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

FORM 10-Q

(Mark One)

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the quarterly period ended September 30, 2024

or

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the transition period from ___________ to ___________

Commission File Number: 001-40344

Akoya Biosciences, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**47-5586242**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
100 Campus Drive, 6th Floor Marlborough, Massachusetts	**01752**
(Address of principal executive offices)	(Zip Code)

(855) 896-8401

Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.00001 per share	AKYA	The Nasdaq Stock Market LLC

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, 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 Act). Yes ☐ No ☒

Number of shares of the registrant's common shares outstanding at November 11, 2024: 49,563,386

AKOYA BIOSCIENCES, INC.

TABLE OF CONTENTS

Akoya Biosciences, Inc.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This report contains forward-looking statements that are based on management's beliefs and assumptions and on information currently available to management. All statements contained in this report other than statements of historical fact are forward-looking statements, including statements regarding our ability to develop, commercialize and achieve market acceptance of our current and planned products and services, our research and development efforts, and other matters regarding our business strategies, use of capital, results of operations and financial position, and plans and objectives for future operations. In some cases, you can identify forward-looking statements by the words "may," "will," "could," "would," "should," "expect," "intend," "plan," "anticipate," "believe," "estimate," "predict," "project," "potential," "continue," "ongoing" or the negative of these terms or other comparable terminology, although not all forward-looking statements contain these words. These statements involve risks, uncertainties and other factors that may cause actual results, levels of activity, performance or achievements to be materially different from the information expressed or implied by these forward-looking statements. These risks, uncertainties and other factors are described under "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations," and elsewhere in this report and in other documents we file with the Securities and Exchange Commission (the "SEC") from time to time. We caution you that forward-looking statements are based on a combination of facts and factors currently known by us and our projections of the future, about which we cannot be certain. As a result, the forward-looking statements may not prove to be accurate. The forward-looking statements in this report represent our views as of the date of this report. We undertake no obligation to update any forward-looking statements for any reason, except as required by law.

Unless otherwise stated or the context otherwise indicates, references to "Akoya," "we," "us," "our" and similar references refer to Akoya Biosciences, Inc. and its consolidated subsidiary.

This report contains references to our trademarks and to trademarks belonging to other entities. Solely for convenience, trademarks and trade names referred to, including logos, artwork and other visual displays, may appear without the ® or ™ symbols, but such references are not intended to indicate, in any way, that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto. We do not intend our use or display of other companies' trade names or trademarks to imply a relationship with, or endorsement or sponsorship of us by, any other companies.

AKOYA BIOSCIENCES, INC. AND SUBSIDIARY

CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share data)

	September 30, 2024 (unaudited)	December 31, 2023
Assets		
Current assets		
Cash and cash equivalents	$ 12,557	$ 83,125
Marketable securities	23,339	—
Accounts receivable, net	12,786	16,994
Inventories, net	25,212	17,877
Prepaid expenses and other current assets	2,967	3,794
Total current assets	76,861	121,790
Property and equipment, net	7,546	10,729
Marketable securities, net of current portion	3,399	—
Restricted cash	683	699
Demo inventory, net	792	893
Intangible assets, net	15,272	17,412
Goodwill	18,262	18,262
Operating lease right of use assets, net	4,664	8,365
Financing lease right of use assets, net	1,763	1,562
Other assets	731	657
Total assets	$ 129,973	$ 180,369
Liabilities and Stockholders' Equity		
Current liabilities		
Accounts payable	$ 8,760	$ 11,776
Accrued expenses and other current liabilities	9,368	13,433
Current portion of operating lease liabilities	2,651	2,681
Current portion of financing lease liabilities	1,026	767
Deferred revenue	6,188	6,688
Total current liabilities	27,993	35,345
Deferred revenue, net of current portion	3,093	3,193
Long-term debt, net of debt discount	75,902	75,254
Deferred tax liability, net	113	38
Operating lease liabilities, net of current portion	4,562	6,238
Financing lease liabilities, net of current portion	778	766
Contingent consideration liability, net of current portion	3,859	5,765
Other liabilities	40	—
Total liabilities	116,340	126,599
Stockholders' equity:		
Preferred Stock, $0.00001 par value; 10,000,000 shares authorized; 0 shares issued and outstanding at September 30, 2024 and December 31, 2023, respectively	—	—
Common Stock, $0.00001 par value; 500,000,000 shares authorized at September 30, 2024 and December 31, 2023; 49,522,728 and 49,117,738 shares issued and outstanding at September 30, 2024 and December 31, 2023, respectively	2	2
Additional paid in capital	290,860	283,839
Accumulated deficit	(277,237)	(230,071)
Accumulated other comprehensive income	8	—
Total stockholders' equity	13,633	53,770
Total liabilities and stockholders' equity	$ 129,973	$ 180,369

See accompanying notes to consolidated financial statements.

AKOYA BIOSCIENCES, INC. AND SUBSIDIARY

CONSOLIDATED STATEMENTS OF OPERATIONS (Unaudited)
(in thousands except share & per share data)

	Three months ended September 30, 2024	Three months ended September 30, 2023	Nine months ended September 30, 2024	Nine months ended September 30, 2023
Revenue:				
Product revenue	$ 12,298	$ 18,048	$ 40,364	$ 50,719
Service and other revenue	6,516	7,167	19,964	19,427
Total revenue	18,814	25,215	60,328	70,146
Cost of goods sold:				
Cost of product revenue	4,430	6,208	17,620	19,747
Cost of service and other revenue	2,660	3,731	9,219	10,714
Total cost of goods sold	7,090	9,939	26,839	30,461
Gross profit	11,724	15,276	33,489	39,685
Operating expenses:				
Selling, general and administrative	14,672	20,251	53,629	67,281
Research and development	4,474	6,314	15,316	19,614
Change in fair value of contingent consideration	(763)	262	(496)	1,019
Impairment	—	—	2,971	—
Restructuring	1,690	—	3,087	—
Total operating expenses	20,073	26,827	74,507	87,914
Loss from operations	(8,349)	(11,551)	(41,018)	(48,229)
Other income (expense):				
Interest expense	(2,625)	(2,239)	(7,843)	(6,468)
Interest income	521	1,074	2,126	2,576
Other expense, net	(36)	(185)	(277)	(338)
Loss before provision for income taxes	(10,489)	(12,901)	(47,012)	(52,459)
Provision for income taxes	(44)	(15)	(154)	(62)
Net loss	$ (10,533)	$ (12,916)	$ (47,166)	$ (52,521)
Net loss per share attributable to common stockholders, basic and diluted	$ (0.21)	$ (0.26)	$ (0.96)	$ (1.23)
Weighted-average shares outstanding, basic and diluted	49,503,272	48,975,432	49,370,959	42,686,065

See accompanying notes to consolidated financial statements.

AKOYA BIOSCIENCES, INC. AND SUBSIDIARY

CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS (Unaudited)
(in thousands)

	Three months ended		Nine months ended	
	September 30, 2024	September 30, 2023	September 30, 2024	September 30, 2023
Net loss	$ (10,533)	$ (12,916)	$ (47,166)	$ (52,521)
Other comprehensive income:				
Unrealized gain on marketable securities	20	—	8	6
Total other comprehensive income	20	—	8	6
Comprehensive loss	$ (10,513)	$ (12,916)	$ (47,158)	$ (52,515)

See accompanying notes to consolidated financial statements.

AKOYA BIOSCIENCES, INC. AND SUBSIDIARY
CONSOLIDATED STATEMENTS OF
STOCKHOLDERS' EQUITY (Unaudited)
(in thousands, except share data)

	Common Stock		Additional Paid in Capital	Accumulated Deficit	Accumulated Other Comprehensive (Loss) Income	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2023	**49,117,738**	**$ 2**	**$ 283,839**	**$ (230,071)**	**$ —**	**$ 53,770**
Exercise of stock options	65,482	—	36	—	—	36
Vesting of restricted stock units	157,197	—	(149)	—	—	(149)
Net loss	—	—	—	(23,484)	—	(23,484)
Other comprehensive loss	—	—	—	—	(16)	(16)
Stock-based compensation	—	—	2,566	—	—	2,566
Balance at March 31, 2024	**49,340,417**	**$ 2**	**$ 286,292**	**$ (253,555)**	**$ (16)**	**$ 32,723**
Exercise of stock options	59,129	—	23	—	—	23
Vesting of restricted stock units	67,817	—	(65)	—	—	(65)
Net loss	—	—	—	(13,149)	—	(13,149)
Other comprehensive income	—	—	—	—	4	4
Stock-based compensation	—	—	2,713	—	—	2,713
Balance at June 30, 2024	**49,467,363**	**$ 2**	**$ 288,963**	**$ (266,704)**	**$ (12)**	**$ 22,249**
Exercise of stock options	23,091	—	16	—	—	16
Vesting of restricted stock units	32,274	—	—	—	—	—
Net loss	—	—	—	(10,533)	—	(10,533)
Other comprehensive income	—	—	—	—	20	20
Stock-based compensation	—	—	1,881	—	—	1,881
Balance at September 30, 2024	**49,522,728**	**$ 2**	**$ 290,860**	**$ (277,237)**	**$ 8**	**$ 13,633**

	Common Stock		Additional Paid in Capital	Accumulated Deficit	Accumulated Other Comprehensive (Loss) Income	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2022	**38,288,188**	**$ 2**	**$ 225,333**	**$ (166,748)**	**$ (6)**	**$ 58,581**
Exercise of stock options	88,756	—	58	—	—	58
Vesting of restricted stock units	22,127	—	(94)	—	—	(94)
Net loss	—	—	—	(18,802)	—	(18,802)
Other comprehensive income	—	—	—	—	6	6
Stock-based compensation	—	—	2,375	—	—	2,375
Balance at March 31, 2023	**38,399,071**	**$ 2**	**$ 227,672**	**$ (185,550)**	**$ —**	**$ 42,124**
Exercise of stock options	379,418	—	143	—	—	143
Vesting of restricted stock units	38,452	—	—	—	—	—
Sale of common stock in underwritten offering, net of costs	10,005,000	—	47,817	—	—	47,817
Net loss	—	—	—	(20,803)	—	(20,803)
Stock-based compensation	—	—	2,620	—	—	2,620
Balance at June 30, 2023	**48,821,941**	**$ 2**	**$ 278,252**	**$ (206,353)**	**$ —**	**$ 71,901**
Exercise of stock options	182,557	—	110	—	—	110
Vesting of restricted stock units	57,862	—	—	—	—	—
Net loss	—	—	—	(12,916)	—	(12,916)
Stock-based compensation	—	—	2,878	—	—	2,878
Balance at September 30, 2023	**49,062,360**	**$ 2**	**$ 281,240**	**$ (219,269)**	**$ —**	**$ 61,973**

See accompanying notes to consolidated financial statements.

AKOYA BIOSCIENCES, INC. AND SUBSIDIARY
CONSOLIDATED STATEMENTS OF CASH FLOWS (Unaudited)
(in thousands)

	Nine months ended September 30, 2024	Nine months ended September 30, 2023
Operating activities		
Net loss	$ (47,166)	$ (52,521)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	5,802	6,784
Non-cash interest expense	648	541
Stock-based compensation expense	7,160	7,873
Deferred taxes	75	—
Change in fair value of contingent consideration	(496)	1,019
Credit losses on accounts receivable	915	—
Net accretion of marketable securities	(1,400)	(5)
Operating lease right of use assets	1,632	1,782
Provision for excess and obsolete inventories	3,129	2,600
Impairment	2,971	—
Changes in operating assets and liabilities:		
Accounts receivable, net	3,293	(6,367)
Prepaid expenses and other assets	787	2,547
Inventories, net	(10,379)	(7,040)
Accounts payable	(3,016)	1,262
Accrued expenses and other liabilities	(2,770)	(3,359)
Operating lease liabilities	(1,706)	(1,670)
Deferred revenue	(600)	1,239
Net cash used in operating activities	(41,121)	(45,315)
Investing activities		
Purchases of property and equipment	(1,414)	(3,059)
Purchases of marketable securities	(87,328)	—
Sales of marketable securities	8,498	—
Maturities of marketable securities	53,500	7,000
Net cash (used in) provided by investing activities	(26,744)	3,941
Financing activities		
Sale of common stock in underwritten offering, net of costs	—	47,995
Proceeds from stock option exercises	75	311
Settlement of restricted stock units for tax withholding obligations	(214)	(94)
Principal payments on financing leases	(520)	(496)
Payments of debt issuance costs	—	(33)
Payments of deferred offering costs	(150)	(207)
Payments of contingent consideration	(1,910)	(1,709)
Net cash (used in) provided by financing activities	(2,719)	45,767
Net (decrease) increase in cash, cash equivalents, and restricted cash	(70,584)	4,393
Cash, cash equivalents, and restricted cash at beginning of period	83,824	74,532
Cash, cash equivalents, and restricted cash at end of period	$ 13,240	$ 78,925
Supplemental disclosures of cash flow information		
Cash paid for interest	$ 6,937	$ 5,678
Cash paid for income taxes	$ —	$ 56
Supplemental disclosures of non-cash activities		
Right-of-use asset obtained in exchange for lease liabilities	$ 790	$ 914
Unpaid offering costs related to sale of common stock in underwritten offering	$ —	$ 178
Purchases of property and equipment included in accounts payable and accrued expenses	$ 53	$ 521

See accompanying notes to consolidated financial statements.

AKOYA BIOSCIENCES, INC. AND SUBSIDIARY

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(Amounts in thousands, except share and per share data)

(1) The company and basis of presentation

Description of business

Akoya Biosciences, Inc. ("Akoya" or the "Company") is a life sciences technology company, founded on November 13, 2015 as a Delaware corporation with operations based in Marlborough, Massachusetts, delivering spatial biology solutions focused on transforming discovery, clinical research and diagnostics. Spatial biology refers to a rapidly evolving technology that enables academic and biopharma scientists to detect and map the distribution of cell types and biomarkers across whole tissue samples at single-cell resolution, enabling advancements in their understanding of disease progression and patient response to therapy. Through Akoya's PhenoCycler (formerly CODEX) and PhenoImager (formerly Phenoptics) platforms, reagents, software and services, the Company offers end-to-end solutions to perform tissue analysis and spatial phenotyping across the full continuum from discovery through translational and clinical research and diagnostics.

On September 28, 2018, the Company acquired the commercial Quantitative Pathology Solutions ("QPS") division of Perkin Elmer, Inc. ("PKI"), subsequently known as Revvity, Inc. ("Revvity"), for multiplex immunofluorescence, with the aim of providing consumers with a full suite of end-to-end solutions for high parameter tissue analysis. The QPS technology offers pathology solutions for cancer immunology and immunotherapy research, including advanced multiplex immunochemistry staining kits, multispectral imaging and whole side scanning instruments, and image analysis software. The Company's combined portfolio of complementary technologies aims to fuel groundbreaking advancements in cancer immunology, immunotherapy, neurology and a wide range of other applications. The Company sells into three main regions across the world: North America, Asia-Pacific ("APAC"), and Europe-Middle East-Africa ("EMEA").

Principles of consolidation

The Company's financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America ("GAAP"). Any reference in these notes to applicable guidance is meant to refer to the authoritative United States generally accepted accounting principles as found in the Accounting Standards Codification ("ASC") and Accounting Standards Updates ("ASU") of the Financial Accounting Standards Board ("FASB"). The Company's consolidated financial statements include the accounts of the Company and its wholly-owned subsidiary, Akoya Biosciences UK Ltd. ("Akoya UK"). All intercompany balances and transactions have been eliminated in consolidation.

Unaudited interim financial information

The accompanying consolidated balance sheet as of September 30, 2024, the consolidated statements of operations, the consolidated statements of comprehensive loss and the consolidated statements of stockholders' equity for the three and nine months ended September 30, 2024 and 2023, and the consolidated statements of cash flows for the nine months ended September 30, 2024 and 2023 are unaudited. The unaudited interim consolidated financial statements have been prepared on the same basis as the audited annual consolidated financial statements and, in the opinion of management, reflect all adjustments, which include only normal recurring adjustments, necessary for the fair statement of the Company's financial position as of September 30, 2024, the results of its operations for the three and nine months ended September 30, 2024 and 2023, and cash flows for the nine months ended September 30, 2024 and 2023. The financial data and other information disclosed in these notes related to the three and nine months ended September 30, 2024 and 2023 are also unaudited. The results for the three and nine months ended September 30, 2024 are not necessarily indicative of results to be expected for the year ending December 31, 2024, any other interim periods, or any future year or period. The consolidated balance sheet as of December 31, 2023 included herein was derived from the audited consolidated financial statements as of that date. These unaudited consolidated financial statements should be read in conjunction with the Company’s audited consolidated financial statements and the notes thereto for the year ended December 31, 2023 included in the Annual Report on Form 10-K filed with the Securities and Exchange Commission (the “SEC”) on March 5, 2024.

