Emerging growth Company

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, DC 20549

FORM 10-O

	FORM 10-Q	<u>-</u>
(Mark One)		
☑ QUARTERLY REPORT PURSUANT T OF 1934	O SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT
For the q	uarterly period ended Sept	ember 30, 2024
•	OR	
☐ TRANSITION REPORT PURSUANT T OF 1934	O SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT
For the transition p	eriod from	to
Co	ommission File Number: 00	1-38869
	KIPA PHARN ne of Registrant as Specifie	
Delaware		81-5395687
(State or other jurisdiction of		(I.R.S. Employer
incorporation or organization)		Identification No.)
350 Fifth Avenue, 72nd Floor, Suite 7 New York, New York (Address of principal executive office		10118 (Zip Code)
	hone number, including are egistered pursuant to Section	
Securities registered pursuant to Section 12(b) of	f the Act:	
Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock	HOOK	The Nasdaq Capital Market
Indicate by check mark whether the registrant (1) he Exchange Act of 1934 during the preceding 12 mor and (2) has been subject to such filing requirements	nths (or for such shorter period	d that the registrant was required to file such reports),
	napter) during the preceding 1	Interactive Data File required to be submitted pursuant 2 months (or for such shorter period that the registrant
Indicate by check mark whether the registrant is a lacompany, or an emerging growth company. See the		elerated filer, a non-accelerated filer, smaller reporting ated filer," "accelerated filer," "smaller reporting

company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☐ Accelerated filer ☐ Smaller reporting 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. \boxtimes

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes $\ \square$ No $\ \boxtimes$

As of November 11, 2024, the registrant had 9,655,022 shares of common stock and 2,399,517 shares of Class A common stock outstanding, each \$0.0001 par value per share.

FORWARD-LOOKING STATEMENTS

This Quarterly Report on Form 10-Q contains forward-looking statements which are made pursuant to the safe harbor provisions of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). These statements may be identified by such forward-looking terminology as "may," "should," "expects," "intends," "plans," "anticipates," "believes," "estimates," "predicts," "potential," "continue" or the negative of these terms or other comparable terminology. Our forward-looking statements are based on a series of expectations, assumptions, estimates and projections about our company, are not guarantees of future results or performance and involve substantial risks and uncertainty. We may not actually achieve the plans, intentions or expectations disclosed in these forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in these forward-looking statements. Our business and our forward-looking statements involve substantial known and unknown risks and uncertainties, including the risks and uncertainties inherent in our statements regarding:

- the success, cost and timing of our product development activities and clinical trials;
- there is substantial doubt regarding our ability to continue as a going concern;
- the timing, scope or likelihood of regulatory filings and approvals, including timing of Investigational New Drug Application and Biological Licensing Application filings for our current and future product candidates, and final U.S. Food and Drug Administration, European Medicines Agency or other foreign regulatory authority approval of our current and future product candidates;
- our ability to develop and advance our current product candidates and programs into, and successfully complete, clinical studies;
- our manufacturing, commercialization and marketing capabilities and strategy;
- the potential benefits of and our ability to maintain our collaboration with Gilead Sciences, Inc. and establish or maintain future collaborations or strategic relationships or obtain additional funding;
- the rate and degree of market acceptance and clinical utility of our current and future product candidates;
- our intellectual property position, including the scope of protection we are able to establish and maintain for intellectual property rights covering our non-replicating and replicating technologies and the product candidates based on these technologies, the validity of intellectual property rights held by third parties, and our ability not to infringe, misappropriate or otherwise violate any third-party intellectual property rights;
- future agreements with third parties in connection with the commercialization of our product candidates and any other approved product;
- regulatory developments in the United States and foreign countries;
- competitive companies and technologies in our industry and the success of competing therapies that are or may become available;
- our ability to attract and retain key scientific or management personnel;
- our ability to obtain funding for our operations, including funding necessary to complete further development and commercialization of our product candidates;
- the accuracy of our estimates of our annual total addressable market, future revenue, expenses, capital
 requirements and needs for additional financing;
- our expectations about market trends;

- our ability to comply with Nasdaq listing rules; and
- our expectations regarding the period during which we qualify as an emerging growth company under the Jumpstart Our Business Startups Act of 2012, as amended.

All of our forward-looking statements are as of the date of this Quarterly Report on Form 10-Q only. In each case, actual results may differ materially from such forward-looking information. We can give no assurance that such expectations or forward-looking statements will prove to be correct. An occurrence of or any material adverse change in one or more of the risk factors or risks and uncertainties referred to in this Quarterly Report on Form 10-Q or included in our other public disclosures or our other periodic reports or other documents or filings filed with or furnished to the Securities and Exchange Commission could materially and adversely affect our business, prospects, financial condition and results of operations. Except as required by law, we do not undertake or plan to update or revise any such forward-looking statements to reflect actual results, changes in plans, assumptions, estimates or projections or other circumstances affecting such forward-looking statements occurring after the date of this Quarterly Report on Form 10-Q, even if such results, changes or circumstances make it clear that any forward-looking information will not be realized. Any public statements or disclosures by us following this Quarterly Report on Form 10-Q that modify or impact any of the forward-looking statements contained in this Quarterly Report on Form 10-Q will be deemed to modify or supersede such statements in this Quarterly Report on Form 10-Q.

Investors and others should note that we announce material financial information to our investors using our investor relations website (https://ir.hookipapharma.com/), Securities and Exchange Commission filings, press releases, public conference calls and webcasts. We use these channels, as well as social media, to communicate with our members and the public about our company, our services and other issues. It is possible that the information we post on social media could be deemed to be material information. Therefore, we encourage investors, the media, and others interested in our company to review the information we post on the U.S. social media channels listed on our investor relations website.

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PART I—FINANCIAL INFORMATION

Item 1. Financial Statements.

HOOKIPA PHARMA INC. CONDENSED CONSOLIDATED BALANCE SHEETS (UNAUDITED)

(In thousands, except share amounts)

	Sept	tember 30, 2024	Dec	ember 31, 2023
Assets				
Current assets:				
Cash and cash equivalents	\$	59,750	\$	117,096
Accounts receivable		324		511
Receivable research incentives		24,666		18,760
Prepaid expenses and other current assets		8,416		10,749
Total current assets		93,156		147,116
Non-current assets:				
Restricted cash		207		425
Property, plant and equipment, net		6,860		7,742
Operating lease right of use assets		2,862		5,473
Prepaid expenses and other non-current assets		6,645		581
Total non-current assets		16,574		14,221
Total assets	\$	109,730	\$	161,337

Liabilities and Stockholders' Equity				
Current liabilities				
Accounts payable	\$	8,955	\$	12,498
Deferred revenues	Ψ	5,334	Ψ	14.631
Operating lease liabilities, current		1,206		1,638
Accrued expenses and other current liabilities		13,073		12,101
Loans payable, current				1,120
Total current liabilities		28,568		41,988
Non-current liabilities		20,500		11,700
Operating lease liabilities, non-current		1,619		3,801
Deferred revenues, non-current		1,679		19,674
Other non-current liabilities		6,062		6,017
Total non-current liabilities		9.360		29,492
Total liabilities		37,928		71,480
Total habilities		31,920	-	/1,460
Commitments and contingencies (Note 14)				
G. 11 11 2 2 3 (I)				
Stockholders' equity(1):				
Preferred stock, \$0.0001 par value; 10,000,000 shares authorized at September 30, 2024 and				
December 31, 2023, respectively; Series A convertible preferred stock, 2,978 shares designated, 370 shares				
outstanding at September 30, 2024 and December 31, 2023, respectively; Series A-1 convertible preferred stock, 15,800 shares designated, 10,800 shares outstanding at September 30, 2024 and December 31, 2023,				
respectively; Series A-2 convertible preferred stock, 15,268 shares designated, and 15,268 shares outstanding				
at September 30, 2024 and December 31, 2023, respectively		0		0
Common stock, \$0.0001 par value; 40,000,000 shares and 20,000,000 shares authorized at		U		U
September 30, 2024 and December 31, 2023, respectively; 9,655,022 shares issued and outstanding at				
September 30, 2024 and December 31, 2023, respectively		1		1
Class A common stock, \$0.0001 par value; 3,900,000 shares authorized at September 30, 2024 and		1		1
December 31, 2023, respectively; 2,399,517 shares issued and outstanding at September 30, 2024 and				
December 31, 2023, respectively		0		0
Additional paid-in capital		468,199		467,050
Accumulated other comprehensive loss		(8,584)		(7,933)
Accumulated deficit		(387,814)		(369,261)
Total stockholders' equity		71.802	-	89.857
rotal stockholders equity	_	71,002		07,037
Total liabilities and stockholders' equity	\$	109,730	\$	161,337

⁽¹⁾ Share and per share amounts have been restated to reflect the one-for-ten reverse stock split effected in July 2024 on a retroactive basis for all periods presented.

