Factors" in our Annual Report for additional risks associated with our substantial capital requirements.

Contractual obligations and commitments

The following table summarizes our significant contractual obligations and commitments from continuing operations as of September 30, 2023 and the effects such obligations are expected to have on our liquidity and cash flows in future periods:

	Total	Less Than 1 Year	1 - 3 Years	3 - 5 Years	More Than 5 Years
			(In thousands)		
Operating leases	$ 10,201	$ 1,973	$ 3,575	$ 2,491	$ 2,162
Operating leases not yet commenced	$ 706	176	471	59	—
Total	$ 10,907	$ 2,149	$ 4,046	$ 2,550	$ 2,162

(1) See "Notes to the Condensed Consolidated Financial Statements (Unaudited) - Notes 9" appearing elsewhere in this Quarterly Report for further discussion of our convertible debt.

In addition to the obligations in the table above, as of September 30, 2023, we are party to license agreements with various third parties that contain future milestones and royalty payment obligations related to development milestones and/or commercial sales of products that incorporate or use their technologies. Because these agreements are generally subject to termination by us or are dependent on certain condition precedents within our control, no amounts are included in the tables above. As of September 30, 2023, we also had research and development commitments with third parties totaling $16.8 million that had not yet been incurred.

Off-balance sheet arrangements

We did not have during the periods presented, and we do not currently have, any off-balance sheet arrangements as defined under SEC rules.

Critical accounting policies and estimates

Our management's discussion and analysis of our financial condition and results of operations is based on our condensed consolidated financial statements, which we have prepared in accordance with generally accepted accounting principles in the United States. The preparation of these condensed consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements, as well as the reported revenues and expenses during the reporting periods. We evaluate these 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. Our actual results may differ 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 Annual Report.

Recent accounting pronouncements

For information with respect to recent accounting pronouncements and the impact of these pronouncements on our condensed consolidated financial statements, see "Notes to the Condensed Consolidated Financial Statements (Unaudited) - Note 2" appearing elsewhere in this Quarterly Report.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

The following sections provide quantitative information on our exposure to interest rate risk. We make use of sensitivity analyses that are inherently limited in estimating actual losses in fair value that can occur from changes in market conditions.

Interest rate risk

We had cash, cash equivalents and short-term and long-term investments of $79.0 million and $56.0 million as of September 30, 2023 and December 31, 2022, respectively. Our cash and cash equivalents and short-term and long-term

investments consist of cash, money market funds, U.S. government debt and agency securities, and certificates of deposit. The primary objectives of our investment activities are to preserve principal, maintain liquidity, and maximize income without significantly increasing risk. Our investments consist of U.S. government debt and agency securities and certificates of deposit, which may be subject to market risk due to changes in prevailing interest rates that may cause the fair values of our investments to fluctuate. We believe that a hypothetical 100 basis point increase in interest rates would not materially affect the fair value of our interest-sensitive financial instruments and any such losses would only be realized if we sold the investments prior to maturity.

Item 4. Controls and Procedures

Pursuant to Rule 13a-15(b) under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), we carried out an evaluation, under supervision and with the participation of our management, including our Chief Executive Officer ("CEO"), who is our principal executive officer, and our Chief Financial Officer ("CFO"), who is our principal financial officer, of the effectiveness of the design and operation of our disclosure controls and procedures (as defined under Rule 13a-15(e) and 15d-15(e) under the Exchange Act) as of the end of the period covered by this report. Based upon that evaluation, as of the end of the period covered by this report, our CEO and CFO concluded that our disclosure controls and procedures are effective at the reasonable assurance level to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act, 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 CEO and CFO, as appropriate, to allow timely decisions regarding required disclosure.

There has been no change in our internal control over financial reporting during the three months ended September 30, 2023, that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings

In the course of our business, we are involved in litigation or legal matters, including governmental investigations. Such matters are subject to many uncertainties and outcomes are not predictable with assurance. We accrue liabilities for such matters when it is probable that future expenditures will be made and such expenditures can be reasonably estimated. As of September 30, 2023, we do not believe that any such matters, individually or in the aggregate, will have a material adverse effect on our business, financial condition, results of operations, or cash flows.

See "Notes to the Condensed Consolidated Financial Statements (Unaudited) - Note 14" appearing elsewhere in this Quarterly Report for further discussion of ongoing legal matters.