Liquidity and going concern

The Company is subject to a number of risks similar to other newly commercial life sciences companies, including, but not limited to, its ability to develop and achieve market acceptance of its products and potential products, successfully compete with its competitors, protect its proprietary technology, and raise additional capital when and as needed.

At September 30, 2024, the Company had cash, cash equivalents, and marketable securities of $39,295 and an accumulated deficit of $277,237. The Company has incurred losses since its inception and has used cash from operations of $41,121 during the nine months ended September 30, 2024. The future success of the Company is dependent on its ability to successfully commercialize its products, successfully launch future products, obtain additional capital, if necessary, and ultimately attain profitable operations. The Company has funded its operations primarily through its preferred stock issuances, debt financing arrangements, and through the sale of shares of the Company’s common stock. The Company completed its initial public offering of the Company’s common stock in April of 2021 (the “IPO”) and completed a follow-on public offering of the Company’s common stock in June of 2023, as further described in Note 10. There can be no assurance that additional financings will be available to the Company or that the Company will become profitable.

The Company’s debt financing with Midcap Financial Trust (the “Midcap Trust Term Loan”) is subject to minimum financial covenants. Based on the Company’s current operating plan, the Company cannot be certain that it will be able to maintain compliance with these financial covenants for at least the next twelve months from the issuance of these financials, which could result in additional cash resources being required if the Company’s Midcap Trust Term Loan becomes due. The Company intends to seek a waiver, refinance the outstanding borrowings or otherwise mitigate these concerns with Midcap Financial Trust or another lender. There can be no assurance that a waiver will be granted or that the Company will be able to refinance the amounts outstanding and in such an event, the lender may exercise any and all of its rights and remedies provided for under the Midcap Trust Term loan.

As a result of these uncertainties, there is substantial doubt about the Company’s ability to continue as a going concern for the next twelve months following the date that these consolidated financial statements are issued. The accompanying consolidated financial statements have been prepared on a going concern basis, which contemplates the realization of assets and satisfaction of liabilities in the ordinary course of business. The financial statements do not include any adjustments relating to the recoverability and classification of recorded asset amounts or the amounts and classification of liabilities that might result from the outcome of the uncertainties described above.

(2) Summary of significant accounting policies

Significant accounting policies

The Company’s significant accounting policies are disclosed in its Annual Report on Form 10-K for the year ended December 31, 2023 filed with the SEC and have not materially changed during the nine months ended September 30, 2024.

Reclassifications

Certain amounts in the prior period consolidated financial statements have been reclassified to conform to the current period presentation.

Revenue recognition

The Company follows ASC 606, *Revenue from Contracts with Customers* (“ASC 606”).

The Company generates revenue from the sale and installation of instruments, related warranty services, reagents, software (both company-owned and with third parties), and laboratory services. Pursuant to ASC 606, revenue is recognized when a customer obtains control of promised goods or services. The amount of revenue recognized reflects the consideration the Company expects to be entitled to receive in exchange for these goods and services.

To determine the appropriate amount of revenue to be recognized for arrangements determined to be within the scope of Topic 606, the Company performs the following five steps: (i) identification of the customer contract; (ii) identification of the performance obligations; (iii) measurement of the transaction price, including the constraint on variable consideration; (iv) allocation of the transaction price to the performance obligations; and (v) recognition of revenue when (or as) the Company satisfies each performance obligation. The Company only applies the five-step model to contracts when it is probable that the Company will collect consideration it is entitled to in exchange for the goods or services it transfers to the customer.

The Company evaluates all promised goods and services within a customer contract and determines which of those are separate performance obligations. This evaluation includes an assessment of whether the good or service is capable of being distinct and whether the good or service is separable from other promises in the contract. Promised goods or services are considered distinct when (i) the customer can benefit from the good or service on its own or together with other readily available resources and (ii) the promised good or service is separately identifiable from other promises in the contract.

Most of the Company's contracts with customers contain multiple performance obligations (i.e., sale of an instrument and warranty services). For these contracts, the Company accounts for individual performance obligations separately if they are distinct (i.e. capable of being distinct and separable from other promises in the contract). The transaction price is allocated to the separate performance obligations on a relative standalone selling price basis. Excluded from the transaction price are sales tax and other similar taxes which are presented on a net basis.

In order to determine the stand-alone selling price, the Company conducts a periodic analysis to determine whether various goods or services have an observable stand-alone selling price as well as to identify significant changes to current stand-alone selling prices. If the Company does not have an observable stand-alone selling price for a particular good or service, then the stand-alone selling price for that particular good or service is estimated using an approach that maximizes the use of observable inputs. The Company's process for determining stand-alone selling price requires judgment and considers multiple factors that are reasonably available and maximizes the use of observable inputs that may vary over time depending upon the unique facts and circumstances related to each performance obligation. The Company believes that this method results in an estimate that represents the price the Company would charge for the product offerings if they were sold separately.

Taxes, such as sales, value-added and other taxes, collected from customers concurrent with revenue generating activities and remitted to governmental authorities are not included in revenue. Shipping and handling costs associated with outbound freight are accounted for as a fulfillment cost and are included in cost of sales.

Product Revenue

Product revenue is generated by the sale of instruments and consumable reagents predominantly through the Company's direct sales force in the United States and in geographic regions outside the United States. The Company generally does not offer product return or exchange rights (other than those relating to defective goods under warranty) or price protection allowances to its customers. When an instrument is purchased by a customer, the Company recognizes revenue when the related performance obligation is satisfied (i.e. when the control of an instrument has passed to the customer). Revenue from the sale of consumables is recognized upon shipment to the customer. The Company's perpetual software licenses generally have significant stand-alone functionality to the customer upon delivery and are considered to be functional intellectual property. The Company's perpetual software licenses are considered distinct performance obligations, and revenue allocated to the software license is typically recognized upon provision of the license/software code to the customer (i.e., when the software is available for access and download by the customer).

Service and Other Revenue

Product sales of instruments include a service-based warranty typically for one year following the installation of the purchased instrument, with an extended warranty for an additional year sold in many cases. These are separate performance obligations as they are service-based warranties and are recognized on a straight-line basis over the service delivery period. After completion of the service period, customers have an option to renew or extend the warranty services, typically for additional one-year periods in exchange for additional consideration. The extended warranties are also service-based warranties that represent separate purchasing decisions. The Company recognizes revenue allocated to the extended warranty performance obligation on a straight-line basis over the service delivery period. Revenue from separately charged installation services is recognized upon completion of the installation process. Additionally, the Company provides laboratory services, in which revenue is recognized as services are performed. For laboratory services, the Company generally uses the output method to measure the extent of progress towards completion of the performance obligation. For companion diagnostic development, the Company generally uses the cost-to-cost approach to measure the extent of progress towards completion of the performance obligation because the Company believes it best depicts the transfer of assets to the customer. Under the output method, the extent of progress towards completion is measured based on the value of the services transferred to date relative to the remaining services promised under the contract. Under the cost-to-cost measure approach, the extent of progress towards completion is measured based on the ratio of costs incurred to date to the total estimated costs at completion of the performance obligation. Revenues are recorded proportionally as costs are incurred. The Company records shipping and handling billed to customers as service and other revenue and the related costs in cost of service and other revenue in the consolidated statements of operations.

In June 2022, the Company entered into a Companion Diagnostic Agreement with Acrivon Therapeutics, Inc. (the “Acrivon Agreement”) to co-develop, validate, and commercialize Acrivon’s OncoSignature® test. On December 4, 2023, the Company amended the Acrivon Agreement, which expanded the scope of work and increased total development milestone payments to an aggregate of $17,250. Such amendment was accounted for as a modification to the existing contract. The Company is entitled to be paid through an upfront payment and at the achievement of certain developmental, commercial, and FDA milestones during the development that could aggregate to $17,850. A portion of these payments have been received from June 2022 through September 30, 2024.

The Acrivon Agreement is in the scope of ASC 606, *Revenue from Contracts with Customers*. The Company concluded that the Acrivon Agreement contains one performance obligation for certain development services, since the underlying elements are inputs to a single development service and are not distinct within the context of the contract. Additional development services in the Acrivon Agreement were deemed to be an option, due to certain contingencies with significant uncertainty. The Company will recognize revenue over time for the transaction price in an amount proportional to the expenses incurred and the total estimated expenses to satisfy its performance obligation.

The costs incurred by the Company under this arrangement are included as research and development expenses in the Company’s consolidated statements of operations as these costs are related to the development of new services and technology to be owned and offered by the Company.

Disaggregation of Revenue

The Company disaggregates revenue from contracts with customers by type of products, and between instrument warranty and service and other revenue, as it best depicts how the nature, amount, timing and uncertainty of revenue and cash flows are affected by economic factors. The following table disaggregates the Company's revenue by major source:

	Three months ended		Nine months ended	
	September 30, 2024	September 30, 2023	September 30, 2024	September 30, 2023
Revenue				
Product revenue				
Instruments	$ 5,737	$ 12,045	$ 18,901	$ 32,928
Consumables	6,293	5,735	20,684	17,266
Standalone software products	268	268	779	525
Total product revenue	$ 12,298	$ 18,048	$ 40,364	$ 50,719
Service and other revenue				
Service and other revenue	$ 3,726	$ 4,515	$ 11,568	$ 11,936
Instrument warranty	2,790	2,652	8,396	7,491
Total service and other revenue	$ 6,516	$ 7,167	$ 19,964	$ 19,427
Total revenue	$ 18,814	$ 25,215	$ 60,328	$ 70,146

Significant Judgments

The Company's contracts with customers often include promises to transfer multiple products and services to a customer. Determining whether products and services are considered distinct performance obligations that should be accounted for separately versus together requires significant judgment. Once the Company determines the performance obligations, the Company determines the transaction price, which includes estimating the amount of variable consideration, based on the most likely amount, to be included in the transaction price, if any. The Company then allocates the transaction price to each performance obligation in the contract based on a relative standalone selling price method. The corresponding revenue is recognized as the related performance obligations are satisfied as discussed in the revenue categories above.

Judgment is required to determine the standalone selling price for each distinct performance obligation. The Company determines standalone selling price based on the price at which the performance obligation in the contract (i.e. instrument, service warranty, installation) would be sold separately. As the first-year warranty for each instrument is embedded in the instrument price, the amount allocated to the first-year warranty has been determined based on the separately identifiable price of the Company's extended warranty offering when it is sold on a renewal basis.

If the standalone selling price is not observable through past transactions, the Company estimates the standalone selling price taking into account available information such as market conditions and the expected costs and margin related to the performance obligations. Contracts in which only one performance obligation is identified (i.e., consumables and standalone software products) do not require allocation of the transaction price.

Contract Assets and Liabilities

The Company's contract assets consist of revenues recognized, but not yet invoiced to customers for lab services, companion diagnostic development, and instruments. The Company classifies contract assets in accounts receivable. Contract assets are classified as current or noncurrent based on timing of when the Company expects to invoice the customer. The Company recorded $763 and $1,276 in contract assets at September 30, 2024 and December 31, 2023, respectively.

The Company's contract liabilities consist of upfront payments for service-based warranties on instrument sales, as well as lab services. The Company classifies contract liabilities associated with service based warranties in deferred revenue, and contract liabilities associated with lab services in accrued expenses. Contract liabilities are classified as current or noncurrent based on the timing of when the Company expects to service the warranty, or complete the lab services contract.

Cost to Obtain and Fulfill a Contract

Under ASC 606, the Company is required to capitalize certain costs to obtain customer contracts and costs to fulfill customer contracts. These costs are required to be amortized to expense on a systematic basis that is consistent with the transfer to the customer of the goods or services to which the asset relates, compared to previously being expensed as incurred. As a practical expedient, the Company recognizes any incremental costs to obtain a contract as an expense when incurred if the amortization period of the asset is one year or less. Capitalizable costs to obtain contracts, such as commissions, and costs to fulfill customer contracts were determined to be immaterial for the three and nine months ended September 30, 2024 and 2023.

Stock-based compensation

The Company records stock-based compensation for awards granted to employees, non-employees, and to members of the Board of Directors of the Company (the "Board") for their services on the Board based on the grant date fair value of awards issued, and the expense is recorded on a straight-line basis over the requisite service period, which is generally four years.

The Company uses the Black-Scholes-Merton option pricing model to determine the fair value of stock options. The use of the Black-Scholes-Merton option-pricing model requires management to make assumptions with respect to the expected term of the option, the expected volatility of the common stock consistent with the expected life of the option, risk-free interest rates and expected dividend yields of the common stock. The expected term was determined according to the simplified method, which is the average of the vesting tranche dates and the contractual term. Due to the lack of company-specific historical and implied volatility, the Company bases its estimate of expected volatility on the historical volatility of a group of similar companies that are publicly traded, in combination with the Company's historical volatility. For these analyses, companies with comparable characteristics are selected, including enterprise value and position within the industry, and with historical price information sufficient to meet the expected life of the stock-based awards. The Company computes the historical volatility data using the daily closing prices for the Company's and the selected companies' shares during the equivalent period of the calculated expected term of its stock-based awards. The Company will continue to apply this process until a sufficient amount of historical information regarding volatility of its own stock price becomes available. The risk-free interest rate is determined by reference to the U.S. Treasury zero-coupon issues with remaining maturities similar to the expected term of the options. The Company has not paid, and does not anticipate paying, cash dividends on shares of common stock; therefore, the expected dividend yield is assumed to be zero.

For restricted stock units ("RSUs") issued under the Company's stock-based compensation plans, the fair value of each grant is calculated based on the Company's stock price on the date of grant.

The Company has elected to account for forfeitures as they occur; any compensation cost previously recognized for an award that is forfeited because of a failure to satisfy a service or performance condition will be reversed in the period of the forfeiture.

Refer to Note 11 for further details on the Company's stock-based compensation plans.

Net loss per share attributable to common stockholders

Basic and diluted net loss per common share outstanding is determined by dividing net loss by the weighted average common shares outstanding during the period. For purposes of the diluted net loss per share calculations, stock options, and unvested restricted stock units, are considered to be potentially dilutive securities, but are excluded from the diluted net loss per share because their effect would be anti-dilutive and therefore basic and diluted net loss per share were the same for all periods presented.

Comprehensive income (loss)

Components of comprehensive income (loss), including net loss, are reported in the financial statements in the period in which they are recognized. Other comprehensive income (loss) is defined as the change in equity during a period from transactions and other events and circumstances from non-owner sources. Net loss and other comprehensive income (loss) are reported net of any related tax effect to arrive at comprehensive income (loss). Comprehensive income (loss) includes net loss as well as other changes in stockholders' equity that result from transactions and economic events other than those with stockholders which for the three and nine months ended September 30, 2024 and 2023 consist of unrealized gain (loss) on marketable securities.

Marketable securities

Marketable securities represent holdings of available-for-sale marketable debt securities in accordance with the Company's investment policy. Short-term marketable securities mature within one year from the balance sheet date while long-term marketable securities mature after one year. Investments in marketable securities are recorded at fair value, with any unrealized gains and losses reported within accumulated other comprehensive income (loss) as a separate component of stockholders' equity until realized or until a determination is made that an other-than-temporary decline in market value has occurred. The amortized cost of debt securities is adjusted for amortization of premiums and accretion of discounts to maturity. Such amortization and accretion are reflected as a component of interest income. Interest on securities sold is determined based on the specific identification method and reflected as interest income. Any realized gains or losses on the sale of investment are reflected as realized (loss) gain on investments.

Recent accounting standards

From time to time, new accounting pronouncements are issued by the FASB or other standard setting bodies and adopted by the Company as of the specified effective date. The Company is considered to be an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, as amended (Jobs Act). The Jobs Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. Thus, an emerging growth company can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. The Company has elected to avail itself of this extended transition period and, as a result, the Company will not be required to adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for other public companies.

Recently issued but not yet adopted accounting standards

In November 2023, the FASB issued ASC Update No. 2023-07, *Segment Reporting (Topic 280): Improvement to Reportable Segment Disclosures*. This update enhances reportable segment disclosure requirements by requiring public entities to provide disclosures of significant segment expenses and other segment items, as well as disclosures about a reportable segment's profit or loss and assets that are currently required annually in interim periods. The new standard will be effective for the Company's annual financial statements for the period beginning on January 1, 2024. The Company is currently evaluating the impact that the standard will have on its Consolidated Financial Statements.