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

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS (UNAUDITED)

(In thousands, except share and per share amounts)

	Thr	ee months end	led Se		Nine months ended September 30,					
D C 11.1 (* 11. *	Ф	2024	Ф	2023	Φ	2024	Ф	\$ 12,722		
Revenue from collaboration and licensing	\$	4,703	\$	6,867	\$	42,592	\$	12,722		
Operating expenses:				(- ()		/ / /				
Research and development		(15,565)		(24,625)		(55,482)		(65,262)		
General and administrative		(6,732)		(4,912)		(14,733)		(14,259)		
Restructuring		(878)		_		(2,201)		_		
Impairment		(172)				(172)				
Total operating expenses		(23,347)		(29,537)		(72,588)		(79,521)		
Loss from operations		(18,644)		(22,670)		(29,996)		(66,799)		
Other income (expense):	<u> </u>	_								
Grant income	\$	2,183	\$	2,916	\$	6,924	\$	7,486		
Interest income		809		1,570		3,213		4,052		
Interest expense		_		(49)		(2)		(268)		
Other income (expense), net		1,811		(833)		1,308		(1,029)		
	_									
Total other income, net		4,803		3,604		11,443		10,241		
Net loss before tax		(13,841)		(19,066)		(18,553)		(56,558)		
Income tax expense		(0)		0		(0)		(204)		
Net loss		(13,841)		(19,066)		(18,553)		(56,762)		
Other comprehensive loss:										
Foreign currency translation (loss) gain, net of tax		(1,360)		1,216		(651)		1,130		
Comprehensive loss	\$	(15,201)	\$	(17,850)	\$	(19,204)	\$	(55,632)		
Net loss per share — basic and diluted ⁽¹⁾	\$	(1.10)	\$	(1.73)	\$	(1.48)	\$	(6.41)		

⁽¹⁾ Share and per share amounts have been restated to reflect the one-for-ten reverse stock split effected in July 2024 on a retroactive basis for all periods presented.

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

CONDENSED CONSOLIDATED STATEMENTS OF CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' EQUITY (UNAUDITED)

(In thousands, except share amounts)

	Conve Preferre Shares	ertible ed Stock Amount	Common Shares		non Stock Class A Co Shares	mmon Stock Amount	Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
Balances as of December 31, 2023	26,438	0	9,655,022	1	2,399,517	0	467,050	(7,933)	(369,261)	89,857
Foreign currency translation adjustment, net of tax	_							531		531
Stock-based compensation income	_	_	_	_	_	_	(249)	_	_	(249)
Net income									14,383	14,383
Balances as of March 31, 2024	26,438	\$ 0	9,655,022	\$ 1	2,399,517	\$ 0	\$ 466,801	\$ (7,402)	\$ (354,878)	\$ 104,522
Foreign currency translation adjustment, net of tax		_						178		178
Stock-based compensation expense	_	_	_	_	_	_	459	_	_	459
Net loss									(19,095)	(19,095)
Balances as of June 30, 2024	26,438	\$ 0	9,655,022	\$ 1	2,399,517	\$ 0	\$ 467,260	\$ (7,224)	\$ (373,973)	\$ 86,064
Foreign currency translation adjustment, net of tax	_	_	_	_	_	_	_	(1,360)	_	(1,360)
Stock-based compensation expense	_	_	_	_	_	_	939	` —	_	939
Net loss									(13,841)	(13,841)
Balances as of September 30, 2024	26,438	\$ 0	9,655,022	\$ 1	2,399,517	\$ 0	\$ 468,199	\$ (8,584)	\$ (387,814)	\$ 71,802

	Preferre	d Stock	Common		non Stock Class A Co	mmon Stock	Additional Paid-In	Accumulated Other Comprehensive	Accumulated	Total Stockholders'
	Shares	Amount	Shares	Amount	Shares	Amount	Capital	Income (Loss)	Deficit	Equity
Balances as of December 31, 2022	17,497	0	5,231,713	1	2,399,517	0	397,353	(7,156)	(287,681)	102,517
Issuance of common stock upon					-					
exercise of stock options	_	_	569	0	_	_	1	_	_	1
Foreign currency translation										
adjustment, net of tax	_	_	_	_	_	_	_	(17)	_	(17)
Stock-based compensation expense	_	_	_	_		_	658	_	_	658
Net loss									(19,680)	(19,680)
Balances as of March 31, 2023	17,497	\$ 0	5,232,282	\$ 1	2,399,517	\$ 0	\$ 398,012	\$ (7,173)	\$ (307,361)	\$ 83,479
Conversion of Series A convertible										
preferred stock to common stock	(1,327)	(0)	132,700	0	_	_	(0)	_	_	_
Conversion of Series A-1 convertible										
preferred stock to common stock	(5,000)	(0)	500,000	0		_	(0)	_	_	
Issuance of Series A-2 convertible										
preferred stock upon public offering										
at \$13,100 per share for cash, net of										
issuance costs of \$1,470	15,268	0	_	_	_	_	18,531	_	_	18,531
Issuance of common stock upon										
public offering at \$13.10 per share for										
cash, net of issuance costs of \$2,205			2,290,077	0			27,795			27,795
ATM costs	_	_	_	_	_	_	(86)	_	_	(86)
Foreign currency translation										
adjustment, net of tax								(69)		(69)
Stock-based compensation expense	_	_	_	_	_	_	696	_		696
Net loss									(18,016)	(18,016)
Balances as of June 30, 2023	26,438	<u>\$</u>	8,155,059	<u>\$ 1</u>	2,399,517	\$ 0	\$ 444,948	\$ (7,242)	\$ (325,377)	\$ 112,330
Issuance costs Series A-2 convertible										
preferred stock						_	(1)	_		(1)
Issuance costs common stock upon										
public offering	_	_	_	_	_	_	(2)	_	_	(2)
Foreign currency translation										
adjustment, net of tax								1,216		1,216
Stock-based compensation expense	_	_	_	_	_	_	574	_		574
Net loss			-						(19,066)	(19,066)
Balances as of September 30, 2023	26,438	\$ 0	8,155,059	\$ 1	2,399,517	\$ 0	\$ 445,519	\$ (6,026)	\$ (344,443)	\$ 95,051

⁽¹⁾ All share amounts in this column, including appropriate reclassifications between common stock and additional paid-in capital, have been restated to reflect the one-for-ten reverse stock split effected in July 2024 on a retroactive basis for all periods presented.

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

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS (UNAUDITED)

(In thousands)

	Nir	ne months end	ed Se	
		2024		2023
Operating activities:		(10.550)	Φ.	(56.562)
Net loss	\$	(18,553)	\$	(56,762)
Adjustments to reconcile net loss to net cash used in operating activities:		1 140		1.020
Stock-based compensation expense		1,149		1,928
Depreciation and amortization expense		2,054		2,274
Impairment expense		172		
Other non-cash items		3		4
Changes in operating assets and liabilities:		5.61		£ 020
Accounts receivable		561		5,838
Receivable research incentives		(5,582)		(7,227)
Prepaid expenses and other current assets		2,158		3,507
Prepaid expenses and other non-current assets		(5,901)		(242)
Accounts payable		(5,091)		4,104
Deferred revenues		(26,742)		(1,161)
Operating lease liabilities		(1,194)		(819)
Accrued expenses and other liabilities		926		2,052
Other non-current liabilities		_		204
Net cash used in operating activities		(56,040)		(46,300)
Investing activities:				
Purchases of property and equipment		(192)		(3,737)
Net cash used in investing activities		(192)	_	(3,737)
		<u> </u>		
Financing activities:				
Proceeds from issuance of convertible preferred stock, net of issuance costs		_		18,530
Proceeds from issuance of common stock, net of issuance costs				27,794
Payments for deferred offering costs		(135)		(149)
Repayments of borrowings		(1,141)		(1,754)
Net cash (used in) provided by financing activities	_	(1,276)	_	44,421
Net decrease in cash, cash equivalents and restricted cash		(57,508)		(5,616)
Cash, cash equivalents and restricted cash at beginning of period		117,521		113,444
Effect of exchange rate changes on cash, cash equivalents and restricted cash		(56)		267
Cash, cash equivalents and restricted cash at end of period	\$	59,957	\$	108,095
Supplemental disclosure of cash flow information:				
Cash paid for interest	\$	(2)	\$	(10)
Cash paid for income taxes	\$	(0)	\$	(204)
Supplemental disclosure of non-cash financing activities:				
Property and equipment additions in accounts payable and accrued expenses	\$	(4)	\$	(121)
Lease assets obtained in exchange for new operating lease liabilities	\$	466	\$	19
Lease assets derecognized upon lease modification	\$	(1,961)	\$	_

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

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED)

1. Nature of the business and organization

HOOKIPA Pharma Inc. ("HOOKIPA" or the "Company") is a clinical stage biopharmaceutical company developing a new class of immunotherapeutics based on its proprietary arenavirus platform that is designed to reprogram the body's immune system.