Item 1A. Risk Factors

As disclosed in "Summary of Risk Factors" and "Item 1A. Risk Factors" in our Annual Report, there are a number of risks and uncertainties that may have a material effect on the operating results of our business and our financial condition. There are no additional material updates or changes to our risk factors since the filing of our Annual Report.

In evaluating our risks, readers also should carefully consider the risk factors discussed in our Annual Report, which could materially affect our business, financial condition, or operating results, in addition to the other information set forth in this report and in our other filings with the SEC.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

None.

Item 3. Defaults on Senior Securities

None.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

None.

Item 6. Exhibits

Exhibit No.	Description
31.1	Certification of Helen Sabzevari, Chief Executive Officer (Principal Executive Officer) of the Company, pursuant to Rules 13a-14(a) and 15d-14(a) promulgated under the Securities Exchange Act of 1934, as amended, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Harry Thomasian Jr., Chief Financial Officer (Principal Financial Officer) of the Company, pursuant to Rules 13a-14(a) and 15d-14(a) promulgated under the Securities Exchange Act of 1934, as amended, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1**	Certification of Helen Sabzevari, Chief Executive Officer (Principal Executive Officer) of the Company, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2**	Certification of Harry Thomasian Jr., Chief Financial Officer (Principal Financial Officer) of the Company, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101**	Interactive Data File (Quarterly Report on Form 10-Q, for the quarterly period ended September 30, 2023, formatted in Inline XBRL (eXtensible Business Reporting Language)). Attached as Exhibit 101.0 to this Quarterly Report on Form 10-Q are the following documents formatted in XBRL: (i) the Condensed Consolidated Balance Sheets as of September 30, 2023 and December 31, 2022, (ii) the Condensed Consolidated Statements of Operations for the three and nine months ended September 30, 2023 and 2022, (iii) the Condensed Consolidated Statements of Comprehensive Loss for the three and nine months ended September 30, 2023 and 2022, (iv) the Condensed Consolidated Statements of Shareholders' Equity for the three and nine months ended September 30, 2023 and 2022, (v) the Condensed Consolidated Statements of Cash Flows for the nine months ended September 30, 2023 and 2022, and (vi) the Notes to the Condensed Consolidated Financial Statements.
104**	Cover Page Interactive Data File (embedded within the Inline XBRL document).

** Furnished herewith.

SIGNATURES

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

Precigen, Inc.
(Registrant)

Date: November 9, 2023

By: /s/ HARRY THOMASIAN JR.
Harry Thomasian Jr.
Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Helen Sabzevari, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Precigen, 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)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

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

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

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

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

5. The registrant's other certifying officer 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.

Date: November 9, 2023

/s/ HELEN SABZEVARI
Helen Sabzevari
Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Harry Thomasian Jr., certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Precigen, 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)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

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

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

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

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

5. The registrant's other certifying officer 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.

Date: November 9, 2023

/s/ HARRY THOMASIAN JR.

Harry Thomasian Jr.
Chief Financial Officer
(Principal Financial Officer)

Exhibit 32.1

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

I, Helen Sabzevari, Chief Executive Officer of Precigen, Inc. (the "Company"), do hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

- the Quarterly Report on Form 10-Q of the Company for the quarter ended September 30, 2023 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

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

Date: November 9, 2023

/s/ HELEN SABZEVARI
Helen Sabzevari
Chief Executive Officer
(Principal Executive Officer)

A signed original of this written statement required by Section 906, or other document authenticating, acknowledging or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906, has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

This certification accompanies the Form 10-Q to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of the Registrant under the Securities Act of 1933 or the Securities Exchange Act of 1934 (whether made before or after the date of the Form 10-Q), irrespective of any general incorporation language contained in such filing.

Exhibit 32.2

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

I, Harry Thomasian Jr., Chief Financial Officer of Precigen, Inc. (the "Company"), do hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

- the Quarterly Report on Form 10-Q of the Company for the quarter ended September 30, 2023 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

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

Date: November 9, 2023

/s/ HARRY THOMASIAN JR.
Harry Thomasian Jr.
Chief Financial Officer
(Principal Financial Officer)

A signed original of this written statement required by Section 906, or other document authenticating, acknowledging or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906, has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

This certification accompanies the Form 10-Q to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of the Registrant under the Securities Act of 1933 or the Securities Exchange Act of 1934 (whether made before or after the date of the Form 10-Q), irrespective of any general incorporation language contained in such filing.