In December 2023, the FASB issued ASC Update No. 2023-09, *Income Taxes (Topic 740): Improvements to Income Tax Disclosures*. This update enhances income tax disclosure requirements by requiring public entities to provide additional information in its tax rate reconciliation and additional disclosures about income taxes paid. The update is effective for annual periods beginning after December 15, 2024. Early adoption is permitted for annual financial statements that have not yet been issued or made available for issuance and the amendments in this update should be applied prospectively, but entities have the option to apply it retrospectively. The Company is currently evaluating the impact that the standard will have on its Consolidated Financial Statements.

(3) Significant risks and uncertainties including business and credit concentrations

Financial instruments that potentially subject the Company to concentrations of credit risk consist primarily of cash equivalents, marketable securities, and receivables. The Company's cash equivalents are held by large, credit worthy financial institutions. Marketable securities consist of short-term investments. The Company has established guidelines relative to credit ratings, diversification and maturities that seek to maintain safety and liquidity. Deposits in these banks generally exceed federally insured limits. To date, the Company has not experienced any losses on its deposits of cash and cash equivalents.

The Company controls credit risk through credit approvals, credit limits, and monitoring procedures. The Company performs periodic credit evaluations of its customers and generally does not require collateral. Accounts receivable are recorded net of an allowance for credit losses. The allowance for credit losses is developed using historical collection experience, current and future economic and market conditions, and a review of the status of customers' accounts receivable. The Company had an allowance for credit losses of $960 and $45 at September 30, 2024 and December 31, 2023, respectively.

For the three and nine months ended September 30, 2024 and 2023, no single customer accounted for more than 10% of revenue. As of September 30, 2024, one customer accounted for 13% of accounts receivable. As of December 31, 2023, no single customer accounted for more than 10% of accounts receivable.

(4) Fair value of financial instruments

The Company measures the following financial liabilities at fair value on a recurring basis. There were no transfers between levels of the fair value hierarchy during any of the periods presented.

The following tables set forth the Company's financial assets and liabilities carried at fair value categorized using the lowest level of input applicable to each financial instrument as of September 30, 2024 and December 31, 2023:

	Balance at September 30, 2024	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Cash equivalents	$ 8,274	$ 8,274	$ —	$ —
U.S Treasury securities	20,889	—	20,889	—
U.S. Government agency bonds	3,399	—	3,399	—
Commercial paper	2,450	—	2,450	—
Total Assets	$ 35,012	$ 8,274	$ 26,738	$ —
Liabilities:				
Contingent consideration – Short term portion	$ 1,410	$ —	$ —	$ 1,410
Contingent consideration – Long term portion	3,859	—	—	3,859
Total Liabilities	$ 5,269	$ —	$ —	$ 5,269

	Balance at December 31, 2023	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Cash equivalents	$ 76,844	$ 76,844	$ —	$ —
Total Assets	$ 76,844	$ 76,844	$ —	$ —
Liabilities:				
Contingent consideration – Short term portion	$ 1,911	$ —	$ —	$ 1,911
Contingent consideration – Long term portion	5,765	—	—	5,765
Total Liabilities	$ 7,676	$ —	$ —	$ 7,676

The following is a summary of cash equivalents and marketable securities as of September 30, 2024 and December 31, 2023:

	September 30, 2024			
	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Cash equivalents	$ 8,274	$ —	$ —	$ 8,274
Marketable securities (due in one year or less):				
U.S Treasury securities	20,880	10	(1)	20,889
Commercial paper	2,450	—	—	2,450
Total marketable securities due in one year or less	23,330	10	(1)	23,339
Marketable securities (due in one to two years):				
U.S. Government agency bonds	3,400	—	(1)	3,399
Total marketable securities due in one to two years	3,400	—	(1)	3,399
Total cash equivalents and marketable securities	$ 35,004	$ 10	$ (2)	$ 35,012

	December 31, 2023			
	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Cash equivalents	$ 76,844	$ —	$ —	$ 76,844
Total cash equivalents	$ 76,844	$ —	$ —	$ 76,844

The Company held four debt securities at September 30, 2024 classified as marketable securities with original maturity dates greater than three months that were in an unrealized loss position for less than twelve months. The fair market value of these securities was $12,148. The Company evaluated its securities for other-than-temporary impairments based on quantitative and qualitative factors. The Company considered the decline in market value for these securities to be primarily attributable to current economic and market conditions. It is not more likely than not that the Company will be required to sell these securities, and the Company does not intend to sell these securities before the recovery of their amortized cost basis. Based on its analysis, the Company does not consider these investments to be other-than-temporarily impaired as of September 30, 2024.

The Company had no material realized gains or losses on its available-for-sale securities for the three and nine months ended September 30, 2024 and 2023.

The Company's recurring fair value measurements using Level 3 inputs relate to the Company's contingent consideration liability. In those circumstances where an acquisition involves a contingent consideration arrangement, the Company recognizes a liability equal to the fair value of the contingent payments the Company expects to make as of the acquisition date. The Company re-measures this liability each reporting period and records changes in the fair value through changes in fair value of contingent consideration on the Company's consolidated statements of operations. Increases or decreases in the fair value of the contingent consideration liability can result from changes in discount rates, periods, timing and amount of projected revenue.

The recurring Level 3 fair value measurements of the Company's contingent consideration liability include the following significant unobservable inputs:

Contingent Consideration Liability	Fair Value as of September 30, 2024	Fair Value as of December 31, 2023	Valuation Technique	Unobservable Inputs
Revenue-based Payments	$ 5,269	$ 7,676	Discounted Cash Flow Analysis under the Income Approach	Revenue discount factor, discount rate

(5) Property and equipment, net

Property and equipment consists of the following:

	Estimated Useful Life (Years)	September 30, 2024	December 31, 2023
Furniture and fixtures	7	$ 367	$ 474
Computers, laptop and peripherals	5	5,192	5,173
Laboratory equipment	5	7,393	8,869
Leasehold improvements	Shorter of the lease life or 7	5,192	5,876
Total property and equipment		18,144	20,392
Less: Accumulated depreciation		(10,598)	(9,663)
Property and equipment, net		$ 7,546	$ 10,729

For the three months ended March 31, 2024, the Company recorded $902 in impairment related to leasehold improvements, furniture and fixtures, and laboratory equipment associated with its exit of office and laboratory space in Menlo Park, California. Please refer to Note 18 – *Leases* for further discussion. There was no impairment related to property and equipment for the three and nine months ended September 30, 2023.

Depreciation expense relating to property and equipment charged to operations was $666 and $752 for the three months ended September 30, 2024 and 2023, respectively. Depreciation expense relating to property and equipment charged to operations was $2,049 and $2,171 for the nine months ended September 30, 2024 and 2023, respectively. Depreciation expense relating to property and equipment charged to cost of sales was $109 and $112 for the three months ended September 30, 2024 and 2023, respectively. Depreciation expense relating to property and equipment charged to cost of sales was $379 and $342 for the nine months ended September 30, 2024 and 2023, respectively.

Demo inventory consists of the following:

	Estimated Life (Years)	September 30, 2024	December 31, 2023
Demo inventory – gross	3	$ 4,466	$ 4,284
Less: Accumulated depreciation		(3,674)	(3,391)
Demo inventory, net		$ 792	$ 893

Depreciation expense relating to demo equipment charged to operations was $169 and $320 for the three months ended September 30, 2024 and 2023, respectively. Depreciation expense relating to demo equipment charged to operations was $654 and $972 for the nine months ended September 30, 2024 and 2023, respectively.

(6) Allowance for credit losses

The Company is exposed to credit losses primarily through sales of products and services. The Company's expected loss allowance methodology for accounts receivable is developed using historical collection experience, current and future economic and market conditions, and a review of the current status of customers' trade accounts receivable. Due to the short-term nature of such receivables, the estimated accounts receivable that may not be collected is based on aging of the accounts receivable balances.

The Company evaluates contract terms and conditions, country, and political risk, and may require prepayment to mitigate risk of loss. Specific allowance amounts are established to record the appropriate provision for customers that have a higher probability of default. The Company monitors changes to the receivables balance on a timely basis, and balances are written off as they are determined to be uncollectable after all collection efforts have been exhausted.

As of September 30, 2024, the Company's accounts receivable balance was $12,786, net of $960 of allowance for credit losses. The following table provides a roll-forward of the allowance for credit losses for the nine months ended September 30, 2024 that is deducted from the amortized cost basis of accounts receivable to present the net amount expected to be collected.

Balance at January 1, 2024	$ 45
Change in provision	915
Balance at September 30, 2024	$ 960

(7) Intangible assets

Intangible assets as of September 30, 2024 are summarized as follows:

	Cost	Accumulated Amortization	Net	Useful Life (in years)
Customer relationships	$ 11,800	$ (4,724)	$ 7,076	15
Developed technology	8,300	(4,154)	4,146	12
Licenses	213	(186)	27	15
Trade names and trademarks	6,300	(3,999)	2,301	12
Capitalized software	3,376	(1,654)	1,722	5
Total intangible assets	$ 29,989	$ (14,717)	$ 15,272	

Intangible assets as of December 31, 2023 are summarized as follows:

	Cost	Accumulated Amortization	Net	Useful Life (in years)
Customer relationships	$ 11,800	$ (4,134)	$ 7,666	15
Developed technology	8,300	(3,635)	4,665	12
Licenses	213	(183)	30	15
Trade names and trademarks	6,300	(3,378)	2,922	12
Capitalized software	3,377	(1,248)	2,129	5
Total intangible assets	$ 29,990	$ (12,578)	$ 17,412	

Total amortization expense was $713 and $1,178 for the three months ended September 30, 2024 and 2023, respectively. Total amortization expense was $2,139 and $2,670 for the nine months ended September 30, 2024 and 2023, respectively.

As of September 30, 2024 the amortization expense related to identifiable intangible assets in future periods is expected to be as follows:

2024 remaining	$	714
2025		2,853
2026		2,822
2027		1,956
2028		1,761
Thereafter		5,166
Total	$	15,272

(8) Accrued expenses and other current liabilities

Accrued expenses and other current liabilities consist of the following:

	September 30, 2024	December 31, 2023
Payroll and compensation	$ 4,261	$ 7,074
Current portion of contingent consideration	1,410	1,911
Inventory purchases	63	609
Customer deposits	1,189	1,096
Accrued interest	757	711
Other accrued expenses	1,688	2,032
Total accrued expenses and other current liabilities	$ 9,368	$ 13,433

(9) Debt

Term Loan Agreements

In October 2020, the Company entered into the Midcap Trust Term Loan with Midcap Financial Trust, for a $37,500 credit facility, consisting of a senior, secured term loan. The Company received $32,500 in aggregate proceeds as a result of the debt financing.

The Midcap Trust Term Loan initially provided for an interest only term for 36 months followed by 24 months of straight-line amortization. Interest on the outstanding balance of the Midcap Trust Term Loan was originally to be payable monthly in arrears at an annual rate of one-month LIBOR plus 6.35%, subject to a LIBOR floor of 1.50%. Under the original terms of the loan, at the time of final payment, the Company would be required to pay Midcap Financial Trust a final payment fee of 5.00% of the amount borrowed under the Midcap Trust Term Loan. Additionally, the original terms of the Midcap Trust Term Loan provided that if the loan was prepaid prior to the end of the term, the Company would be required to pay to Midcap Financial Trust a fee as compensation for the costs of being prepared to make funds available in an amount determined by multiplying the amount being prepaid by (i) three percent (3.00%) in the first year, two percent, (2.00%) in the second year and one percent (1.00%) in the third year and thereafter.

On March 21, 2022, the Company entered into Amendment No. 1 to the Midcap Trust Term Loan, which amended certain provisions to permit certain additional debt and capital leases.

On June 1, 2022, the Company entered into Amendment No. 2 ("Amendment No. 2") to the Midcap Trust Term Loan, which permitted the draw of a second tranche of $10,000, and a third tranche of $10,000, which were drawn on June 1, 2022, and September 30, 2022, respectively. Amendment No. 2 also delayed the amortization start dates for the outstanding loan amounts from November 1, 2023 until April 1, 2025, at which point the Company would be required to repay the principal amounts in seven equal monthly installments until the maturity date. Finally, Amendment No. 2 amended the interest rate payable on the term loan to apply an interest rate equal to the Secured Overnight Financing Rate ("SOFR") rate (with a floor of 1.61448%) plus 6.35%. Substantially all other terms and conditions, and covenants of the credit agreement remained unchanged. In connection with Amendment No. 2, the Company agreed to pay a $75 commitment fee as well as a 0.25% fee upon the funding of each of the second tranche and third tranche amounts. The Company accounted for Amendment No. 2 as a modification pursuant to ASC 470-50.

On November 7, 2022, the Company entered into Amendment No. 3 ("Amendment No. 3") to the Midcap Trust Term Loan, which permitted the draw of two additional tranches, each totaling $11,250, which were drawn on November 7, 2022, and December 22, 2023, respectively. Amendment No. 3 also delayed the amortization start dates for the outstanding loan amounts from April 1, 2025 until December 1, 2025 (subject to further extension upon certain conditions), at which point the Company would be required to repay the principal amounts in equal monthly installments until the new maturity date of November 1, 2027, which was extended pursuant to Amendment No. 3. In addition, Amendment No. 3 amended the interest rate payable on the term loan to apply an interest rate equal to the SOFR rate (with a floor of 2.50%) plus 6.80%, and reset the call protection to begin as of November 7, 2025. Finally, Amendment No. 3 provided for a commitment fee of $74 that was paid on November 7, 2022 on the new tranche amounts and an exit fee of 4.75%. As part of Amendment No. 3, the Company paid $779 for the accrued amount of the final payment fee. Substantially all other terms and conditions, and covenants of the credit agreement remained unchanged. The Company accounted for Amendment No. 3 as a modification pursuant to ASC 470-50.

In July 2024, the Company entered into Amendment No. 4 ("Amendment No. 4") to the Midcap Trust Term Loan, which amended certain affirmative financial covenants.

In November 2024, the Company entered into Amendment No. 5 ("Amendment No. 5") to the Midcap Trust Term Loan, effective as of September 30, 2024, which amended certain affirmative financial covenants. Amendment No. 5 also extends the interest only period from December 1, 2025 until March 1, 2026 (subject to further extension upon certain conditions), at which point the Company must repay the principal amounts in equal monthly installments until the maturity date of November 1, 2027. Finally, Amendment No. 5 increases the exit fee from 4.75% to 6.25%.

The interest rate was 12.12% at September 30, 2024. A final payment fee of $3,563 is due upon the earlier to occur of the maturity date or prepayment of such borrowings. For the three months ended September 30, 2024 and 2023, the Company recorded $188 and $153, respectively, related to the amortization of the final payment fee associated with the Midcap Trust Term Loan. For the nine months ended September 30, 2024 and 2023, the Company recorded $560 and $454, respectively, related to the amortization of the final payment fee associated with the Midcap Trust Term Loan.

Debt consists of the following:

	September 30, 2024	December 31, 2023
Midcap Trust Term Loan	$ 75,000	$ 75,000
Unamortized debt discount	(360)	(448)
Accretion of final fee	1,262	702
Total long-term debt, net	$ 75,902	$ 75,254

As of September 30, 2024, future principal payments due under the Midcap Trust Term Loan, excluding the $3,563 final payment fee, are as follows:

Year ended:	Midcap Trust Term Loan
December 31, 2024	$ —
December 31, 2025	3,125
December 31, 2026	37,500
December 31, 2027	34,375
Total minimum principal payments	$ 75,000

(10) Stockholder's equity

The Company's Amended and Restated Certificate of Incorporation authorizes it to issue 500,000,000 shares of common stock, $0.00001 par value per share, and 10,000,000 shares of preferred stock, par value $0.00001 per share. Each share of Class A common stock is entitled to one vote. The holders of common stock are also entitled to receive dividends whenever funds are legally available and when declared by the Board, subject to the prior rights of holders of all classes of stock outstanding. As of September 30, 2024 and December 31, 2023, a total of 49,522,728 and 49,117,738 shares of common stock were issued and outstanding, respectively, and 10,975,187 and 8,924,291 shares of common stock were reserved for issuance upon the exercise of stock options and vesting of restricted stock, respectively, including 3,910,298, and 1,823,265, respectively, of shares available for issuance under the 2021 Equity Incentive Plan.