The Company was incorporated under the name of Hookipa Biotech, Inc. under the laws of the State of Delaware in February 2017 as a fully-owned subsidiary of Hookipa Biotech AG. In June 2018, the Company changed its name from Hookipa Biotech, Inc. to HOOKIPA Pharma Inc. and in order to effectuate the change of the jurisdiction of incorporation, the Company acquired all of the shares of Hookipa Biotech AG, now HOOKIPA Biotech GmbH. HOOKIPA is headquartered in New York, with European research and preclinical development operations headquartered in Vienna, Austria. In April 2019, the Company closed its initial public offering ("IPO") and its common stock is currently traded on the Nasdaq Capital Market under the ticker symbol "HOOK".

The Company is subject to risks and uncertainties common to early-stage companies in the biotechnology industry, including, but not limited to, development by competitors of new technological innovations, dependence on key personnel, protection of proprietary technology, compliance with government regulations, the ability to establish clinical-and commercial-scale manufacturing processes and the ability to secure additional capital to fund operations. Product candidates currently under development will require significant additional research and development efforts, including extensive preclinical and clinical testing and regulatory approval prior to commercialization. These efforts require significant amounts of additional capital, adequate personnel and infrastructure and extensive compliance-reporting capabilities and may not ultimately lead to a marketing approval and commercialization of a product. Even if the Company's drug development efforts are successful, it is uncertain if and when the Company will realize significant revenue from product sales.

2. Summary of significant accounting policies

Basis of presentation

The Company's condensed consolidated financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America ("GAAP"). The accompanying condensed consolidated financial statements include the accounts of the Company and its wholly owned subsidiary. All intercompany accounts and transactions have been eliminated in consolidation.

The consolidated balance sheet as of December 31, 2023 was derived from audited financial statements but does not include all disclosures required by GAAP. The accompanying condensed consolidated balance sheet as of September 30, 2024, the condensed consolidated statements of operations, and comprehensive loss for the three and nine months ended September 30, 2024 and 2023, the condensed consolidated statement of convertible preferred stock and stockholders' equity for the three and nine months ended September 30, 2024 and 2023 and the condensed consolidated statements of cash flows for the nine months ended September 30, 2024 and 2023 are unaudited.

The unaudited interim condensed 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 for interim reporting. Certain information and footnote disclosures typically included in annual financial statements prepared in accordance with GAAP have been condensed or omitted. Accordingly, these unaudited interim condensed consolidated financial statements should be read in conjunction with the Company's audited financial statements for the year ended December 31, 2023 included in the Company's Annual Report on Form 10-K, filed with the Securities and Exchange Commission ("SEC"). The results for any interim period are not necessarily indicative of results for any future period.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED) (continued)

Going concern

At each reporting period, in accordance with Accounting Standards Codification ("ASC") 205-40, Going Concern, the Company evaluates whether there are conditions or events that raise substantial doubt about the Company's ability to continue as a going concern within one year after the date that the financial statements are issued. The Company's evaluation entails analyzing prospective operating budgets and forecasts for expectations of the Company's cash needs and comparing those needs to the current cash and cash equivalent balances. The Company is required to make certain additional disclosures if it concludes substantial doubt exists and it is not alleviated by the Company's plans or when its plans alleviate substantial doubt about the Company's ability to continue as a going concern.

This evaluation initially does not take into consideration the potential mitigating effect of management's plans that have not been fully implemented as of the date the condensed consolidated financial statements are issued. When substantial doubt exists under this methodology, management evaluates whether the mitigating effect of its plans sufficiently alleviates substantial doubt about the Company's ability to continue as a going concern. The mitigating effect of management's plans, however, is only considered if both (1) it is probable that the plans will be effectively implemented within one year after the date that the condensed consolidated financial statements are issued, and (2) it is probable that the plans, when implemented, will mitigate the relevant conditions or events that raise substantial doubt about the entity's ability to continue as a going concern within one year after the date that these condensed consolidated financial statements are issued. In performing its analysis, management excluded certain elements of its operating plan that cannot be considered probable. Under ASC 205-40, the future receipt of potential funding from future partnerships, equity or debt issuances, the potential milestones from the Gilead Collaboration Agreement and potential reductions in force cannot be considered probable at this time because these plans are not entirely within the Company's control and/or have not been approved by the Board of Directors as of the date of these condensed consolidated financial statements.

Since inception, the Company's activities have consisted primarily of performing research and development to advance its technologies. The Company is still in the development phase and has not been marketing its technologies to date. Through September 30, 2024, the Company has funded its operations with proceeds from sales of common stock, sales of convertible preferred stock, sales of redeemable convertible preferred stock, collaboration and licensing agreements, grants and borrowings under various agreements with foreign public funding agencies. Since inception, the Company has incurred recurring losses, including a net loss of \$18.6 million for the nine months ended September 30, 2024 and \$81.6 million for the year ended December 31, 2023. As of September 30, 2024, the Company had an accumulated deficit of \$387.8 million. The Company expects to continue to generate operating losses in the foreseeable future. As of the filing date of this Quarterly Report on Form 10-Q, the Company's expectation to generate negative operating cash flows in the future and the need for additional funding to support its planned operations raise substantial doubt regarding the Company's ability to continue as a going concern for a period of one year after the date that these condensed consolidated financial statements are issued. Management's plans to alleviate the conditions that raise substantial doubt include reduced spending and the pursuit of additional capital. Management has concluded that the likelihood that its plan to successfully obtain sufficient funding, or adequately reduce expenditures, while reasonably possible, is less than probable. Accordingly, the Company has concluded that substantial doubt exists about the Company's ability to continue as a going concern for a period of at least 12 months from the date of issuance of these condensed consolidated financial statements.

These condensed consolidated financial statements have been prepared assuming that the Company will continue as a going concern, which contemplates the realization of assets and the settlement of liabilities and commitments in the normal course of business. The condensed consolidated financial statements do not reflect any adjustments relating to the recoverability and classification of assets or the amounts and classification of liabilities that might result from the outcome of the uncertainties described above.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED) (continued)

Reverse stock split

On July 9, 2024, the Company effected a reverse stock split of the outstanding shares of its common stock on a one-for-ten (1:10) basis (the "Reverse Stock Split"). The Reverse Stock Split became effective at 5:00 p.m. Eastern Time on July 9, 2024 (the "Effective Time") via a certificate of amendment to the Company's Certificate of Incorporation filed with the Secretary of State of the State of Delaware. At the Effective Time of the Reverse Stock Split, every 10 issued and outstanding shares of the Company's common stock were automatically combined into one issued and outstanding share of common stock. The par value per share of the common stock remained unchanged at \$0.0001. Fractional shares were not issued in connection with the Reverse Stock Split. Stockholders who were otherwise entitled to receive a fractional share received a proportional cash payment. The Reverse Stock Split affected all stockholders uniformly and did not alter any stockholder's relative interest in the Company's equity securities, except for any adjustments for fractional shares. As a result of the Reverse Stock Split, proportionate adjustments were made to the conversion ratio for the Company's Class A Common Stock and the conversion prices of the Company's Series A Convertible Preferred Stock, Series A-1 Convertible Preferred Stock and Series A-2 Convertible Preferred Stock. All share, per share and option numbers and exercise prices appearing in this Quarterly Report on Form 10-Q and the accompanying condensed financial statements have been adjusted to give effect to the Reverse Stock Split for all prior periods presented. However, the Company's annual, other periodic, and current reports, and all other information and documents incorporated by reference into this Quarterly Report on Form 10-Q that were filed prior to July 9, 2024, do not give effect to the Reverse Stock Split.

Use of estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue, income and expenses during the reporting periods. Significant estimates and assumptions reflected in these condensed consolidated financial statements include, but are not limited to, the recognition of revenue and income, the accrual of research and development expenses and general and administrative expenses, the present value of lease right of use assets and corresponding liabilities, the valuation of stockbased awards, the valuation of current loans payable, the impairment of long-lived assets and going concern. The Company bases its estimates on historical experience, known trends and other market-specific or other relevant factors that it believes to be reasonable under the circumstances. On an ongoing basis, management evaluates its estimates as there are changes in circumstances, facts and experience.

As of the date of issuance of these unaudited condensed consolidated financial statements, the Company is not aware of any specific event or circumstance that would require the Company to update estimates, judgments or revise the carrying value of any assets or liabilities. Actual results may differ from those estimates or assumptions.

Deferred offering costs

The Company capitalizes certain legal, professional accounting and other third-party fees that are directly associated with in-process equity financings as deferred offering costs until such financings are consummated. After consummation of an equity financing, these costs are recorded in stockholders' equity as a reduction of the additional paid-in capital on a pro-rata basis generated as a result of the offering. Should the in-process equity financing be abandoned, the deferred offering costs will be expensed immediately as a charge to operating expenses in the condensed consolidated statements of operations and comprehensive loss.

Concentrations of credit risk and of significant suppliers

Financial instruments that potentially expose the Company to concentrations of credit risk consist primarily of cash, cash equivalents and short-term bank deposits held with banks in excess of publicly insured limits. For the three

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED) (continued)

and nine months ended September 30, 2024 and September 30, 2023 the net proceeds from the Company's offerings have been deposited in interest-bearing bank accounts with two of the largest investment grade U.S. financial institutions and have been partially invested in money market funds. The money market funds, held in U.S. dollars, are primarily invested in U.S. and foreign short-term debt obligations. As of September 30, 2024 and December 31, 2023, the Company's cash and cash equivalents included smaller amounts of cash balances held in accounts with regional European banks at the Company's Austrian subsidiary, partially in euros. The Company does not believe that it is subject to unusual credit risk beyond the normal credit risk associated with commercial banking relationships.

The Company relies, and expects to continue to rely, on a small number of vendors to manufacture supplies and raw materials for its development programs. These programs could be adversely affected by a significant interruption in these manufacturing services or the availability of raw materials.

As of September 30, 2024 Gilead Sciences, Inc. ("Gilead") accounted for the majority of the accounts receivable balance. As of December 31, 2023, Gilead and F. Hoffmann-La Roche Ltd. and Hoffmann-La Roche Inc. (together "Roche") accounted for the majority of the accounts receivable balance. For the three months ended September 30, 2024 Gilead accounted for the majority of the Company's revenues. For the nine months ended September 30, 2024 Roche accounted for the majority of the Company's revenues as a result of a contract modification and the recognition of upfront and milestone payments previously recorded as deferred revenues. For the three and nine months ended September 30, 2023 Gilead and Roche accounted for the majority of the Company's revenues. Other customers accounted for less than 10.0% of accounts receivable or net revenues. The Company monitors the financial performance of its customers so that it can appropriately respond to changes in their credit-worthiness. To date, the Company has not experienced any significant losses with respect to collection of its accounts receivable.

Cash equivalents

The Company considers all highly liquid investments with maturities of three months or less at the date of purchase to be cash equivalents. As of September 30, 2024 and December 31, 2023, cash equivalents consisted of money market funds and short-term deposits.

Fair value measurements

Certain assets and liabilities are carried at fair value under GAAP. Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. Financial assets and liabilities carried at fair value are to be classified and disclosed in one of the following three levels of the fair value hierarchy, of which the first two are considered observable and the last is considered unobservable:

- Level 1 Quoted prices in active markets for identical assets or liabilities.
- Level 2 Observable inputs (other than Level 1 quoted prices), such as quoted prices in active markets for similar assets or liabilities, quoted prices in markets that are not active for identical or similar assets or liabilities, or other inputs that are observable or can be corroborated by observable market data.
- Level 3 Unobservable inputs that are supported by little or no market activity and that are significant to
 determining the fair value of the assets or liabilities, including pricing models, discounted cash flow
 methodologies and similar techniques.

The Company's cash equivalents are carried at fair value, determined according to the fair value hierarchy described above (see Note 6).

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED) (continued)

Property and equipment

Property and equipment are stated at cost less accumulated depreciation and amortization. Depreciation and amortization expense is recognized using the straight-line method over the estimated useful life of each asset as follows:

	Estimated useful life
	shorter of useful life or
Leasehold improvements	term of lease
Laboratory equipment	2 - 10 years
Furniture and fixtures	2 - 10 years
Computer equipment and software	2 - 4 years

Costs for capital assets not yet placed into service are capitalized as construction-in-progress and depreciated once placed into service. Expenditures for repairs and maintenance are charged to expense as incurred. When property and equipment is sold or otherwise disposed of, the cost and related accumulated depreciation are eliminated from the accounts and any resulting gain or loss is reflected in the consolidated statements of operations.

Leases

The determination whether an arrangement qualifies as a lease is made at contract inception. A lease qualifies as a finance lease if any of the following criteria are met at the inception of the lease: (i) there is a transfer of ownership of the leased asset to the Company by the end of the lease term, (ii) the Company holds an option to purchase the leased asset that it is reasonably certain to exercise, (iii) the lease term is for a major part of the remaining economic life of the leased asset, (iv) the present value of the sum of lease payments equals or exceeds substantially all of the fair value of the leased asset, or (v) the nature of the leased asset is specialized to the point that it is expected to provide the lessor no alternative use at the end of the lease term. All other leases are recorded as operating leases and are included in right of use ("ROU") assets and lease liabilities in the consolidated balance sheets. For leases with an initial term of 12 months or less, the Company does not recognize a right of use asset or lease liability. These short-term leases are expensed on a straight-line basis over the lease term.

ROU assets represent the Company's right to use an underlying asset for the lease term and lease liabilities represent its obligation to make lease payments arising from the lease. ROU assets and lease liabilities are recognized at the commencement date of the lease based upon the present value of lease payments over the lease term. When determining the lease term, the Company includes options to extend or terminate the lease when it is reasonably certain that the option will be exercised. The Company uses the implicit rate when readily determinable and uses its incremental borrowing rate when the implicit rate is not readily determinable based upon the information available at the commencement date in determining the present value of the lease payments. The incremental borrowing rate is determined using a secured borrowing rate for the same currency and term as the associated lease. The lease payments used to determine ROU assets may include lease incentives, stated rent increases and escalation clauses linked to rates of inflation when determinable and are recognized as ROU asset on the consolidated balance sheet. In addition, certain of the Company's arrangements contain lease and non-lease components. The Company generally separates lease payments from non-lease payments. Operating leases are reflected in operating lease liabilities in the consolidated balance sheets. Finance leases are reflected in finance lease assets, in accrued expenses and other current liabilities and in other non-current operating lease liabilities in the consolidated balance sheets. The ROU asset is tested for impairment in accordance with ASC 360.

Capitalized Software Development Cost

The Company capitalizes certain implementation costs for internal-use software incurred in a cloud computing agreement that is a service contract. Eligible costs associated with cloud computing arrangements, such as software

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED) (continued)

business applications used in the normal course of business, are capitalized in accordance with ASC 350. These costs are recognized on a straight-line basis in the same line item in the statement of operations and comprehensive loss as the expense for fees for the associated cloud computing arrangement, over the term of the arrangement, plus reasonably certain renewals.

Impairment of long-lived assets

Long-lived assets, including operating and finance lease right of use assets, consist of property and equipment. Long-lived assets to be held and used are tested for recoverability whenever events or changes in business circumstances indicate that the carrying amount of the assets may not be fully recoverable. Factors that the Company considers in deciding when to perform an impairment review include significant underperformance of the business in relation to expectations, significant negative technological, scientific or economic trends and significant changes or planned changes in the use of the assets.

If an impairment review is performed to evaluate a long-lived asset group for recoverability, the Company compares forecasts of undiscounted cash flows expected to result from the use and eventual disposition of the long-lived asset group to its carrying value. An impairment loss would be recognized in loss from operations when estimated undiscounted future cash flows expected to result from the use of an asset group are less than its carrying amount. The impairment loss would be based on the excess of the carrying value of the impaired asset group over its fair value (see Note 5 and Note 7).