On November 7, 2022, the Company entered into an Equity Distribution Agreement (the "Equity Distribution Agreement") with Piper Sandler & Co. ("Piper Sandler") with respect to an at-the-market offering program under which the Company may offer and sell, from time to time at its sole discretion, shares of its common stock, par value $0.00001 per share (the "Common Stock"), having an aggregate offering price of up to $50,000 (the "Placement Shares") through Piper Sandler as its sales agent. Subject to the terms and conditions of the Equity Distribution Agreement, Piper Sandler may sell the shares by methods deemed to be an "at the market offering" as defined in Rule 415 promulgated under the Securities Act of 1933, as amended (the "Securities Act"), including sales made through The Nasdaq Global Select Market, on any other existing trading market for the Common Stock, to or through a market maker, or, if expressly authorized by the Company, in privately negotiated transactions. The Company or Piper Sandler may terminate the Equity Distribution Agreement upon notice to the other party and subject to other conditions. The Company will pay Piper Sandler a commission equal to 3.0% of the gross proceeds of any Common Stock sold through Piper Sandler under the Equity Distribution Agreement and has provided Piper Sandler with customary indemnification rights. As of September 30, 2024, we have not sold any shares of common stock under the ATM program.

Issuance costs incurred related to the Equity Distribution Agreement are classified as long-term assets on the balance sheet at September 30, 2024 and December 31, 2023.

On June 7, 2023, the Company entered into an underwriting agreement (the "Underwriting Agreement") with Morgan Stanley & Co. LLC and Piper Sandler (collectively, the "Underwriters"), pursuant to which the Company agreed to issue and sell up to 10,005,000 shares of common stock (the "Shares"), which included 1,305,000 shares (the "Optional Shares") subject to a 30-day option to purchase additional shares granted to the Underwriters (the "Offering"). The Shares were offered and sold in the Offering at the public offering price of $5.00 per share and were purchased by the Underwriters from the Company at a price of $4.70 per share, except for 3,509,718 shares purchased by entities affiliated with Telegraph Hill Partners, entities affiliated with PSC Capital Partners LLC and certain of our directors, executive officers and other insiders, all considered related parties, which were purchased by the Underwriters at the public offering price.

On June 8, 2023, the Underwriters exercised their option to purchase the Optional Shares in full.

The Company received approximately $47,817 in net proceeds from the Offering, after deducting the underwriting discounts and commissions and offering expenses payable by the Company. The Offering closed on June 12, 2023.

(11) Stock compensation plans

2021 Equity Incentive Plan

On March 24, 2021, the Board, and on April 8, 2021, the Company's stockholders, approved and adopted the 2021 Equity Incentive Award Plan (the "2021 Plan"). The 2021 Plan became effective immediately prior to the closing of the IPO. Under the 2021 Plan, the Company may grant stock options, stock appreciation rights, restricted stock, restricted stock units, and other stock or cash-based awards to individuals who are then employees, officers, directors or consultants of the Company. A total of 1,727,953 shares of common stock were approved to be initially reserved for issuance under the 2021 Plan. The number of shares under the Company's 2015 Equity Incentive Plan (the "2015 Plan") subject to outstanding awards as of the effective date of the 2021 Plan that are subsequently canceled, forfeited or repurchased by the Company were added to the shares reserved under the 2021 Plan. In addition, the number of shares of common stock available for issuance under the 2021 Plan will be automatically increased on the first day of each calendar year during the term of the 2021 Plan, beginning with January 1, 2022 and ending with January 1, 2030, by an amount equal to 5% of the outstanding number of shares of the Company's common stock on December 31st of the preceding calendar year or such lesser amount as determined by the Board.

2015 Equity Incentive Plan

The 2015 Plan was established for granting stock incentive awards to directors, officers, employees and consultants to the Company. The 2015 Plan provided for the grant of incentive and non-qualified stock options, stock appreciation rights, restricted stock and restricted stock units as determined by the Board. Under the 2015 Plan, stock options were generally granted with exercise prices equal to or greater than the fair value of the common stock as determined by the Board, expired no later than 10 years from the date of grant, and vested over various periods not exceeding four years. While no shares are available for future issuance under the 2015 Plan, it continues to govern outstanding equity awards granted thereunder.

Stock Options

During the nine months ended September 30, 2024 and 2023, the Company granted options with an aggregate fair value of $3,371 and $7,447, respectively, which are being recorded as compensation expense over the requisite service period. The Company uses the Black-Scholes option pricing model to determine the fair value of stock options. The valuation model for stock compensation expense requires the Company to make assumptions and judgments about the variables used in the calculation including the expected term (weighted-average period of time that the options granted are expected to be outstanding), volatility of the Company's common stock and an assumed-risk-free interest rate.

During the nine months ended September 30, 2024, the Company granted options to purchase 1,202,217 shares of common stock at a weighted average fair value of $2.80 per share and a weighted average exercise price of $4.06 per share. During the nine months ended September 30, 2023, the Company granted options to purchase 1,518,154 shares of common stock at a weighted average fair value of $4.91 per share and a weighted average exercise price of $9.01 per share. For the three and nine months ended September 30, 2024 and 2023, the fair values were estimated using the Black-Scholes valuation model using the following weighted-average assumptions:

	Three months ended September 30, 2024	Three months ended September 30, 2023	Nine months ended September 30, 2024	Nine months ended September 30, 2023
Weighted-average risk-free interest rate	3.7 %	4.4 %	4.3 %	3.8 %
Expected dividend yield	0 %	0 %	0 %	0 %
Expected volatility	76.6 %	53.5 %	76.2 %	53.5 %
Expected term	5.9 years	6.1 years	5.9 years	5.9 years

Restricted Stock Units

During the nine months ended September 30, 2024 and 2023, the Company granted RSUs with an aggregate fair value of $6,651 and $12,489, respectively, which are being recorded as compensation expense over the requisite service period. The fair value of each grant is calculated based on the Company's stock price on the date of grant. During the nine months ended September 30, 2024, the Company granted 1,472,051 RSUs at a weighted average fair value of $4.52 per share. During the nine months ended September 30, 2023, the Company granted 1,197,542 RSUs at a weighted average fair value of $10.43 per share.

Stock-Based Compensation

Stock-based compensation related to the Company's stock-based awards was recorded as an expense and allocated as follows:

	Three months ended September 30,		Nine months ended September 30,	
	2024	2023	2024	2023
Cost of goods sold	$ 48	$ 96	$ 215	$ 265
Selling, general and administrative	1,554	2,401	5,895	6,509
Research and development	279	381	1,050	1,099
Total stock-based compensation	$ 1,881	$ 2,878	$ 7,160	$ 7,873

As of September 30, 2024, there was $6,991 of total unrecognized compensation cost related to non-vested stock options that is expected to be recognized over a remaining weighted-average period of 2.2 years.

As of September 30, 2024, there was $9,731 of total unrecognized compensation cost related to non-vested RSUs that is expected to be recognized over a remaining weighted-average period of 2.7 years.

(12) Employee stock purchase plan

On March 24, 2021, the Board and on April 8, 2021, the Company's stockholders approved and adopted the 2021 Employee Stock Purchase Plan (the "ESPP"). The ESPP became effective in connection with the closing of the Company's IPO. The ESPP permits participants to purchase common stock through payroll deductions of up to 15% of their eligible compensation. A total of 172,795 shares of common stock were approved to be initially reserved for issuance under the ESPP. In addition, the number of shares of common stock available for issuance under the ESPP will be automatically increased on the first day of each calendar year during the first ten-years of the term of the ESPP, beginning with January 1, 2022 and ending with January 1, 2030, by an amount equal to 0.5% of the outstanding number of shares of the Company's common stock on December 31st of the preceding calendar year or such lesser amount as determined by the Board. No shares have been issued under the ESPP at September 30, 2024 and December 31, 2023, respectively.

(13) Income taxes

During the three months ended September 30, 2024 and 2023, the Company recorded a tax provision of $44 and $15, respectively. During the nine months ended September 30, 2024 and 2023, the Company recorded a tax provision of $154 and $62, respectively. The tax provision consists primarily of foreign income taxes and state taxes in the United States. The provision differs from the U.S. federal statutory rate of 21% primarily due to the full valuation allowance recorded against the U.S. deferred tax assets, including the current year to date losses. The Company maintains a valuation allowance against its U.S. deferred tax assets as the Company believes it is more likely than not the deferred tax assets will not be realized.

(14) Commitments and contingencies

License Agreements

In September 2018, in connection with the acquisition of the QPS division of PKI (subsequently known as Revvity), the Company entered into a License Agreement with PKI, pursuant to which PKI granted the Company an exclusive, nontransferable, sublicensable license under certain patent rights to make, use, import and commercialize QPS products and services. The Company is required to pay royalties on net sales of products and services that are covered by patent rights under the agreement at a rate ranging from 1.0% to 7.0%. As of the acquisition date, the Company accounted for the future potential royalty payments as contingent consideration. This contingent consideration is subject to remeasurement. The Company recorded approximately $1,410 and $1,911 of accrued royalties for projected net sales in

2024, and actual net sales in 2023, as of September 30, 2024 and December 31, 2023, respectively. Such amounts are payable in the first quarter of 2025 and 2024, respectively.

Changes in the fair value of the Company's long-term portion of the contingent consideration liability During the nine months ended September 30, 2024 and 2023 were as follows:

Balance as of December 31, 2023	$ 5,765
Reclassification of FY 2024 payment to accrued expenses	(1,410)
Change in contingent consideration value	(496)
Balance as of September 30, 2024	$ 3,859
Balance as of December 31, 2022	$ 6,039
Reclassification of FY 2023 payment to accrued expenses	(1,803)
Change in contingent consideration value	1,019
Balance as of September 30, 2023	$ 5,255

(15) Net loss per share attributable to common stockholders

Potentially issuable shares of common stock include shares issuable upon the exercise of outstanding employee stock option awards. Awards granted with performance conditions are excluded from the shares used to compute diluted earnings per share until the performance conditions associated with the awards are met.

The following table sets forth the computation of basic and diluted earnings per common share:

	Three months ended September 30,		Nine months ended September 30,	
	2024	2023	2024	2023
Net loss	$ (10,533)	$ (12,916)	$ (47,166)	$ (52,521)
Weighted average common shares used in net loss per share attributable to common stockholders, basic and diluted	49,503,272	48,975,432	49,370,959	42,686,065
Basic and diluted net loss per common share outstanding	$ (0.21)	$ (0.26)	$ (0.96)	$ (1.23)

The Company's potential dilutive securities, which include stock options, and unvested restricted stock units, have been excluded from the computation of diluted net loss per share attributable to common stockholders whenever the effect of including them would be to reduce the net loss per share. In periods where there is a net loss, the weighted average number of common shares outstanding used to calculate both basic and diluted net loss per share attributable to common stockholders is the same. The following potential common shares, presented based on amounts outstanding at each period end, were excluded from the calculation of diluted net loss per share attributable to common stockholders for the periods indicated because including them would have had an anti-dilutive effect:

	September 30,	
	2024	2023
Outstanding stock options	5,935,612	5,928,456
Unvested restricted stock units	1,926,220	1,188,102
Total	7,861,832	7,116,558

(16) Segments

Operating segments are defined as components of an enterprise about which separate discrete information is available for evaluation by the chief operating decision-maker in deciding how to allocate resources and assess performance. The Company's chief operating decision-maker, the Company's chief executive officer, views the Company's operations and manages its business as a single operating segment. Accordingly, the Company has a single reportable segment structure. The Company's principal operations and decision-making functions are located in the United States.

The following table provides the Company's revenues by geographical market based on the location where the services were provided or to which product was shipped:

	Three months ended September 30,		Nine months ended September 30,	
	2024	2023	2024	2023
North America	$ 10,591	$ 16,356	$ 35,098	$ 42,017
APAC	3,029	3,752	9,486	12,249
EMEA	5,194	5,107	15,744	15,880
Total Revenue	$ 18,814	$ 25,215	$ 60,328	$ 70,146

	Three months ended September 30,		Nine months ended September 30,	
	2024	2023	2024	2023
North America	56 %	65 %	58 %	60 %
APAC	16 %	15 %	16 %	17 %
EMEA	28 %	20 %	26 %	23 %
Total Revenue	100 %	100 %	100 %	100 %

North America includes the United States and related territories, as well as Canada. APAC also includes Australia. For the three and nine months ended September 30, 2024, the Company had no countries outside of the United States with more than 10% of total revenue. For the three months and nine months ended September 30, 2023, the Company had no countries outside of the United States with more than 10% of total revenue.

As of September 30, 2024 and December 31, 2023, substantially all of the Company's long-lived assets are located in the United States.

(17) Related party transactions

Argonaut Manufacturing Services Inc. ("AMS") is a portfolio company of Telegraph Hill Partners, which holds greater than 5% of the Company's total outstanding shares. During the three months ended September 30, 2024 and 2023, the Company incurred costs of goods sold of approximately $438 and $1,762, respectively, related to sales of consumables manufactured by and shipped from AMS. During the nine months ended September 30, 2024 and 2023, the Company incurred costs of goods sold of approximately $3,524 and $5,523, respectively, related to sales of consumables manufactured by and shipped from AMS. As of September 30, 2024 and December 31, 2023, $0 and $3,110, respectively, is included in inventories, net, related to consumables manufactured by and stored at AMS. As of September 30, 2024 and December 31, 2023, the Company had $1,936 and $2,618 in accounts payable, respectively, due to AMS.

One of the Company's officers is a member of the board of directors of a software-as-a-service provider, who provides software development services to the Company, which are utilized for research purposes. During the three months ended September 30, 2024 and 2023, the Company incurred research and development expenses of approximately $188 and $101, respectively, with such provider. During the nine months ended September 30, 2024 and 2023, the Company incurred research and development expenses of approximately $429 and $304, respectively, with such provider. As of September 30, 2024 and December 31, 2023, the Company had $144 and $101 in accounts payable, respectively, due to such provider.

(18) Leases

In the first quarter of 2024, the Company ceased use of its leased facility in Menlo Park, California with the intention to either sublease or exit the vacant space to recover a portion of the total lease costs. The Company's cease use of its leased facilities required an impairment assessment and the related right-of-use ("ROU") assets and property and equipment became their own asset group. The impairment analysis evaluated the present value of net cash flows under the original lease and the estimated cash flows under estimated subleases to identify any potential impairment amount. The impairment assessment considered all industry and economic factors such as rental rates, interest rates, and recent real estate activities to estimate the net cash flows analysis and impairment amount.

The above assessments resulted in the Company recording an impairment charge of $2,971 during the nine months ended September 30, 2024, which was recorded in impairment on the consolidated statements of operations. For the nine months ended September 30, 2024, impairment charges included $2,069 impairment of ROU assets, and $902 impairment of property and equipment, respectively. After recording impairments for the nine months ended September 30, 2024, the carrying value of ROU assets and related property and equipment for the facility not being used was $2,115.

In June 2024, the Company signed a thirty-five month sublease agreement for a portion of its leased facility in Menlo Park, California. In connection with this agreement, the Company received a security deposit totaling $40, which is recorded as a component of long-term liabilities in the consolidated balance sheet. The lease commencement date was July 2024.

There were no ROU asset or leasehold improvement impairments recorded in the three and nine months ended September 30, 2023.

The Company is a lessee under operating leases of offices, warehouse space, laboratory space, and auto leases, and financing leases of computer equipment, staining equipment, and furniture.

Some leases include an option to renew, with renewal terms that can extend the lease term by five years. The exercise of lease renewal options is at the Company's sole discretion. None of these options to renew are recognized as part of the Company's right-of-use asset or lease liability as of September 30, 2024, as renewal was determined to not be reasonably assured.