Restructuring

Costs and liabilities associated with restructuring activities are recognized when the actions are probable and estimable, which is when management approves the associated actions. Employee-related severance charges are recognized at the time of communication to employees.

Revenue recognition from collaboration and licensing

The Company recognized revenue from collaboration and license agreements with Gilead and Roche.

Under the collaboration and license agreement with Gilead (as amended and restated, the "Gilead Collaboration Agreement"), the parties agreed to collaborate with respect to two preclinical research programs to evaluate potential vaccine products for the treatment, cure, diagnosis or prevention of the hepatitis B virus ("HBV") and the human immunodeficiency virus ("HIV"). In February 2022, the parties signed an amended and restated collaboration agreement (the "Restated Gilead Collaboration Agreement"), which revised the terms only for the HIV program, whereby the Company took on development responsibilities for the HIV program candidate through a Phase 1b clinical trial. The Company's performance obligations under the terms of the original agreement include one combined performance obligation for each research program (HBV and HIV) comprised of the transfer of intellectual property rights (licenses) and providing research and development services. The terms of the Restated Gilead Collaboration Agreement added an additional performance obligation to perform research and development work for the HIV program. The licenses do not represent distinct performance obligations, because they cannot be used without the research and development services. Payments to the Company under the Restated Gilead Collaboration Agreement include a non-refundable up-front payment, payments for research and development activities, payments based upon the achievement of defined milestones, and if certain future conditions are met, payments for manufacturing services, commercial milestones and royalties on product sales.

Under the research collaboration and license agreement with Roche (the "Roche Collaboration Agreement"), the Company agreed to conduct research and early clinical development through Phase 1b for HB-700, a novel investigational arenaviral immunotherapy for the treatment of KRAS-mutated cancers. The Roche Collaboration

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED) (continued)

Agreement also included an obligation of the Company to deliver a specified package of preclinical data and results with respect to a second program, targeting undisclosed cancer antigens (collectively "UCAs") and an option for Roche to license the UCA program. The Company's performance obligations under the terms of the Roche Collaboration Agreement included one combined performance obligation for the transfer of intellectual property rights (licenses) and providing research and development services for the HB-700 program, and a second, separate performance obligation to perform research and development services with respect to the UCA program. The UCA Option provided a right to license the program at the standalone selling price and therefore did not constitute a separate performance obligation. Payments to the Company under the Roche Collaboration Agreement included a non-refundable up-front payment, payments based upon the achievement of defined milestones, an additional payment if the option for the UCA program was exercised and royalties on product sales. In January 2024, Roche provided written notice of the termination of the collaboration and licensing agreement to the Company resulting in early recognition of revenue previously recorded as deferred revenue. The termination was made according to Roche's right to terminate without cause, acknowledging that, the Company had met all go-forward criteria under the agreement. Upon the collaboration and licensing agreement termination effective date of April 25, 2024, the Company regained full control of the associated intellectual property portfolio and has full collaboration and licensing rights for this program.

The Company evaluates its collaboration and licensing arrangements pursuant to ASC 606 Revenue from Contracts with Customers. To determine the recognition of revenue from arrangements that fall within the scope of ASC 606, the Company performs the following five steps: (i) identify the contract(s) with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when (or as) the Company satisfies a performance obligation.

Under ASC 606, the Company applies significant judgement to evaluate whether the promises under the collaboration and licensing arrangements represent separate or one or more combined performance obligations, the allocation of the transaction price to identified performance obligations, the timing of revenue recognition, whether the UCA Option constitutes a material right, and the determination of when milestone payments are probable of being received.

Upfront payment and program initiation fee

The non-refundable upfront-payment received by the Company upon signing of the Gilead Collaboration Agreement, and milestone payments that were linked to future performance obligations, were initially recorded as deferred revenue and allocated between the two research program performance obligations. Such amounts are recognized as revenue over the performance period of the respective services on a percent of completion basis using total estimated research and development labor hours (input method) for each of the obligations. The percent of completion basis using labor hours was considered the best measure of progress in which control of the combined performance obligations transfers to the customer, due to the short time intervals in which research results are shared with the collaboration partner and the nature of the work being performed.

The non-refundable program initiation payment received from Gilead upon signing of the Restated Collaboration Agreement was also initially recorded as deferred revenue and is recognized on a percent of completion basis using total estimated research and development costs (input method) for the performance of the obligations. The percent of completion basis using research and development costs was considered the best measure of progress in which control of the performance obligations transfers to the customer, due to the immediate benefit that it adds to the value of the customer's rights on the program, the short time intervals in which development results are shared and the nature of the work being performed.

The non-refundable upfront-payment received by the Company upon signing of the Roche Collaboration Agreement was initially recorded as deferred revenue and allocated between the HB-700 program and the UCA

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED) (continued)

program. Such amounts were recognized as revenue over the performance period of the respective services on a percent of completion basis using total estimated research and development costs (input method) for each of the obligations during the initial term of the contract. The percent of completion basis using research and development costs was considered the best measure of progress in which control of the performance obligations transfers to the customer.

Reimbursement for services

Under the Gilead Collaboration Agreement and historically under the Roche Collaboration Agreement prior to termination, the Company incurs employee expenses as well as external costs for research, manufacturing and clinical trial activities presented as operating expenses or prepaid expenses. Based on the nature of the Company's responsibilities under the collaboration arrangements, reimbursement of those costs are presented as revenue and not deducted from expenses, as the Company controls the research activities. Amounts of consideration allocated to the performance of research or manufacturing services are recognized over the period in which services are performed. Reimbursements for external costs are recognized as revenues as progress is achieved. Unpaid reimbursement amounts are presented as Accounts Receivable.

Research and development milestones

The Gilead Collaboration Agreement includes, and the Roche Collaboration Agreement included, contingent milestone payments related to specified preclinical and clinical development milestones. These milestone payments represent variable consideration that are not initially recognized within the transaction price as they are fully constrained under the guidance in ASC 606, due to the scientific uncertainties and the required commitment from Gilead and Roche. While no further milestone payments are expected under the terminated Roche Collaboration Agreement, the Company will continue to assess the probability of significant reversals for any amounts that become likely to be realized under the Gilead Collaboration Agreement prior to including the variable consideration associated with these payments within the transaction price.

Sales-based milestones and royalty payments

The Gilead Collaboration Agreement also includes, and the Roche Collaboration Agreement included, certain sales-based milestone and royalty payments upon successful commercialization of a licensed product. In accordance with ASC 606-10-55-65 Sales Based or Usage Based Royalties, the Company recognizes revenues from sales-based milestone and royalty payments at the later of (i) the occurrence of the subsequent sale; or (ii) the performance obligation to which some or all of the sales-based milestone or royalty payments has been allocated has been satisfied. The Company anticipates recognizing these milestones and royalty payments if and when subsequent sales are generated from a licensed product by the collaboration partner.

Cost to fulfill contracts

The Company incurs costs for personnel, supplies and other costs related to its laboratory operations as well as fees from third parties and license expenses in connection with its research and development obligations under collaboration and licensing agreements. These costs are recognized as research and development expenses over the period in which services are performed. Sublicense fees triggered by the receipt of payments are capitalized as an asset when the obligation to pay the fee arises. The capitalized asset is amortized over the period in which the revenue from the triggering payment is recognized.

Recent accounting pronouncements

From time to time, new accounting pronouncements are issued by the Financial Accounting Standards Board ("FASB") or other standard setting bodies that the Company adopts as of the specified effective date.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED) (continued)

Recently Issued Accounting Pronouncements

In December 2023, the FASB issued final guidance in ASU No. 2023-09, Income Taxes (ASC 740): Improvements to Income Tax Disclosures requiring entities to provide additional information in the rate reconciliation and disclosures about income taxes paid. For public business entities, the guidance is effective for annual periods beginning after December 15, 2024. The Company does not expect this ASU to have a material impact on the consolidated financial statements.

In November 2023, the FASB issued ASU No. 2023-07, Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures which requires public entities to disclose significant segment expenses regularly provided to the chief operating decision-maker. Public entities with a single reporting segment have to provide all disclosures required by ASC 280, including the significant segment expense disclosures. For public business entities, the guidance is effective for annual periods beginning after December 15, 2024. The Company does not expect this ASU to have a material impact on the consolidated financial statements.