The table below summarizes the Company's lease costs for the three and nine months ended September 30, 2024 and 2023:

Lease Costs	Classification	Three months ended September 30, 2024	Three months ended September 30, 2023	Nine months ended September 30, 2024	Nine months ended September 30, 2023
Finance lease cost:					
Amortization of right-of-use assets	Cost of service and other revenue	$ 75	$ 89	$ 243	$ 249
Amortization of right-of-use assets	Selling, general and administrative	12	125	83	348
Amortization of right-of-use assets	Research and development	86	—	255	32
Interest on lease liabilities	Interest expense, net	28	41	93	105
Operating lease cost:					
Sublease income	Selling, general and administrative	(94)	—	(94)	—
Rent expense	Cost of product revenue	26	28	80	84
Rent expense	Selling, general and administrative	519	788	1,762	2,355
Total lease cost		$ 652	$ 1,071	$ 2,422	$ 3,173

As of September 30, 2024, future minimum commitments under ASC 842 under the Company's operating leases were as follows:

Maturity of operating lease liabilities	As of September 30, 2024
2024 remaining	$ 672
2025	2,783
2026	2,618
2027	1,104
2028	436
Thereafter	562
Total lease payments	$ 8,175
Less: discount to lease payments	(962)
Total operating lease liabilities	$ 7,213

As of September 30, 2024, future minimum commitments under ASC 842 under the Company's financing leases were as follows:

Maturity of financing lease liabilities	As of September 30, 2024
2024 remaining	$ 539
2025	635
2026	430
2027	383
2028	60
Total lease payments	$ 2,047
Less: discount to lease payments	(243)
Total financing lease liabilities	$ 1,804

The table below summarizes the weighted-average remaining lease term (in years), the weighted-average incremental borrowing rate (in percentages), as well as supplemental cash flow information related to leases for the nine months ended September 30, 2024 and 2023:

	Nine months ended September 30,	
Lease Term, Discount Rates, and Other	2024	2023
Weighted average remaining lease term		
Operating leases	3.2 years	4.0 years
Financing leases	2.8 years	3.0 years
Weighted average incremental borrowing rate		
Operating leases	7.85 %	7.85 %
Financing leases	11.16 %	9.32 %
Cash payments of amounts included in lease liabilities		
Operating cash flows from operating leases	$ 2,076	$ 2,328
Operating cash flows from finance leases	93	105
Financing cash flows from finance leases	520	485

(19) Reductions in force

In January of 2024, the Company initiated a workforce reduction in connection with certain operating expense cost savings initiatives implemented by the Company, including the consolidation of its facilities and the exit of its Menlo Park, California leased facility as discussed in Note 18 – *Leases*. This workforce reduction was substantially completed by the end of the first quarter of 2024.

During the three months ended March 31, 2024, the Company recorded $1,257 for charges related to this workforce reduction, and $140 of employee and equipment relocation costs associated with the Menlo Park, California exit, respectively, which were recorded in restructuring on the consolidated statements of operations. As of September 30, 2024, none of these workforce reduction charges remain unpaid.

In July 2024, the Company initiated a workforce reduction in connection with certain operating expense cost savings initiatives. This workforce reduction was substantially completed by the end of the third quarter of 2024.

During the three months ended September 30, 2024, the Company recorded $1,690 for charges related to this workforce reduction, which were recorded in restructuring on the consolidated statements of operations. As of September 30, 2024, $19 of these workforce reduction charges remain unpaid.

(20) Subsequent events

The Company has evaluated subsequent events from the consolidated balance sheet date through November 14, 2024, which is the date the consolidated financial statements were issued.

On October 25, 2024, the Company entered into the Fourth Amendment to the Acrivon Agreement with Acrivon Therapeutics, Inc., which added additional milestone payments totaling $3,000.

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

You should read the following discussion and analysis of financial condition and results of operations together with our consolidated financial statements and related notes included elsewhere in this Quarterly Report on Form 10-Q and our audited consolidated financial statements and notes thereto and management's discussion and analysis of financial condition and results of operations for the fiscal year ended December 31, 2023 included in the Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 5, 2024. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of various factors, including those described in our Annual Report on Form 10-K for the year ended December 31, 2023, as referred to in the section titled "Risk Factors" under Part II, Item 1A below. Please also see the section titled "Special note regarding forward looking statements."

Overview

We are an innovative life sciences technology company delivering spatial biology solutions focused on transforming discovery, clinical research and diagnostics. Our mission is to bring context to the world of biology and human health through the power of spatial phenotyping. Spatial phenotyping refers to a rapidly evolving technology that enables academic and biopharma scientists to detect and map the distribution of cell types and biomarkers across whole tissue samples at single-cell resolution, enabling advancements in their understanding of disease progression and patient response to therapy. Through our PhenoCycler and PhenoImager platforms, reagents, software and services, we offer end-to-end solutions to perform tissue analysis and spatial phenotyping across the full continuum from discovery through translational and clinical research and diagnostics.

Our spatial biology solutions measure cells and proteins by providing biomarker data in its spatial context while preserving tissue integrity. Biomarkers are objective measures that capture what is happening in a cell or tissue at a given moment. Current genomic and proteomic methods, such as next-generation sequencing ("NGS"), single-cell analysis, flow cytometry and mass spectrometry, are providing meaningful data but require the destruction of the tissue sample for analysis. While valuable and broadly adopted, these approaches allow scientists to analyze the biomarkers and cells that comprise the tissue but do not provide the fundamental information about tissue structure, cellular interactions and the localized measurements of key biomarkers. Furthermore, current non-destructive tissue analysis and histological methods provide some limited spatial information, but they only measure a minimal number of biomarkers at a time and require expert pathologist interpretation. Our platforms address these limitations by providing end-to-end solutions that enable researchers to quantitatively interrogate a large number of biomarkers and cell types across a tissue section at single-cell resolution. The result is a detailed and computable map of the tissue sample that thoroughly captures the underlying tissue dynamics and interactions between key cell types and biomarkers, a process now referred to as spatial phenotyping. We believe that we are the only business with the breadth of platform capabilities that enable researchers to do a deep exploratory and discovery study, and then further advance and scale their research through the translational and clinical phases, leading to a better understanding of human biology, disease progression and response to therapy. We also believe that we are the only spatial biology business that is capable of delivering a menu of clinical in vitro diagnostics ("IVD") tests on our platform for routine diagnostic testing.

We offer complete end-to-end solutions for spatial phenotyping, designed to serve the unique needs of our customers in the discovery, translational and clinical markets. The PhenoCycler is an ultra-high parameter and cost-effective platform ideally suited for discovery high-plex research. The PhenoImager platforms, which includes the Fusion instrument and HT instrument, provide high-throughput scalable solutions with the automation and robustness needed for translational and clinical applications. Furthermore, the PhenoCycler and the PhenoImager Fusion can be integrated into a combined system, the PhenoCycler-Fusion, to enable spatial discovery at scale by providing significant improvements in the speed of the workflow. Our portfolio of products offer seamless and integrated workflow solutions for our customers, including important benefits such as flexible sample types, automated sample processing, scalability, comprehensive data analysis and software solutions and dedicated field and applications support. With these platforms, our customers are performing spatial phenotyping to further advance their understanding of diseases such as cancer, neurological and autoimmune disorders, and many other therapeutic areas.

For the three months ended September 30, 2024 and 2023, revenue from North America accounted for approximately 56% and 65% of our revenue, respectively. For the nine months ended September 30, 2024 and 2023, revenue from North America accounted for approximately 58% and 60% of our revenue, respectively.

We generally outsource our production manufacturing and distribution of our instruments and some of our reagents. Design work and prototyping are performed in-house before pilot manufacturing and production are outsourced to third-party contract manufacturers. We use one contract manufacturer to produce our PhenoImager and PhenoCycler instruments, and a second to produce some of our reagent kits. Additionally, we have made investments in our infrastructure and manufacturing facilities to support strategic in-house manufacturing as it relates to our critical and high-complexity proprietary reagents. The contract manufacturers of our systems and reagent kits are located in the United States and Asia. Certain of our suppliers of components and materials are single source suppliers.

As of the date of this Quarterly Report on Form 10-Q, we have financed our operations primarily from the issuance and sale of our equity securities, borrowings under our long-term debt agreement, and revenue from our commercial operations. We have incurred net losses in each period since our inception in 2015. Our net losses were $10.5 million and $12.9 million for the three months ended September 30, 2024 and 2023, respectively. Our net losses were $47.2 million and $52.5 million for the nine months ended September 30, 2024 and 2023, respectively. We expect to continue to incur operating losses for the foreseeable future. However, we plan to continue to grow our business while improving results of operations in an effort to achieve cash flow positivity, as we:

- attract, hire and retain qualified personnel, including in connection with our investments in our infrastructure to support in-house manufacturing;
- market and sell new and existing solutions and services;
- invest in processes and infrastructure to scale our business;
- support research and development to introduce new solutions;
- expand, protect and defend our intellectual property; and
- acquire complementary businesses or technologies to support the growth of our business.

Key factors affecting our results of operations and future performance

There are a number of factors that have impacted, and we believe will continue to impact, our business, results of operations and growth. Our ability to successfully address these factors is subject to various risks and uncertainties, including those described under the heading "*Risk Factors.*"

Our ability to expand our installed base

We are focused on increasing sales of our PhenoCycler and PhenoImager platforms (Fusion and HT) to new and existing customers. Our financial performance has historically been driven by, and will continue to be impacted by, the volume of instrument sales. Additionally, instrument sales are a leading indicator of future recurring revenue from consumables and services. Our operating results and growth prospects will be dependent in part on our ability to increase our instrument installed base as we further penetrate existing markets and expand into, or offer new features and solutions that appeal to, new markets.

We believe our market is still evolving and relatively underpenetrated. As spatial biology is further validated through rapid acceleration of peer-reviewed publications and growing adoption by the life sciences research market, we believe we have an opportunity to significantly increase our installed base. We regularly solicit feedback from our customers in order to enhance our solutions and their applications for life sciences research, which we believe will drive increased adoption of our platforms as they better serve our customers' needs.

Our ability to drive incremental pull through

We believe that expansion of our installed base to new and existing customers will drive an increase in our recurring reagent and instrument service revenue. In addition, as our research and development team identifies and launches new applications and biomarker targets, we expect to increase incremental pull through on our existing and new instrument installed base. Recurring revenue was 48% and 33% of total revenue for the three months ended September 30, 2024 and 2023, respectively. Recurring revenue was 48% and 35% of total revenue for the nine months ended September 30, 2024 and 2023, respectively. Our recurring revenue as a percentage of total product and service revenue will vary based upon new device placements in the period. As our installed base expands, we expect recurring revenue on an absolute basis to increase and become an increasingly important contributor to our revenue.

Our ability to improve revenue mix and gross margin

Our revenue is primarily derived from sales of our platforms, consumables, software, and services. Our revenue mix will fluctuate from period-to-period, particularly revenue generated from instrument sales. As our installed base grows, we expect consumables and instrument service revenue to constitute a larger percentage of total revenue.

Our margins are higher for those instruments and consumables that we sell directly to customers compared to those sold through distributors.

Future instrument and consumable selling prices and gross margins may fluctuate due to a variety of factors, including the introduction by others of competing products and solutions. We aim to mitigate downward pressure on our average selling prices by increasing the value proposition offered by our instruments and consumables, primarily by expanding the applications for our devices, optimizing the performance of our products, introducing feature enhancements and increasing the quantity and quality of data that can be obtained using our consumables.

Key Business Metrics

We regularly review the number of instrument placements and cumulative instrument placement as key metrics to evaluate our business, measure our performance, identify trends affecting our business, develop financial projections, and make strategic decisions. We believe that these metrics are representative of our current business; however, we anticipate these will change or may be substituted for additional or different metrics as our business grows.

During the three and nine months ended September 30, 2024 and 2023, our instrument placements were as follows:

	Three months ended September 30,		Nine months ended September 30,	
	2024	2023	2024	2023
Instrument Placements:	35	69	116	198

Our instruments are sold globally to leading biopharma companies and top research institutions and medical centers. Our quarterly instrument placements fluctuate from period-to-period due to the type and size of our customers and their procurement and budgeting cycles. We expect continued fluctuations in our quarterly period-to-period number of instrument placements.

We believe our instrument placements is an important metric to measure our business because the number of new placements is driven by our ability to secure new customers and to increase adoption of our PhenoCycler and PhenoImager platforms and because it provides insights into anticipated recurring revenue for consumables and instrument services.

Components of results of operations

Revenue

Product Revenue

We generate product revenue from the sale of our instruments, consumables and software products. Instrument sales accounted for 47% and 67% of product revenue for the three months ended September 30, 2024 and 2023, respectively. Instrument sales accounted for 47% and 65% of product revenue for the nine months ended September 30, 2024 and 2023, respectively. Consumables revenue accounted for 51% and 32% of our product revenue for the three months ended September 30, 2024 and 2023, respectively. Consumables revenue accounted for 51% and 34% of our product revenue for the nine months ended September 30, 2024 and 2023, respectively.

Our current instrument offerings include our PhenoCycler and PhenoImager platforms. Our sales process with customers is often long and involves multiple levels of approvals. As a result, the revenue for our platforms can vary significantly from period-to-period and has been, and may continue to be, concentrated in a small number of customers in any given period.

We sell our instruments directly to customers and through distributors. Each of our instrument sales drives various streams of recurring revenue comprised of consumable product sales and instrument services.

Service and Other Revenue

We primarily generate service and other revenue from instrument service, which generally consists of sales of extended service contracts, in addition to installation and training, as well as from our laboratory services operations, where we provide sample testing services to customers utilizing our in-house lab operation, and revenue generated from companion diagnostic development.

We offer our customers extended warranty and service plans for our platforms. Our extended warranty and service plans are offered for periods beyond the standard one-year warranty that all customers receive. These extended warranty and service plans generally have fixed fees and terms ranging from one to four additional years. We recognize revenue from the sale of extended warranty and service plans over the respective coverage period, which approximates the service effort provided by us.

We record shipping and handling billed to customers as service and other revenue and the related costs in cost of service and other revenue in the consolidated statement of operations.

We sell our products globally. We sell directly to end customers in North America and we sell through third party distributors and dealers in the APAC region. We sell both directly and through third party distributors in EMEA.

Cost of Goods Sold, Gross Profit and Gross Margin

Product cost of revenue primarily consists of costs for finished goods (both instruments and reagents) produced by our contract manufacturers or in-house, and associated freight, shipping and handling costs for products shipped to customers, salaries and other personnel costs, and other direct costs related to those sales recognized as product revenue in the period. Cost of goods sold for services and other revenue primarily consists of salaries and other personnel costs, travel related to services provided, costs of servicing equipment at customer sites, and all personnel and related costs for our laboratory services operation.

We expect that our cost of goods sold will increase or decrease to the extent that our revenue increases and decreases and depending on the mix of revenue in any specific period.

Gross profit is calculated as revenue less cost of goods sold. Gross margin is gross profit expressed as a percentage of revenue. Our gross profit in future periods will depend on a variety of factors, including market conditions that may impact our pricing, sales mix among instruments, sales mix changes among consumables, excess and obsolete inventories, costs we pay our contract manufacturers for their services, our cost structure for lab service operations relative to volume, product warranty obligations, and inflationary cost pressures. Our gross profit in future periods will also vary based upon our channel mix and may decrease based upon our distribution channels.

Gross profit was $11.7 million compared to $15.3 million for the three months ended September 30, 2024 and 2023, respectively. Gross profit was $33.5 million compared to $39.7 million for the nine months ended September 30, 2024 and 2023, respectively.

Operating expenses

Research and development. Research and development costs primarily consist of salaries, benefits, engineering/design costs, laboratory supplies, materials expenses for employees and third parties engaged in research and product development, and depreciation of property and equipment and amortization of intangibles. We expense all research and development costs in the period in which they are incurred.

We plan to continue to invest in our research and development efforts to enhance existing products and develop new products. We expect these expenses to vary from period to period as a percentage of revenue.

Selling, general and administrative. Our selling, general and administrative expenses primarily consist of salaries and benefits for employees in our executive, accounting and finance, sales and marketing, operations, legal and human resource functions, professional services fees, such as consulting, audit, tax and legal fees, legal expenses related to intellectual property, general corporate costs, commercial sales functions, marketing, travel expenses, facilities, and IT, as well as depreciation of property and equipment and amortization of intangibles. We expect these expenses to vary from period to period as a percentage of revenue.

Change in fair value of contingent consideration. On September 28, 2018, we acquired substantially all the assets of the QPS division of PKI (subsequently known as Revvity). As part of the acquisition, on September 28, 2018, we entered into a License Agreement with PKI. Under the terms of the License Agreement, we agreed to pay PKI certain royalties as a percentage of future net sales of products and services that are covered by patent rights under the agreement, in exchange for a perpetual license of the right to produce and sell QPS products. As of the acquisition date, we accounted for the future potential royalty payments as contingent consideration. This contingent consideration is subject to remeasurement.

Impairment. Impairment expense primarily consists of charges recorded as a result of exiting the Menlo Park, California facilities. As a result of exiting the facilities, we performed an impairment assessment of our long-lived assets, including operating lease right-of-use assets and property and equipment. A portion of our operating lease right-of-use assets (including related property and equipment) were determined to be impaired as their carrying values exceeded their fair values, and corresponding impairment charges were recorded in the nine months ended September 30, 2024.

Restructuring. Restructuring expense primarily consists of charges recorded in connection with our workforce reductions executed in January and July of 2024.

Other income (expense)

Interest expense. Interest expense consists primarily of interest related to borrowings under our debt obligations.

Interest income. Interest income consists of interest earned on cash, cash equivalents, and marketable securities, and the accretion of discounts from the purchase of marketable securities.

Other expense, net. Other expense, net consists primarily of franchise tax and foreign currency exchange gains and losses.

Provision for income taxes

Our provision for income taxes consists primarily of foreign taxes and minimal state taxes in the United States. As we expand the scale and scope of our international business activities, any changes in the United States and foreign taxation of such activities may increase our overall provision for income taxes in the future.

Results of operations

The results of operations presented below should be reviewed in conjunction with the consolidated financial statements and notes included elsewhere in the Quarterly Report on Form 10-Q. The following tables set forth our results of operations for the periods presented:

($ in thousands)	Three months ended September 30, 2024	Three months ended September 30, 2023	Nine months ended September 30, 2024	Nine months ended September 30, 2023
Product revenue	$ 12,298	$ 18,048	$ 40,364	$ 50,719
Service and other revenue	6,516	7,167	19,964	19,427
Total revenue	18,814	25,215	60,328	70,146
Cost of goods sold:				
Cost of product revenue	4,430	6,208	17,620	19,747
Cost of service and other revenue	2,660	3,731	9,219	10,714
Total cost of goods sold	7,090	9,939	26,839	30,461
Gross profit	11,724	15,276	33,489	39,685
Operating expenses:				
Selling, general and administrative	14,672	20,251	53,629	67,281
Research and development	4,474	6,314	15,316	19,614
Change in fair value of contingent consideration	(763)	262	(496)	1,019
Impairment	—	—	2,971	—
Restructuring	1,690	—	3,087	—
Total operating expenses	20,073	26,827	74,507	87,914
Loss from operations	(8,349)	(11,551)	(41,018)	(48,229)
Other income (expense):				
Interest expense	(2,625)	(2,239)	(7,843)	(6,468)
Interest income	521	1,074	2,126	2,576
Other expense, net	(36)	(185)	(277)	(338)
Loss before provision for income taxes	(10,489)	(12,901)	(47,012)	(52,459)
Provision for income taxes	(44)	(15)	(154)	(62)
Net loss	$ (10,533)	$ (12,916)	$ (47,166)	$ (52,521)

Comparison of the three months ended September 30, 2024 and 2023

Revenue

($ in thousands, except percentages)	Three months ended September 30, 2024	Three months ended September 30, 2023	Change Amount	Change %
Product revenue	$ 12,298	$ 18,048	$ (5,750)	(32)%
Service and other revenue	6,516	7,167	(651)	(9)%
Total revenue	$ 18,814	$ 25,215	$ (6,401)	(25)%

Product revenue decreased by $5.8 million, or 32%, for the three months ended September 30, 2024, compared to the three months ended September 30, 2023. The decrease was primarily driven by a $6.3 million decrease in instrument revenue resulting from 35 new system placements during the three months ended September 30, 2024, compared to 69 new system placements for the three months ended September 30, 2023, offset by a $0.6 million increase in consumable revenue resulting from a larger installed base of 1,299 systems as of September 30, 2024, as compared to 1,132 systems as of September 30, 2023.

Service and other revenue decreased by $0.7 million, or 9%, for the three months ended September 30, 2024, compared to the three months ended September 30, 2023. The decrease was primarily due to a decrease relating to lab services revenue, partially offset by increases in revenue generated from companion diagnostic development, and other immaterial changes.

Cost of Goods Sold, Gross Profit and Gross Margin

($ in thousands, except percentages)	Three months ended September 30, 2024	2023	Change Amount	%
Cost of product revenue	$ 4,430	$ 6,208	$ (1,778)	(29)%
Cost of service and other revenue	2,660	3,731	(1,071)	(29)%
Total cost of goods sold	$ 7,090	$ 9,939	$ (2,849)	(29)%
Gross profit	$ 11,724	$ 15,276	$ (3,552)	(23)%
Gross margin	62 %	61 %		

Cost of product revenue decreased by $1.8 million, or 29%, for the three months ended September 30, 2024, compared to the three months ended September 30, 2023. The decrease in cost of product revenue was primarily due to a decrease in costs associated with decreased instrument sales during the third quarter of 2024, partially offset by an increase in costs associated with increased reagents sales. Cost of service and other revenue decreased by $1.1 million, or 29%, for the three months ended September 30, 2024, compared to the three months ended September 30, 2023. The decrease in cost of service and other revenue was primarily driven by the workforce reductions that we executed in January and July of 2024.

Gross profit decreased by $3.6 million, or 23%, and gross margin increased by 1% for the three months ended September 30, 2024 as compared to the three months ended September 30, 2023. The decrease in gross profit was primarily due to decreased instrument sales during the third quarter of 2024, offset by increased reagents sales during the third quarter of 2024. The increase in gross margin was primarily due to a higher mix of consumables driven by a higher installed base as well as decreased instrument sales in the current quarter.

Operating Expenses

Selling, General and Administrative

($ in thousands, except percentages)	Three months ended September 30, 2024	2023	Change Amount	%
Selling, general and administrative	$ 14,672	$ 20,251	$ (5,579)	(28)%

Selling, general and administrative expense decreased by $5.6 million, or 28%, for the three months ended September 30, 2024, compared to the three months ended September 30, 2023. The decrease was primarily due to a $3.7 million decrease in personnel-related expenses, primarily due to the workforce reductions in January and July of 2024, a $0.2 million decrease in professional fees, and other related fees such as legal, consulting, and IT, and a $0.1 million decrease in recruiting, training, conferences, and travel and expenses.

Research and development

($ in thousands, except percentages)	Three months ended September 30, 2024	2023	Change Amount	%
Research and development	$ 4,474	$ 6,314	$ (1,840)	(29)%

Research and development expense decreased by $1.8 million, or 29% for the three months ended September 30, 2024, compared to the three months ended September 30, 2023. The decrease was primarily due to a $1.4 million decrease in personnel-related expenses, primarily due to the workforce reductions in January and July of 2024, a $0.1 million decrease in lab supply consumption, and other immaterial changes.

Change in fair value of contingent consideration

($ in thousands, except percentages)	Three months ended September 30, 2024	2023	Change Amount	%
Change in fair value of contingent consideration	$ (763)	$ 262	$ (1,025)	(391)%

Change in fair value of contingent consideration was a $0.8 million gain for the three months ended September 30, 2024, compared to a $0.3 loss for the three months ended September 30, 2023. The decrease of $1.0 million, or 391%, was due to current period remeasurement.

Restructuring

($ in thousands, except percentages)	Three months ended September 30, 2024	2023	Change Amount	%
Restructuring	$ 1,690	$ —	$ 1,690	100 %

Restructuring increased by $1.7 million, or 100% for the three months ended September 30, 2024, compared to the three months ended September 30, 2023, due to the workforce reduction that we executed in July of 2024.

Interest expense

($ in thousands, except percentages)	Three months ended September 30, 2024	2023	Change Amount	%
Interest expense	$ 2,625	$ 2,239	$ 386	17 %

Interest expense increased by $0.4 million, or 17% for the three months ended September 30, 2024, compared to the three months ended September 30, 2023. The increase was primarily due to increased debt levels as of September 30, 2024 as compared to September 30, 2023, as well as an increase in interest rates.

Interest income

($ in thousands, except percentages)	Three months ended September 30, 2024	2023	Change Amount	%
Interest income	$ 521	$ 1,074	$ (553)	(51)%

Interest income decreased by $0.6 million, or 51% for the three months ended September 30, 2024, compared to the three months ended September 30, 2023 due to decreased levels of cash, cash equivalents, and marketable securities as of September 30, 2024 as compared to September 30, 2023.

Other expense, net

($ in thousands, except percentages)	Three months ended September 30, 2024	2023	Change Amount	%
Other expense, net	$ 36	$ 185	$ (149)	(81)%

Other expense, net decreased by $0.1 million, or 81%, for the three months ended September 30, 2024, compared to the three months ended September 30, 2024.

Comparison of the nine months ended September 30, 2024 and 2023

Revenue

($ in thousands, except percentages)	Nine months ended September 30, 2024	2023	Change Amount	%
Product revenue	$ 40,364	$ 50,719	$ (10,355)	(20)%
Service and other revenue	19,964	19,427	537	3 %
Total revenue	$ 60,328	$ 70,146	$ (9,818)	(14)%

Product revenue decreased by $10.4 million, or 20%, for the nine months ended September 30, 2024, compared to the nine months ended September 30, 2023. The decrease was primarily driven by a $14.0 million decrease in instrument revenue resulting from 116 new system placements during the nine months ended September 30, 2024, compared to 198 new system placements for the nine months ended September 30, 2023, offset by a $3.4 million increase in consumable revenue resulting from a larger installed base of 1,299 systems as of September 30, 2024, as compared to 1,132 systems as of September 30, 2023.

Service and other revenue increased by $0.5 million, or 3%, for the nine months ended September 30, 2024, compared to the nine months ended September 30, 2023. The increase was primarily due increases in revenue generated from companion diagnostic development, offset by decreases relating to lab services revenue, and other immaterial changes.

Cost of Goods Sold, Gross Profit and Gross Margin

($ in thousands, except percentages)	Nine months ended September 30, 2024	2023	Change Amount	%
Cost of product revenue	$ 17,620	$ 19,747	$ (2,127)	(11)%
Cost of service and other revenue	9,219	10,714	(1,495)	(14)%
Total cost of goods sold	$ 26,839	$ 30,461	$ (3,622)	(12)%
Gross profit	$ 33,489	$ 39,685	$ (6,196)	(16)%
Gross margin	56 %	57 %		

Cost of product revenue decreased by $2.1 million, or 11%, for the nine months ended September 30, 2024, compared to the nine months ended September 30, 2023. The decrease in cost of product revenue was primarily driven by a decrease in costs associated with decreased instrument sales, offset by costs associated with increased reagents sales. Cost of service and other revenue decreased by $1.5 million, or 14%, for the nine months ended September 30, 2024, compared to the nine months ended September 30, 2023. The decrease in cost of service and other revenue was primarily driven by the workforce reductions that we executed in January and July of 2024.

Gross profit decreased by $6.2 million, or 16%, and gross margin decreased by 1% for the nine months ended September 30, 2024 as compared to the nine months ended September 30, 2023. The decrease in gross profit was primarily due to a decrease in instrument sales, offset by increased reagents sales. The decrease in gross margin was primarily driven by a $2.0 million charge related to obsolete inventory associated with the Mantra 2 Quantitative Pathology Workstation and the Vectra 3 Automated Quantitative Pathology Imaging System, a legacy product line which was discontinued in the first quarter of 2024, offset by the $2.0 million charge in the second quarter of 2023 for expired inventory and inventory expected to expire, as well as other immaterial changes.

Operating Expenses

Selling, General and Administrative

($ in thousands, except percentages)	Nine months ended September 30, 2024	Nine months ended September 30, 2023	Change Amount	Change %
Selling, general and administrative	$ 53,629	$ 67,281	$ (13,652)	(20)%

Selling, general and administrative expense decreased by $13.7 million, or 20%, for the nine months ended September 30, 2024, compared to the nine months ended September 30, 2023. The decrease was primarily due to a $9.5 million decrease in personnel-related expenses, primarily due to the workforce reductions in June of 2023, January of 2024, and July of 2024, a $2.0 million decrease in professional fees, and other related fees such as legal, consulting, and IT, and a $1.0 million decrease in recruiting, training, conferences, and travel and expenses, offset by a $0.9 million charge to our allowance for credit losses, and other immaterial changes.

Research and development

($ in thousands, except percentages)	Nine months ended September 30, 2024	Nine months ended September 30, 2023	Change Amount	Change %
Research and development	$ 15,316	$ 19,614	$ (4,298)	(22)%

Research and development expense decreased by $4.3 million, or 22% for the nine months ended September 30, 2024, compared to the nine months ended September 30, 2023. The decrease was primarily due to a $3.7 million decrease in personnel-related expenses, primarily due to the workforce reductions in June of 2023, January of 2024, and July of 2024, and other immaterial changes.

Change in fair value of contingent consideration

($ in thousands, except percentages)	Nine months ended September 30, 2024	Nine months ended September 30, 2023	Change Amount	Change %
Change in fair value of contingent consideration	$ (496)	$ 1,019	$ (1,515)	(149)%

Change in fair value of contingent consideration was a $0.5 million gain for the nine months ended September 30, 2024, compared to a $1.0 million loss for the nine months ended September 30, 2023. The decrease of $1.5 million, or 149%, was due to current period remeasurement.

Impairment

($ in thousands, except percentages)	Nine months ended September 30, 2024	Nine months ended September 30, 2023	Change Amount	Change %
Impairment	$ 2,971	$ —	$ 2,971	100 %

Impairment increased by $3.0 million, or 100% for the nine months ended September 30, 2024, compared to the nine months ended September 30, 2023, due to impairment charges to our right-of-use assets and property and equipment associated with exiting our Menlo Park, California facilities in the first quarter of 2024.

Restructuring

($ in thousands, except percentages)	Nine months ended September 30, 2024	Nine months ended September 30, 2023	Change Amount	Change %
Restructuring	$ 3,087	$ —	$ 3,087	100 %

Restructuring increased by $3.1 million, or 100% for the nine months ended September 30, 2024, compared to the nine months ended September 30, 2023, primarily associated with our workforce reductions that we executed in January and July of 2024.

Interest expense

($ in thousands, except percentages)	Nine months ended September 30, 2024	Nine months ended September 30, 2023	Change Amount	Change %
Interest expense	$ 7,843	$ 6,468	$ 1,375	21 %

Interest expense increased by $1.4 million, or 21% for the nine months ended September 30, 2024, compared to the nine months ended September 30, 2023. The increase was primarily due to increased debt levels as of September 30, 2024 as compared to September 30, 2023, as well as an increase in interest rates.

Interest income

($ in thousands, except percentages)	Nine months ended September 30, 2024	Nine months ended September 30, 2023	Change Amount	Change %
Interest income	$ 2,126	$ 2,576	$ (450)	(17)%

Interest income decreased by $0.5 million, or 17% for the nine months ended September 30, 2024, compared to the nine months ended September 30, 2023 due to decreased levels of cash, cash equivalents, and marketable securities as of September 30, 2024 as compared to September 30, 2023.

Other expense, net

($ in thousands, except percentages)	Nine months ended September 30, 2024	Nine months ended September 30, 2023	Change Amount	Change %
Other expense, net	$ 277	$ 338	$ (61)	(18)%

Other expense, net decreased by $0.1 million, or 18% for the nine months ended September 30, 2024 compared to the nine months ended September 30, 2023.

Liquidity and Capital Resources

As of September 30, 2024, we had approximately $39.3 million in cash, cash equivalents, and marketable securities.

Since our inception, we have experienced losses and negative cash flows from operations, and we incurred a consolidated net loss of $47.2 million for the nine months ended September 30, 2024 and had an accumulated deficit of $277.2 million as of September 30, 2024. We have historically relied on equity financings and borrowings under our credit facility to fund our operations to date. We may in the future sell shares of our common stock, including pursuant to the Equity Distribution Agreement to help fund our operations. We expect to continue to incur operating losses in the foreseeable future. However, we plan to focus on improving results of operations in an effort to achieve cash flow positivity. There can be no assurance that additional financings will be available to us or that we will become profitable.

Our Midcap Trust Term Loan is subject to certain financial covenants. Based on our current operating plan, we cannot be certain that we will be able to maintain compliance with these financial covenants for at least the next twelve months from the issuance of these financials. We intend to seek a waiver, refinance the outstanding borrowings or otherwise mitigate these concerns with Midcap Financial Trust or another lender. However, we can provide no assurance that a waiver will be granted, or that we will be able to refinance the amounts outstanding and in such an event, the lender may exercise any and all of its rights and remedies provided for under the Midcap Trust Term Loan.

As a result of these uncertainties, there is substantial doubt about our ability to continue as a going concern for the next twelve months following the date that these consolidated financial statements are issued.

Our future capital requirements will depend on many factors, including, but not limited to our ability to successfully commercialize and launch products, and to achieve a level of sales adequate to support our cost structure. If we are unable to execute on our business plan and adequately fund operations, or if the business plan requires a level of spending in excess of cash resources, we will have to seek additional equity or debt financing. If additional financings are required from outside sources, we may not be able to raise capital on terms acceptable to us or at all. If we are unable to raise additional capital when desired, our business, financial condition, results of operations and prospects could be materially adversely affected.