3. Collaboration and Licensing Agreements

Gilead Collaboration and License Agreement

In June 2018, the Company entered into the Gilead Collaboration Agreement whereby the Company and Gilead agreed to collaborate with respect to two preclinical research programs to evaluate potential vaccine products for the treatment, cure, diagnosis or prevention of HBV and HIV. In February 2022, the Company signed the Amended and Restated Collaboration Agreement, which altered key aspects of the collaboration pertaining to the HIV therapeutic. Most importantly, the Amended and Restated Collaboration Agreement allocated additional research and development responsibility to the Company with respect to the Company's HIV candidate and provided for additional funding by Gilead of such research and development activities as well as increased later stage development and commercial milestone payments.

Under the Gilead Collaboration Agreement, the Company granted Gilead an exclusive, royalty-bearing license to the Company's technology platforms. Upon entering into the agreement in June 2018, the Company received a non-refundable \$10.0 million upfront payment from Gilead and upon signing of the Restated Gilead Collaboration Agreement in February 2022, the Company received a program initiation fee of \$15.0 million. Gilead is also obligated to make additional payments to the Company upon the achievement of pre-clinical, development and commercial milestones. The development milestones amount to \$140.0 million for the HBV program, and up to \$172.5 million for the HIV program, inclusive of a \$10.0 million program completion fee, payable upon Gilead's exercise of the option to pursue further development activities post Phase 1b. The commercial milestones amount to a total of \$50.0 million for the HBV program, and \$65.0 million for the HIV program. Additionally, Gilead is obligated to pay royalties on net sales for each program. Payments from Gilead generally have a 60-day payment term.

The \$10.0 million upfront payment, the \$15.0 million initiation fee and \$13.0 million in milestone payments were initially recorded as deferred revenue in the consolidated balance sheet and are recognized as revenue when revenue recognition criteria are met. As of September 30, 2024, \$7.0 million of such payments were still recorded as a liability in deferred revenues, current and non-current. As of December 31, 2023, \$7.5 million of upfront and milestone payments were included as a liability in deferred revenues, current and non-current. Approximately 38% of deferred revenue is expected to be recognized as revenue in the remainder of 2024, 51% in 2025 and the remaining 11% in 2026.

In the three months ended September 30, 2024, the Company recognized \$4.4 million of the milestone and initiation payments that were originally recorded as deferred revenue. Furthermore, the Company recognized \$0.3 million of revenue from cost reimbursements for research and development services. In the three months ended September 30, 2023, the Company recognized \$1.2 million of the upfront and milestone payments that were originally

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED) (continued)

recorded as deferred revenue. Furthermore, the Company recognized \$0.5 million of revenue from cost reimbursements for research and development services.

In the nine months ended September 30, 2024, the Company recognized \$5.7 million of the milestone and initiation payments that were originally recorded as deferred revenue. Furthermore, the Company recognized \$0.5 million of revenue from cost reimbursements for research and development services. In the nine months ended September 30, 2023, the Company recognized \$3.8 million of the upfront and milestone payments that were originally recorded as deferred revenue. Furthermore, the Company recognized \$1.3 million of revenue from cost reimbursements for research and development services.

Sublicense fees payable to certain licensors of technologies upon the receipt of the deferred upfront and milestone payments, were capitalized as a contract asset and will be amortized over the period in which the revenue from the triggering payment is recognized. As of September 30, 2024 and December 31, 2023, the contract asset relating to the sublicense payment was \$0.2 million and \$0.1 million, respectively, and there was no liability relating to sublicense payment.

Roche Collaboration and License Agreement

In October 2022, the Company entered into the Roche Collaboration Agreement whereby the Company and Roche agreed to collaborate with respect to the development of novel arenaviral immunotherapies for KRAS-mutated cancers and, potentially, a second, novel arenaviral immunotherapeutic program targeting specific undisclosed cancer antigens. In January 2024, Roche provided written notice of the termination of the Roche Collaboration Agreement to the Company. The termination was made according to Roche's right to terminate without cause, acknowledging that the Company had met all go-forward criteria under the agreement. Pursuant to the terms of the Roche Collaboration Agreement, following the termination notice, the Roche Collaboration Agreement terminated on April 25, 2024.

Under the terms of the original Roche Collaboration Agreement, the Company had granted Roche an exclusive, royalty-bearing license to the Company's technology platforms for KRAS-mutated cancers, and an option right to exclusively license a second, novel arenaviral immunotherapeutic program targeting undisclosed cancer antigens. Upon the termination effective date of April 25, 2024, the Company regained full control of the associated intellectual property portfolio and full collaboration and licensing rights for this program.

Upon signing the Roche Collaboration Agreement in October 2022, the Company received a non-refundable upfront payment of \$25.0 million. This upfront payment, a \$10.0 million milestone payment received in the three months ended March 31, 2023, and a \$10.0 million milestone payment received in the three months ended June 30, 2024 were considered as part of the transaction price and were recognized as revenue when revenue recognition criteria were met over the period in which services were performed. As of September 30, 2024, no liabilities were recorded in deferred revenues, current and non-current. As of December 31, 2023, \$26.8 million of such payments were included as a liability in deferred revenues, current and non-current.

The Company considered the termination by Roche as a contract modification of the combined performance obligations and the transaction price. The modification was accounted for on a cumulative catch-up basis, applying the revised percent of completion to the revised transaction price, resulting in an immediate increase of revenue in the period of the modification. The transaction price was recognized as revenue over the remaining performance period using updated total estimated research and development costs.

The remaining liability included in deferred revenues was recognized in the three months ended June 30, 2024. Accordingly, the Company recognized in the three months ended September 30, 2024 no revenue of the upfront and milestone payments that were originally recorded as deferred revenue. In the three months ended September 30, 2023, the Company recognized \$4.9 million of the upfront and milestone payments that were originally recorded as deferred

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED) (continued)

revenue. Furthermore, the Company recognized \$0.3 million of revenue from cost reimbursements for activities related to the preparation of a first in human trial.

In the nine months ended September 30, 2024, the Company recognized revenues of \$36.3 million of the upfront and milestone payments that were originally recorded as deferred revenue. Furthermore, the Company recognized \$0.1 million of revenue from cost reimbursements for activities related to the preparation of a first in human trial of HB-700. In the nine months ended September 30, 2023, the Company recognized \$7.3 million of the upfront and milestone payments that were originally recorded as deferred revenue. Furthermore, the Company recognized \$0.3 million of revenue from cost reimbursements for activities related to the preparation of a first in human trial.

Sublicense fees payable to certain licensors of technologies upon the receipt of the deferred upfront and milestone payments, were capitalized as a contract asset and will be amortized over the period in which the revenue from the triggering payment is recognized. As of September 30, 2024 there was no contract asset and no liability relating to sublicense payments. As of December 31, 2023 the contract asset was \$2.0 million and there was no liability relating to sublicense payments.

4. Restructuring

On January 29, 2024, the Company announced and began implementing its decision to prioritize the clinical development of its eseba-vec (formerly HB-200) program for the treatment of HPV16+ head and neck cancers and its two Gilead-partnered infectious disease programs and to pause development activities related to HB-300 and most of its preclinical research activities. In connection with this strategic refocus, the Company's board of directors approved a restructuring plan to rebalance the Company's cost structure, which originally included a reduction of the Company's workforce by approximately 30% and the discontinuation of the Company's GMP manufacturing facility project. This original part of the restructuring plan was completed by the end of the second quarter of 2024 and the Company recorded restructuring charges of \$1.3 million in the six months ended June 30, 2024.

During the third quarter of 2024, the Company started an enterprise-wide initiative intended to improve its business through specialized organizational programs that include targeted cost-savings and continued to take actions to implement further restructuring actions, which included a further reduction of the Company's workforce by another approximately 20%. These continued restructuring actions are expected to be substantially completed by the end of the first quarter of 2025. The restructuring charges recorded for the continued restructuring actions for the three months ended September 30, 2024 are \$0.9 million. Going forward, the Company may implement further cost-saving initiatives that could result in additional restructuring charges including severance and other employee charges.

As a result of the restructuring plan and the enterprise-wide initiative, the Company incurred the following charges which were included within Restructuring expense in the condensed consolidated statements of operations and comprehensive loss.