Sources of Liquidity

Since our inception, we have financed our operations primarily from the issuance and sale of our equity securities, borrowings under long-term debt agreements, and revenue from our commercial operations. In April 2021, we raised $138.6 million in net proceeds through the sale of common stock from our IPO, after deducting the underwriter discounts and commissions and offering expenses of $12.8 million. As described further in Note 10 to our consolidated financial statements in this Quarterly Report on Form 10-Q, in June 2023, we completed a follow-on public offering of our common stock pursuant to which we raised approximately $47.8 million in net proceeds, after deducting the underwriting discounts and commissions and offering expenses.

Midcap Trust Term Loan

In October 2020, we entered into the Midcap Trust Term Loan for a $37.5 million credit facility, consisting of a senior, secured term loan. We received $32.5 million in aggregate proceeds as a result of the debt financing. On March 21, 2022, we entered into Amendment No. 1 to the Midcap Trust Term Loan, which amended certain provisions to permit certain additional debt and capital leases.

On June 1, 2022, we entered into Amendment No. 2, which permitted the draw of a second and third tranche of $10.0 million each, which were drawn on June 1, 2022, and September 30, 2022, respectively. Amendment No. 2 also delayed the amortization start dates for the outstanding loan amounts from November 1, 2023 until April 1, 2025, at which point we would be required to repay the principal amounts in seven equal monthly installments until the maturity date. Finally, Amendment No. 2 amended the interest rate payable on the term loan to apply an interest rate equal to the SOFR rate (with a floor of 1.61448%) plus 6.35%.

On November 7, 2022, we entered into Amendment No. 3 to the Midcap Trust Term Loan, which permitted the draw of two additional tranches, each totaling $11,250, which were drawn on November 7, 2022, and December 22, 2023, respectively. Amendment No. 3 also delayed the amortization start dates for the outstanding loan amounts from April 1, 2025 until December 1, 2025 (subject to further extension upon certain conditions), at which point we would be required to repay the principal amounts in equal monthly installments until the new maturity date of November 1, 2027. In addition, Amendment No. 3 amended the interest rate payable on the term loan to apply an interest rate equal to the SOFR rate (with a floor of 2.50%) plus 6.80%, and reset the call protection to begin as of November 7, 2025. Finally, Amendment No. 3 provided for a commitment fee of $74 that was paid on November 7, 2022 on the new tranche amounts and an exit fee of 4.75%. Substantially all other terms and conditions, and covenants of the credit agreement remained unchanged.

In July 2024, we entered into Amendment No. 4 to the Midcap Trust Term Loan, which amended certain affirmative financial covenants.

In November 2024, we entered into Amendment No. 5 to the Midcap Trust Term Loan, effective as of September 30, 2024, which amended certain affirmative financial covenants. Amendment No. 5 also extends the interest only period from December 1, 2025 until March 1, 2026 (subject to further extension upon certain conditions), at which point we must repay the principal amounts in equal monthly installments until the maturity date of November 1, 2027. Finally, Amendment No. 5 increases the exit fee from 4.75% to 6.25%.

The Midcap Trust Term Loan is collateralized by substantially all of our assets. The agreement contains customary negative covenants that limit our ability to, among other things, incur additional indebtedness, grant liens, make investments, repurchase stock, pay dividends, transfer assets and merge or consolidate with any other entity or to acquire all or substantially all the capital stock or property of another entity. The agreement also contains customary affirmative covenants, including requirements to, among other things, deliver audited financial statements. If we default under the Midcap Trust Term Loan and if the default is not cured or waived, the lender could cause any amounts outstanding to be payable immediately. Under certain circumstances, the lender could also exercise its rights with respect to the collateral securing such loans. Moreover, any such default would limit our ability to obtain additional financing, which may have an adverse effect on our cash flow and liquidity.

We were in compliance with all covenants under the Midcap Trust Term Loan, as amended through Amendment No. 5, as of September 30, 2024.

At-the-Market Offering

On November 7, 2022, we entered into the Equity Distribution Agreement with Piper Sandler with respect to an ATM offering program under which we may offer and sell, from time to time at our sole discretion, shares of our common stock having an aggregate offering price of up to $50.0 million through Piper Sandler as our sales agent. As of September 30, 2024, we have not sold any shares of common stock under the ATM program.

Cash flows

The following table summarizes our cash flows for the periods presented:

($ in thousands)	Nine months ended September 30, 2024	Nine months ended September 30, 2023
Net cash (used in) provided by:		
Operating activities	$ (41,121)	$ (45,315)
Investing activities	(26,744)	3,941
Financing activities	(2,719)	45,767
Net (decrease) increase in cash, cash equivalents, and restricted cash	$ (70,584)	$ 4,393

Operating activities

Net cash used in operating activities decreased by $4.2 million to $41.1 million in the nine months ended September 30, 2024 compared to $45.3 million in the nine months ended September 30, 2023.

Net cash used in operating activities during the nine months ended September 30, 2024 consisted of a net loss of $47.2 million and a change in our net operating assets and liabilities of $14.4 million, offset by non-cash charges of $20.4 million. The change in our net operating assets and liabilities was primarily due to increased inventory levels of $10.4 million, decreases in accounts payable, accrued expenses and other liabilities of $5.8 million, decreases in operating lease liabilities of $1.7 million, and decreases in deferred revenue of $0.6 million, offset by decreases in accounts receivable of $3.3 million, and a $0.8 million decrease in prepaid expenses and other assets. Non-cash charges primarily consisted of $7.2 million of stock-based compensation expense, $5.8 million of depreciation and amortization, a $3.1 million provision for excess and obsolete inventories, $3.0 million of impairment expense, decreases in operating lease right of use assets of $1.6 million, $0.9 million in credit losses for accounts receivable, and $0.6 million of non-cash interest expense, offset by $1.4 million in accretion of marketable securities and a $0.5 million change in fair value of contingent consideration.

Net cash used in operating activities during the nine months ended September 30, 2023 consisted of a net loss of $52.5 million and a change in our net operating assets and liabilities of $13.4 million, offset by non-cash charges of $20.6 million. The change in our net operating assets and liabilities was due to increases in accounts receivable of $6.4 million, increased inventory levels of $7.0 million, decreases in operating lease liabilities of $1.7 million, and decreases in accounts payable, accrued expenses and other liabilities of $2.1 million, offset by decreases in prepaid expenses and other assets of $2.5 million, and increases in deferred revenue of $1.2 million. Non-cash charges primarily consisted of $7.9 million of stock-based compensation expense, $6.8 million of depreciation and amortization, a $2.6 million adjustment for excess and obsolete inventories, decreases in operating lease right of use assets of $1.8 million, a $1.0 million change in fair value of contingent consideration, and $0.5 million of non-cash interest expense.

Investing activities

Net cash used in investing activities was $26.7 million for the nine months ended September 30, 2024 compared to net cash provided by investing activities of $3.9 million during the nine months ended September 30, 2023.

Net cash used in investing activities for the nine months ended September 30, 2024 was driven by purchases of marketable securities of $87.3 million and purchases of property and equipment of $1.4 million, offset by $53.5 million in maturities of marketable securities and $8.5 million in sales of marketable securities.

Net cash provided by investing activities for the nine months ended September 30, 2023 was driven by maturities of marketable securities of $7.0 million, offset by purchases of property and equipment of $3.1 million.

Financing activities

Net cash used in financing activities was $2.7 million for the nine months ended September 30, 2024 compared to net cash provided by financing activities of $45.8 million for the nine months ended September 30, 2023.

Net cash used in financing activities for the nine months ended September 30, 2024 was primarily driven by $1.9 million in payments of contingent consideration, $0.5 million in principal payments on financing leases, $0.2 million in payments of deferred offering costs, and $0.2 million in settlement of restricted stock units for tax withholding obligations.

Net cash provided by financing activities for the nine months ended September 30, 2023 was primarily driven by $48.0 million in net proceeds received from our Offering, after deducting the underwriting discounts and commissions and offering expenses paid by the Company, and $0.3 million in proceeds from stock option exercises, offset by $1.7 million in payments of contingent consideration, $0.5 million in principal payments on financing leases, $0.2 million in payments of deferred offering costs, and $0.1 million in settlement of restricted stock units for tax withholding obligations.

Critical accounting policies and estimates

We have prepared our consolidated financial statements in accordance with GAAP. Our preparation of these consolidated financial statements requires us to make estimates, assumptions and judgments that affect the reported amounts of assets, liabilities, revenue, expenses and related disclosures. We evaluate our estimates and judgments on an ongoing basis. We base our estimates on historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results could therefore differ materially from these estimates under different assumptions or conditions.

There have been no significant changes in our critical accounting policies and estimates as compared to the critical accounting policies and estimates disclosed in the section titled "Management's Discussion and Analysis of Financial Condition and Operations" included in our Annual Report on Form 10-K for the year ended December 31, 2023 filed with the SEC on March 5, 2024.

Recent accounting pronouncements

For information on recently issued accounting pronouncements, see Note 2 to our consolidated financial statements in this Quarterly Report on Form 10-Q.

JOBS Act accounting election

We are an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012 (the "JOBS Act"). Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. We have elected to avail ourselves of this extended transition period, and, as a result, we will not be required to adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for other public companies. We intend to rely on other exemptions provided by the JOBS Act, including without limitation, not being required to comply with the auditor attestation requirements of Section 404(b) of the Sarbanes-Oxley Act of 2002.

Smaller reporting company status

We are also a "smaller reporting company," meaning that the market value of our stock held by non-affiliates is less than $700 million as of the last trading day of our second quarter and our annual revenue is less than $100 million during the most recently completed fiscal year. We may continue to be a smaller reporting company if either (i) the market value of our stock held by non-affiliates is less than $250 million as of the last trading day of our second quarter or (ii) our annual revenue is less than $100 million during the most recently completed fiscal year and the market value of our stock held by non-affiliates is less than $700 million as of the last trading day of our second quarter. If we are a smaller reporting company at the time we cease to be an emerging growth company, we may continue to rely on exemptions from certain disclosure requirements that are available to smaller reporting companies. For example, as a smaller reporting company we may choose to present only the two most recent fiscal years of audited financial statements in our Annual Report on Form 10-K and, similar to emerging growth companies, smaller reporting companies have reduced disclosure obligations regarding executive compensation.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

We are a smaller reporting company, as defined in Rule 12b-2 under the Securities Exchange Act of 1934, as amended, for this reporting period and are not required to provide the information required under this item.

Item 4. Controls and Procedures

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we evaluated the effectiveness of the design and operation of our disclosure controls and procedures pursuant to Rule 13a-15 under the Exchange Act as of the end of the period covered by this report. Based on that evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that our disclosure controls and procedures were effective as of September 30, 2024. There was not any change in our internal control over financial reporting (as such term is defined in Rules 13a-15(f) under the Exchange Act) during the quarter ended September 30, 2024 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

From time to time, we may be subject to legal proceedings. We are not currently a party to or aware of any proceedings that we believe will have, individually or in the aggregate, a material adverse effect on our business, financial condition or results of operations. Regardless of outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

Item 1A. Risk Factors

Investing in our common stock involves a high degree of risk. We operate in a rapidly changing environment that involves a number of risks that could materially affect our business, financial condition or future results, some of which are beyond our control. In addition to the other information set forth in this report, the risks and uncertainties that we believe are most important for you to consider are discussed in Part I, Item 1A under the caption “Risk Factors” in our Annual Report on Form 10-K for the year ended December 31, 2023 filed with the SEC on March 5, 2024. The risk factors may be important to understanding other statements in this report and should be read in conjunction with the unaudited financial statements and related notes in this report. The occurrence of any single risk or any combination of risks could materially and adversely affect our business, operations, product pipeline, operating results, financial condition or liquidity, and consequently, the value of our securities. Further, additional risks that we currently do not know about or that we currently believe to be immaterial may also impair our business, financial condition, operating results and prospects.

Other than as set forth below, there have been no material changes to the risk factors described in the Annual Report on Form 10-K for the year ended December 31, 2023 filed with the SEC on March 5, 2024.

We have limited capital resources and will likely need additional funding before we are able to achieve profitability which raise substantial doubt regarding our ability to continue as a going concern. If we do not continue as a going concern, investors could lose their entire investment.

Our recurring operating losses, in addition to our accumulated deficit, has raised substantial doubt about our ability to continue as a going concern. Our ability to continue as a going concern is dependent upon our becoming profitable in the future or to obtain the necessary capital to meet our obligations and repay our liabilities when they become due. If we are unable to execute on our business plan and adequately fund operations, or if the business plan requires a level of spending in excess of cash resources, we will have to seek additional equity or debt financing. If additional financings are required from outside sources, we may not be able to raise capital on terms acceptable to us or at all. Our determination of substantial doubt as going concern could materially limit our ability to raise additional funds through the issuance of equity securities or otherwise. There can be no assurance that we will ever become profitable or continue as a going concern.

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

Not applicable.

Item 3. Defaults Upon Senior Securities

Not applicable.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

During the third quarter of 2024, no directors or officers adopted or terminated any Rule 10b5-1 trading arrangements or non-Rule 10b5-1 trading arrangements (in each case, as defined in Item 408(a) of Regulation S-K).

Item 6. Exhibits

Exhibit Number	Exhibit Title	Incorporated by Reference Form	File No.	Exhibit	Filing Date	Filed Herewith
3.1	Amended and Restated Certificate of Incorporation	S-1	333-254760	3.3	3/26/2021	
3.2	Amended and Restated Bylaws	8-K	001-40344	3.1	9/6/2023	
4.1	Amended and Restated Investors' Rights Agreement, dated September 27, 2019, by and among the Registrant and certain of its stockholders	S-1	333-254760	10.15	3/26/2021	
4.2	Description of the Registrant's capital stock	10-K	001-40344	4.2	3/7/2023	
10.1	Amendment No. 4 to Credit and Security Agreement, dated July 31, 2024, by and between the Registrant and Midcap Financial Trust					X
31.1	Certification of Principal Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
31.2	Certification of Principal Financial and Accounting Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
32.1 *	Certification of Principal Executive Officer Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002					X
32.2 *	Certification of Principal Financial and Accounting Officer Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002					X
101.INS	Inline XBRL Instance Document (the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document)					X
101.SCH	Inline XBRL Taxonomy Extension Schema With Embedded Linkbase Documents					X
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)					X

* This certification is deemed not filed for purposes of Section 18 of the Exchange Act, or otherwise subject to the liability of that section, nor shall it be deemed incorporated by reference into any filing under the Securities Act or the Exchange Act.

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.

Akoya Biosciences, Inc.

Date: November 14, 2024	By: /s/ Brian McKelligon Brian McKelligon President and Chief Executive Officer (Principal Executive Officer)
Date: November 14, 2024	By: /s/ Johnny Ek Johnny Ek Chief Financial Officer (Principal Financial and Accounting Officer)

Exhibit 10.1

Certain information, as identified by [***], has been excluded from this agreement because it (i) is not material and (ii) would be competitively harmful if publicly disclosed.

AMENDMENT NO. 4 TO CREDIT AND SECURITY AGREEMENT (TERM LOAN)

This **AMENDMENT NO. 4 TO CREDIT AND SECURITY AGREEMENT (TERM LOAN)** (this "**Agreement**") is made as of the 31st day of July, 2024, by and among **AKOYA BIOSCIENCES, INC.**, a Delaware corporation ("**Borrower**"), **MIDCAP FINANCIAL TRUST**, a Delaware statutory trust, as Agent (in such capacity, together with its successors and assigns, "**Agent**") and the Lenders (as defined in the Credit Agreement referenced below) party hereto.

RECITALS

A. Agent, Lenders and Borrower have entered into that certain Credit and Security Agreement (Term Loan), dated as of October 27, 2020 (as amended by that certain Amendment No. 1 to Credit and Security Agreement (Term Loan), dated as of March 21, 2022, as amended by that certain Amendment No. 2 to Credit and Security Agreement (Term Loan), dated as of June 1, 2022, as amended by that certain Amendment No. 3 to Credit and Security Agreement (Term Loan), dated as of November 7, 2022 and as further amended, restated, supplemented or otherwise modified prior to the date hereof, the "**Existing Credit Agreement**", and as the same is amended hereby and as it may be further amended, modified, supplemented and restated from time to time, the "**Credit Agreement**"), pursuant to which the Lenders have agreed to make certain advances of money and to extend certain financial accommodations to Borrower in the amounts and manner set forth in the Credit Agreement.