The following table summarizes the effect of the restructuring charges (in thousands):

	i nree months end	iea September 30, N	ine montas er	ided September 30,
	2024	2023	2024	2023
Cash charges				
Severance and other personnel expenses	832	_	2,070	_
Professional fees and other related charges	46	_	131	_
Total	\$ 878	\$ -\$	2,201	\$ —

months and ad Contambou 20. Nine months and ad Contambou 20

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED) (continued)

The following table summarizes a roll-forward of cash restructuring-related liabilities, which are included within Accrued expenses and other current liabilities in the condensed consolidated balance sheets (in thousands):

	erance and er personnel costs	and	fessional fees other related charges	Total
Balance as of December 31, 2023	\$ _	\$	_	\$ _
Severance and other personnel costs, professional fees and other				
related charges	2,070		131	2,201
Total cash charges	(1,231)		(82)	(1,313)
Balance as of September 30, 2024	\$ 839	\$	49	\$ 888

5. Impairment

As a result of the targeted cost-savings, restructuring actions, and strategic considerations preceding the adoption of the restructuring plan, which included the termination of a part of the Company's rented office and laboratory space in Vienna, Austria, the Company assessed the recoverability of the long-lived assets relating to the laboratory equipment at September 30, 2024, and determined that the undiscounted cash flows of certain asset groups were below the carrying values, indicating impairment. The carrying values of the assets were written down to their estimated fair value, which was determined based on the cost approach. The impairment test was performed as of September 30, 2024 using Level 3 inputs including assumptions and estimates for the current replacement costs of similar assets adjusted for estimated depreciation and deterioration of the existing equipment and economic obsolescence.

The following table summarizes the effect of the non-cash impairment charges (in thousands):

	Three	months end	ided September 30,				
	2	024	20)23	2024		2023
Non-cash impairment charges							
Asset write-offs	\$	(172)	\$	— \$	(172)	\$	_
Total non-cash impairment charges	\$	(172)	\$	—\$	(172)	\$	_

6. Fair Value of Financial Assets

The following tables present information about the Company's financial assets measured at fair value on a recurring basis and indicating the level of the fair value hierarchy utilized to determine such fair values (in thousands):

Fair Value Measurement at September 30, 2024								
	Level 1	Level 2		Level 3			Total	
\$	49,744	\$	_	\$	_	\$	49,744	
\$	49,744	\$		\$		\$	49,744	
							:	
	Fair '	Value M	easureme	nt at De	cember 3	1, 202	23	
	Level 1	Le	Le	vel 3	-	Total		
\$	91,084	\$	_	\$	_	\$	91,084	
\$	91,084	\$		\$		\$	91,084	
	\$	\$ 49,744 \$ 49,744 \$ Level 1	Level 1 Level 1 S 49,744 S S 49,744 S S Fair Value M. Level 1 Level 1 S 91,084 S S S S S S S S S	Level 2	Level 1 Level 2 Level 3 Level 4 Level 4 Level 5 Level 5 Level 6 Level 6 Level 7 Level 7 Level 7 Level 8 Level 8 Level 8 Level 8 Level 9 Leve	Level 1 Level 2 Level 3	Level 1 Level 2 Level 3	

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED) (continued)

During the nine months ended September 30, 2024, there were no transfers between Level 1, Level 2 and Level 3.

7. Property, plant and equipment, net

Property, plant and equipment, net consisted of the following (in thousands):

	September 30, 2024		Dec	ember 31, 2023
Land	\$	2,040	\$	2,025
Leasehold improvements		3,332		3,300
Construction in progress		23		212
Laboratory equipment		8,748		8,722
Furniture and fixtures		655		654
Computer equipment and software		2,523		2,652
Property and equipment, gross		17,321		17,565
Less: Accumulated depreciation		(10,461)		(9,823)
Property and equipment, net	\$	6,860	\$	7,742

As a result of the termination of rented laboratory space (see Note 5) the Company determined that the estimated undiscounted future cash flows for certain assets used in affected laboratories were less than their carrying values. The Company therefore recognized an impairment charge of \$0.2 million related to such assets for the three and nine months ended September 30, 2024, which reduced the carrying value of these assets to zero. Impairment charges are included within Impairment expense in the condensed consolidated statements of operations and comprehensive loss.

There were no impairments in the three and nine months ended September 30, 2023.

8. Receivable research incentive

The Company participates in a research incentive program provided by the Austrian government under which it is entitled to reimbursement of a percentage of qualifying research and development expenses and capital expenditures incurred in Austria. Submissions for reimbursement under the program are submitted annually. Incentive amounts are generally paid out during the calendar year that follows the year of the expenses but remain subject to subsequent examinations by the responsible authority. Reimbursements received in excess of the recognized receivable research incentive for a certain period are recorded within other long-term liabilities for potential repayment until such time that an audit has taken place, upon expiration of the potential reclaim period, or when it is no longer probable that a reclaim will happen. The years 2018 to present remain open to examination by the authorities.

Furthermore, the Company participated in the life sciences research and development program provided by the New York State government under which it was entitled to reimbursement of a percentage of qualifying research and development expenses in New York State up to \$0.5 million per year for the years 2019 to 2021. The Company also participates in the New York City biotechnology tax credit program, according to which certain expenses for business in the biotechnology field in New York City limited to \$0.25 million per year for three consecutive years from January 1, 2023 to December 31, 2025 are incentivized.

As of September 30, 2024, the Company recognized receivables of \$24.7 million from the research incentive programs, which are reported in receivable research incentive in the Company's condensed consolidated balance sheet. \$24.5 million relate to the Austrian research incentive program, \$0.1 million relate to the New York State life sciences research and development program and \$0.1 million relate to the New York City biotechnology tax credit program. As of December 31, 2023, the receivables from the research incentive programs were \$18.8 million with \$17.3 million

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED) (continued)

related to the Austrian research incentive program, \$1.4 million related to the New York State life sciences research and development program and \$0.1 million related to the New York City biotechnology tax credit program.

During the three months ended September 30, 2024 and 2023, the Company recorded \$2.2 million and \$2.9 million, respectively, of income related to the incentive program within the Company's condensed consolidated statements of operations and comprehensive loss as part of the grant income related to the Austrian incentive program. Research incentives depend on the eligible research and development expenses of the respective period.

During the nine months ended September 30, 2024 and 2023, the Company recorded \$6.9 million and \$7.2 million, respectively, of income related to the incentive program within the Company's condensed consolidated statements of operations and comprehensive loss as part of the grant income related to the Austrian incentive program. Research incentives depend on the eligible research and development expenses of the respective period.

9. Accrued expenses and other current liabilities

Accrued expenses and other current liabilities consisted of the following (in thousands):

	September 30,	December 31,
	2024	2023
Salaries and bonuses	4,816	5,665
Social security contributions	285	340
Unearned grant income	_	52
Accrued external research and development expenses	5,685	4,594
Accrued external general and administration expenses	884	292
Accrued for property and equipment acquisitions	_	14
Accrued for restructuring expenses	888	_
Income taxes	_	367
Other accruals and liabilities	515	777
	\$ 13,073	\$ 12,101

10. Loans payable

As of September 30, 2024 and December 31, 2023, loans payable consisted of the following (in thousands):

	 September 30, 2024		ember 31, 2023
	 024		2023
Loans from FFG	\$ _	\$	1,172
Unamortized debt discount	_		(52)
Total loans payable, net	\$	\$	1,120

In connection with the funding agreements with the Austrian Research Promotion Agency, (*Österreichische Forschungsförderungsgesellschaft*, or "FFG"), the Company has received various loans ("FFG Loans"). The FFG Loans were made on a project-by-project basis.

The FFG Loans bear interest at rates that are below market rates of interest. The Company accounted for the imputed benefit arising from the difference between an estimated market rate of interest and the rate of interest charged by FFG as grant income from FFG. On the date that FFG loan proceeds are received, the Company recognized the portion of the loan proceeds allocated to grant funding as a discount to the carrying value of the loan and as unearned income, which was recognized as grant income over the term of the funding agreement.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED) (continued)

As of September 30, 2024, the Company has no outstanding loans payable. A final principal repayment of \$1.1 million was made in the nine months ended September 30, 2024. Principal repayments of \$1.8 million were made in the nine months ended September 30, 2023.