B. Borrower has requested that that Agent and Lenders amend certain provisions of the Existing Credit Agreement to, among other things, amend certain financial covenants.

C. Agent and the Lenders party hereto have agreed, on and subject to the terms and conditions set forth in this Agreement, to amend the Existing Credit Agreement to, among other things, accommodate the Borrowers' requests set forth in such Recitals.

AGREEMENT

NOW, THEREFORE, in consideration of the foregoing, the terms and conditions set forth in this Agreement, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Agent, the Lenders party hereto and Borrower hereby agree as follows:

1. **Recitals**. This Agreement shall constitute a Financing Document and each reference to the Credit Agreement, unless otherwise expressly noted, will be deemed to reference the Credit Agreement as amended hereby. The Recitals set forth above shall be construed as part of this Agreement as if set forth fully in the body of this Agreement and capitalized terms used but not otherwise defined herein shall have the meanings ascribed to them in the Credit Agreement (including those capitalized terms used in the Recitals hereto).

2. **Amendments to the Existing Credit Agreement**. Subject to the terms and conditions of this Agreement, including, without limitation, the conditions to effectiveness set forth in Section 4 below, the Existing Credit Agreement is hereby amended as follows:

(a) Section 1.1 of the Existing Credit Agreement is hereby amended by adding the following definition in alphabetical order therein:

> "**Fourth Amendment**" means that certain Amendment No. 4 to Credit and Security Agreement (Term Loan), dated as of the Fourth Amendment Effective Date, by and among Borrower, Agent and the Lenders party thereto.
>
> "**Fourth Amendment Effective Date**" means July 31, 2024.

(b) The definition of "Defined Period" in Section 1.1 of the Existing Credit Agreement is hereby amended and restated as follows:

> "**Defined Period**" means for any given fiscal quarter, the immediately preceding twelve (12) month period ending on the last day of such fiscal quarter.

(c) The second sentence of Section 2.2(e) of the Existing Credit Agreement is hereby amended and restated in its entirety as follows"

> "The Prepayment Fee shall be equal to an amount determined by *multiplying* the amount being prepaid (or required to be prepaid, if such amount is greater) *by* the following applicable percentage amount: (x) three percent (3.0%) for the first year following the Fourth Amendment Effective Date, (y) two percent (2.0%) for the second year following the Fourth Amendment Effective Date and (z) one percent (1.0%) thereafter."

(d) Section 6.1 of the Existing Credit Agreement is hereby amended and restated in its entirety as follows:

> "Section 6.1 <u>Minimum Net Revenue</u>. Borrowers shall not permit its consolidated Net Revenue for any applicable Defined Period, as tested quarterly on the last day of the applicable Defined Period, to be less than the Minimum Net Revenue Threshold for such Defined Period."

(e) Schedule 6.1 to the Existing Credit Agreement is hereby amended by deleting such schedule in its entirety and replacing it with the Schedule 6.1 attached hereto as <u>Annex A</u>.

3. **<u>Representations and Warranties; Reaffirmation of Security Interest</u>.** Borrower hereby (a) confirms that all of the representations and warranties set forth in the Credit Agreement are true and correct in all material respects (without duplication of any materiality qualifier in the text of such representation or warranty) with respect to Borrower as of the date hereof, except to the extent that any such representation or warranty relates to a specific date in which case such representation or warranty shall be true and correct as of such earlier date and (b) covenants to perform its respective obligations under the Credit Agreement. Borrower confirms and agrees that all security interests and Liens granted to Agent continue in full force and effect, and all Collateral remains free and clear of any Liens, other than Permitted Liens. Nothing herein is intended to impair or limit the validity, priority or extent of Agent's security interests in and Liens on the Collateral. Borrower acknowledges and agrees that the Credit Agreement, the other Financing Documents and this Agreement constitute the legal, valid and binding obligation of

Borrower, and are enforceable against Borrower in accordance with its terms, except as the enforceability thereof may be limited by bankruptcy, insolvency or other similar laws relating to the enforcement of creditors' rights generally and by general equitable principles.

4. **Conditions to Effectiveness**. This Agreement shall become effective as of the date on which each of the following conditions has been satisfied, as determined by Agent in its sole discretion:

(a) Agent shall have received (including by way of electronic transmission) a duly authorized, executed and delivered counterpart of the signature page to this Agreement from Borrower, the Agent and the Lenders;

(b) all representations and warranties set forth in the Credit Agreement shall be true and correct in all material respects (without duplication of any materiality qualifier in the text of such representation or warranty) as of the date hereof, except to the extent that any such representation or warranty relates to a specific date in which case such representation or warranty shall be true and correct in all material respects as of such earlier date (and such parties' delivery of their respective signatures hereto shall be deemed to be its certification thereof); and

(c) immediately prior to and after giving effect to the agreements set forth herein, no Default or Event of Default shall exist under any of the Financing Documents.

5. **Releases**. In consideration of the agreements of Agent and Lenders contained herein and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Borrower, voluntarily, knowingly, unconditionally and irrevocably, with specific and express intent, for and on behalf of itself and all of its respective parents, subsidiaries, affiliates, members, managers, predecessors, successors, and assigns, and each of its respective current and former directors, officers, shareholders, agents, and employees, and each of its respective predecessors, successors, heirs, and assigns (individually and collectively, the "**Releasing Parties**") does hereby fully and completely release, acquit and forever discharge each of Agent, Lenders, and each their respective parents, subsidiaries, affiliates, members, managers, shareholders, directors, officers and employees, and each of their respective predecessors, successors, heirs, and assigns (individually and collectively, the "**Released Parties**"), of and from any and all actions, causes of action, suits, debts, disputes, damages, claims, obligations, liabilities, costs, expenses and demands of any kind whatsoever, at law or in equity, whether matured or unmatured, liquidated or unliquidated, vested or contingent, choate or inchoate, known or unknown that the Releasing Parties (or any of them) has against the Released Parties or any of them (whether directly or indirectly), based in whole or in part on facts, whether or not now known, existing on or before the date hereof, that relate to, arise out of or otherwise are in connection with: (i) any or all of the Financing Documents or transactions contemplated thereby or any actions or omissions in connection therewith or (ii) any aspect of the dealings or relationships between or among any Borrower, on the one hand, and any or all of the Released Parties, on the other hand, relating to any or all of the documents, transactions, actions or omissions referenced in clause (i) hereof, in each case, based in whole or in part on facts, whether or not now known, existing before the date hereof. Borrower acknowledges that the foregoing release is a material inducement to Agent's and each Lender's decision to enter into this Agreement and agree to the modifications contemplated hereunder, and has been relied upon by Agent and Lenders in connection therewith.

6. **No Waiver or Novation.** The execution, delivery and effectiveness of this Agreement shall not, except as expressly provided in this Agreement, operate as a waiver of any right, power or remedy of Agent, nor constitute a waiver of any provision of the Credit Agreement, the Financing Documents or any other documents, instruments and agreements executed or delivered in connection with any of the foregoing. Nothing herein is intended or shall be construed as a waiver of any existing Defaults or Events of Default under the Credit Agreement or the other Financing Documents or any of Agent's rights and remedies in respect of such Defaults or Events of Default. This Agreement (together with any other document executed in connection herewith) is not intended to be, nor shall it be construed as, a novation of the Credit Agreement.

7. **Affirmation.** Except as specifically amended pursuant to the terms hereof, Borrower hereby acknowledges and agrees that the Credit Agreement and all other Financing Documents (and all covenants, terms, conditions and agreements therein) shall remain in full force and effect, and are hereby ratified and confirmed in all respects by Borrower. Borrower covenants and agrees to comply with all of the terms, covenants and conditions of the Credit Agreement and the Financing Documents, notwithstanding any prior course of conduct or other actions or inactions on Agent's or any Lender's part which might otherwise constitute or be construed as a waiver of or amendment to such terms, covenants and conditions.

8. **Miscellaneous**.

(a) Reference to the Effect on the Credit Agreement. Upon the effectiveness of this Agreement, each reference in the Credit Agreement to "this Agreement," "hereunder," "hereof," "herein," or words of similar import shall mean and be a reference to the Credit Agreement, as modified by this Agreement. Except as specifically set forth above, the Credit Agreement, and all other Financing Documents (and all covenants, terms, conditions and agreements therein), shall remain in full force and effect, and are hereby ratified and confirmed in all respects by Borrower.

(b) GOVERNING LAW. THIS AGREEMENT AND ALL DISPUTES AND OTHER MATTERS RELATING HERETO OR THERETO OR ARISING THEREFROM (WHETHER SOUNDING IN CONTRACT LAW, TORT LAW OR OTHERWISE), SHALL BE GOVERNED BY, AND SHALL BE CONSTRUED AND ENFORCED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW YORK, WITHOUT REGARD TO CONFLICTS OF LAWS PRINCIPLES (OTHER THAN SECTION 5-1401 OF THE GENERAL OBLIGATIONS LAW).

(c) WAIVER OF JURY TRIAL. BORROWER, AGENT AND THE LENDERS PARTY HERETO HEREBY IRREVOCABLY WAIVES ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL ACTION OR PROCEEDING ARISING OUT OF OR RELATING TO THIS AGREEMENT OR THE TRANSACTIONS CONTEMPLATED HEREBY AND AGREES THAT ANY SUCH ACTION OR PROCEEDING SHALL BE TRIED BEFORE A COURT AND NOT BEFORE A JURY. BORROWER, AGENT AND EACH LENDER ACKNOWLEDGES THAT THIS WAIVER IS A MATERIAL INDUCEMENT TO ENTER INTO A BUSINESS RELATIONSHIP, THAT EACH HAS RELIED ON THE WAIVER IN ENTERING INTO THIS AGREEMENT, AND THAT EACH WILL CONTINUE TO RELY ON THIS WAIVER IN THEIR RELATED FUTURE DEALINGS. BORROWER, AGENT AND EACH LENDER WARRANTS AND REPRESENTS THAT IT HAS HAD THE

OPPORTUNITY OF REVIEWING THIS JURY WAIVER WITH LEGAL COUNSEL, AND THAT IT KNOWINGLY AND VOLUNTARILY WAIVES ITS JURY TRIAL RIGHTS.

(d) Incorporation of Credit Agreement Provisions. The provisions contained in Section 11.6 (*Indemnification*), and Section 12.8(b) (*Submission to Jurisdiction*) of the Credit Agreement are incorporated herein by reference to the same extent as if reproduced herein in their entirety.

(e) Headings. Section headings in this Agreement are included for convenience of reference only and shall not constitute a part of this Agreement for any other purpose.

(f) Counterparts. This Agreement may be signed in any number of counterparts, each of which shall be deemed an original and all of which when taken together shall constitute one and the same instrument. Delivery of an executed counterpart of this Agreement by facsimile or by electronic mail delivery of an electronic version (e.g., .pdf or .tif file) of an executed signature page shall be effective as delivery of an original executed counterpart hereof and shall bind the parties hereto. In furtherance of the foregoing, the words “execution”, “signed”, “signature”, “delivery” and words of like import in or relating to any document to be signed in connection with this Agreement and the transactions contemplated hereby or thereby shall be deemed to include Electronic Signatures, deliveries or the keeping of records in electronic form, each of which shall be of the same legal effect, validity or enforceability as a manually executed signature, physical delivery thereof or the use of a paper-based recordkeeping system, as the case may be, to the extent and as provided for in any applicable law, including the Federal Electronic Signatures in Global and National Commerce Act, the New York State Electronic Signatures and Records Act, or any other similar state laws based on the Uniform Electronic Transactions Act. As used herein, “**Electronic Signature**” means an electronic sound, symbol, or process attached to, or associated with, a contract or other record and adopted by a Person with the intent to sign, authenticate or accept such contract or other record.

(g) Entire Agreement. This Agreement constitutes the entire agreement and understanding among the parties hereto and supersedes any and all prior agreements and understandings, oral or written, relating to the subject matter hereof.

(h) Severability. In case any provision of or obligation under this Agreement shall be invalid, illegal or unenforceable in any applicable jurisdiction, the validity, legality and enforceability of the remaining provisions or obligations, or of such provision or obligation in any other jurisdiction, shall not in any way be affected or impaired thereby.

(i) Successors/Assigns. This Agreement shall bind, and the rights hereunder shall inure to, the respective successors and assigns of the parties hereto, subject to the provisions of the Credit Agreement and the other Financing Documents.

[SIGNATURES APPEAR ON FOLLOWING PAGES]

IN WITNESS WHEREOF, intending to be legally bound, the undersigned have executed this Agreement as of the day and year first hereinabove set forth.

AGENT:

MIDCAP FINANCIAL TRUST,
as Agent

By: Apollo Capital Management, L.P.,
its investment manager

By: Apollo Capital Management GP, LLC,
its general partner

By: /s/ Maurice Amsellem
Name: Maurice Amsellem
Title: Authorized Signatory

LENDERS:

MIDCAP FUNDING V TRUST,

By: Apollo Capital Management, L.P.,
its investment manager

By: Apollo Capital Management GP, LLC,
its general partner

By: /s/ Maurice Amsellem
Name: Maurice Amsellem
Title: Authorized Signatory

LENDERS:

MIDCAP FUNDING XIII TRUST,

By: Apollo Capital Management, L.P.,
its investment manager

By: Apollo Capital Management GP, LLC,
its general partner

By: /s/ Maurice Amsellem
Name: Maurice Amsellem
Title: Authorized Signatory

LENDERS:

ELM 2020-3 TRUST

By: MidCap Financial Services Capital Management, LLC, as Servicer

By: /s/ John O’Dea
Name: John O’Dea
Title: Authorized Signatory

LENDERS:

ELM 2020-4 TRUST

By: MidCap Financial Services Capital Management, LLC, as Servicer

By: /s/ John O’Dea
Name: John O’Dea
Title: Authorized Signatory

LENDER:

MIDCAP FINANCIAL INVESTMENT CORPORATION (formerly known as Apollo Investment Corporation)

By: /s/ Kristin Hester
Name: Kristin Hester
Title: Chief Legal Officer

LENDER:

APOLLO ALSTER LENDING FUND (LUX) SCSP
an alternative investment fund in the form of a Luxembourg special limited partnership (societe en commandite speciale), acting through its managing general partner Alster Lending GP (Lux) S.ar.l. and represented by its delegate portfolio manager Apollo Alster Management, LLC

By: Apollo Alster Management, LLC, acting through its sole member

By: Apollo Capital Management, L.P., acting through its general partner

By: Apollo Capital Management GP, LLC

By: /s/ William Keusal
Name: William Keusal
Title: Authorized Signatory

LENDER:

NICOLA PD SMA I SPV LP

By: Apollo Capital Management, L.P.,
as Investment Manager

By: Apollo Capital Management GP, LLC,
its General Partner

By: /s/ Maurice Amsellem
Name: Maurice Amsellem
Title: Authorized Signatory

BORROWER:

AKOYA BIOSCIENCES, INC.

By: /s/ Johnny Ek
Name: Johnny Ek
Title: CFO

<u>Annex A</u>

Schedule 6.1 – Minimum Net Revenue Schedule

Defined Period Ending	Minimum Net Revenue Threshold
June 30, 2024	[***]
September 30, 2024	[***]
December 31, 2024	[***]
March 31, 2025	[***]
June 30, 2025	[***]
September 30, 2025	[***]
December 31, 2025	[***]
March 31, 2026	[***]
June 30, 2026	[***]
September 30, 2026	[***]
December 31, 2026	[***]
March 31, 2027	[***]
June 30, 2027	[***]
September 30, 2027	[***]

Exhibit 31.1

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

I, Brian McKelligon, certify that:

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

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

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

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

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

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

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

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

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

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

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

Date: November 14, 2024

By: /s/ Brian McKelligon
Brian McKelligon
Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

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

I, Johnny Ek, certify that:

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

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

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

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

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

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

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

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

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

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

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

Date: November 14, 2024

By: /s/ Johnny Ek
Johnny Ek
Chief Financial Officer
(Principal Financial Officer and
Principal Accounting Officer)

Exhibit 32.1

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

In connection with the Quarterly Report of Akoya Biosciences, Inc. (the "Company") on Form 10-Q for the quarterly period ended September 30, 2024 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

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

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

Date: November 14, 2024

By: /s/ Brian McKelligon
Brian McKelligon
Chief Executive Officer
(Principal Executive Officer)

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

In connection with the Quarterly Report of Akoya Biosciences, Inc. (the “Company”) on Form 10-Q for the quarterly period ended September 30, 2024 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

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

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

Date: November 14, 2024	By:	/s/ Johnny Ek
		Johnny Ek Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)