11. Common stock, Class A common stock and convertible preferred stock

The Company's capital structure consists of common stock, Class A common stock and preferred stock. On July 9, 2024, the Company effected a reverse stock split of the outstanding shares of its common stock on a one-for-ten basis (see Note 2). As of September 30, 2024, the Company was authorized to issue 40,000,000 shares of common stock, 3,900,000 shares of Class A common stock and 10,000,000 shares of preferred stock. The Company has designated 2,978 of the 10,000,000 authorized shares of preferred stock as non-voting Series A convertible preferred stock, 15,800 of the 10,000,000 authorized shares of preferred stock as non-voting Series A-1 convertible preferred stock and 15,268 of the 10,000,000 authorized shares of preferred stock as non-voting Series A-2 convertible preferred stock. As of September 30, 2024, the Company had 9,655,022 shares of common stock, 2,399,517 shares of Class A common stock, 370 shares of Series A convertible preferred stock and 15,268 shares of Series A-2 convertible preferred stock outstanding and issued. As a result of the Reverse Stock Split, 37 shares of common stock were retired due to round-down effects and redeemed in cash.

On June 5, 2023, the Company closed a public offering of 2,290,077 (22,900,768 before the Reverse Stock Split) shares of its common stock and 15,268 shares of Series A-2 convertible preferred stock at a public offering price of \$13.10 and \$1,310.00 per share, respectively, for net proceeds of \$46.2 million after deducting underwriting discounts and commissions and offering expenses.

On February 15, 2022, the Company entered into a stock purchase agreement with Gilead ("Stock Purchase Agreement"), that requires Gilead, at the Company's option, to purchase up to \$35.0 million of the Company's common stock. On February 15, 2022, Gilead purchased an initial amount of 166,666 (1,666,666 before the Reverse Stock Split) shares of the Company's common stock in exchange for \$5.0 million in cash at a purchase price per share equal to \$30.00. On December 20, 2023, the parties amended and restated the Stock Purchase Agreement (the "Amended Stock Purchase Agreement") and Gilead purchased 1,500,000 (15,000,000 before the Reverse Stock Split) shares of the Company's common stock in exchange for approximately \$21.3 million in cash at a purchase price per share equal to \$14.167. Pursuant to the terms of the Amended Stock Purchase Agreement, the Company may require Gilead to purchase the balance of the \$8.75 million of common stock as pro-rata participation in potential future equity raises. The Company's right to sell shares of its common stock to Gilead is subject to specified limitations, including a limitation that prevents the Company from requesting purchases of shares of common stock by Gilead that would result in a beneficial ownership of more than 19.9% of the total number of outstanding shares of common stock by Gilead.

The Company has three series of preferred stock authorized, issued and outstanding as of September 30, 2024: Series A convertible preferred stock, Series A-1 convertible preferred stock and Series A-2 convertible preferred stock. Shares of Series A, Series A-1 and Series A-2 convertible preferred stock may be independently converted into common stock. Holders of Series A, Series A-1 and Series A-2 convertible preferred stock have equal rights, powers and privileges.

Holders of common stock are entitled to one vote for each share held on all matters submitted to a vote of the stockholders. The holders of Class A common stock and Series A, Series A-1 and Series A-2 convertible preferred stock are not entitled to vote, except as required by law. The holders of common stock and Class A common stock do not have any cumulative voting rights.

Each holder of Class A common stock has the right to convert each ten shares of Class A common stock into one share of common stock at such holder's election. Each holder of Series A, Series A-1 and Series A-2 convertible preferred stock has the right to convert each share of Series A, Series A-1 and Series A-2 convertible preferred stock into

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED) (continued)

100 shares of common stock at any time at the holder's option, provided that the holder will be prohibited, subject to certain exceptions, from converting Series A, Series A-1 and Series A-2 convertible preferred stock into shares of the Company's common stock if, as a result of such conversion, the holder, together with its affiliates, would own more than 9.99% of the total number of shares of the Company's common stock then issued and outstanding.

Holders of common stock and Class A common stock are entitled to receive ratably any dividends declared by the board of directors out of funds legally available for that purpose, subject to any preferential dividend rights of any outstanding preferred stock. Holders of Series A, Series A-1 and Series A-2 preferred stock will be entitled to receive dividends at a rate equal to (on an as-if-converted-to-common stock basis), and in the same form and manner as, dividends actually paid on shares of the Company's common stock. Holders of common stock and Class A common stock have no preemptive rights, conversion rights, or other subscription rights or redemption or sinking fund provisions.

In the event of a liquidation, dissolution, or winding up of the Company, holders of the Company's Series A, Series A-1 and Series A-2 convertible preferred stock will receive a payment equal to \$0.001 per share of Series A, Series A-1 and Series A-2 convertible preferred stock before any proceeds are distributed to the holders of common stock. Then, holders of common stock and Class A common stock will be entitled to share ratably in all assets remaining after payment of all debts and other liabilities.

There were 370 shares of Series A convertible preferred stock, 10,800 shares of Series A-1 convertible preferred stock and 15,268 shares of Series A-2 convertible preferred stock outstanding as of September 30, 2024 and December 31, 2023, respectively. In May 2023 certain of the Company's stockholders elected to convert an aggregate of 1,327 shares of Series A convertible preferred stock and an aggregate of 5,000 shares of Series A-1 convertible preferred stock owned by such holders into an aggregate of 632,700 (6,327,000 before the Reverse Stock Split) shares of the Company's common stock.

12. Stock-based compensation

2018 Stock Option and Grant Plan

In June 2018, the Company's board of directors approved the 2018 Stock Option and Grant Plan. Options granted under the 2018 Stock Option and Grant Plan generally vest over four years, with 25% of the options vesting upon the first anniversary of the grant date and the remaining 75% of the options vesting in 12 equal quarterly installments following the first anniversary of the grant date, provided the option holder continues to have an employment or service relationship with the Company on each vesting date. The options expire on the 10th anniversary of the grant date. As of September 30, 2024, 73,935 options granted under the 2018 Stock Option and Grant Plan remained outstanding. Any authorization to issue new options under the 2018 Stock Option and Grant Plan was cancelled upon the effectiveness of the 2019 Stock Option and Incentive Plan and no further awards will be granted under the 2018 Plan.

2019 Stock Option and Incentive Plan

On April 1, 2019, the Company's stockholders approved the 2019 Stock Option and Incentive Plan, which became effective as of the effective date of the registration statement in connection with the Company's IPO. The plan provides for the grant of shares of restricted stock, long term incentive awards, stock options or other equity-based awards. As of September 30, 2024, the maximum number of shares of the Company's common stock that may be issued under the Company's 2019 Stock Option and Incentive Plan was 1,202,548 shares which shall be cumulatively increased on January 1 of each year by up to 4.0% of the then outstanding number of shares of common stock and Class A common stock. Options granted under the 2019 Stock Option and Incentive Plan generally vest over four years, with 25% of the options vesting upon the first anniversary of the grant date and the remaining 75% of the options vesting in 12 equal quarterly installments following the first anniversary of the grant date, provided the option holder continues to

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED) (continued)

have an employment or service relationship with the Company on each vesting date. Initial options granted to non-executive directors upon their election generally vest over a three-year term with 33% of the options vesting upon the first anniversary of the grant date and the remaining 67% of the options vesting in eight equal quarterly installments following the first anniversary of the grant date. Annual option re-grants to non-executive directors generally vest on the earlier of the first anniversary of the grant date and the next annual meeting of stockholders. The options expire on the 10th anniversary of the grant date. For each option, the beneficiary is entitled to receive one share of common stock upon the exercise of the option.

On August 7, 2023, the Company's board of directors approved a one-time offer to eligible non-executive, non-director employees to exchange certain outstanding stock options for new stock options with modified terms. Under the stock option exchange program (the "Offer"), the Company offered to exchange certain out-of-the-money stock options for new stock options at an exchange ratio of between 1.75 and 2.50 surrendered options for one new option exercisable for shares of common stock with a lower exercise price and extended vesting terms. Pursuant to the Offer, a total of 82 eligible participants tendered, and the Company accepted for cancellation, stock options to purchase an aggregate of 54,323 shares of the Company's common stock with exercise prices between \$69.00 and \$140.00. The eligible options that were accepted for cancellation represented approximately 86.6% of the total shares of common stock underlying all of the eligible options. In accordance with the terms and conditions of the Offer, on September 12, 2023, the Company issued new options to purchase an aggregate of 27,376 shares of common stock in exchange for the cancellation of the tendered eligible options. The exercise price per share of each new option granted in the Offer is \$10.00. New options issued for previously vested stock options vest over a three-year term in twelve equal quarterly installments. The stock option exchange offer resulted in incremental stock-based compensation expense of \$0.1 million, recognized using the graded-vesting method over the remaining requisite service period of the new stock options.

2023 Inducement Plan

On April 7, 2023, the Company's board of directors adopted the Company's 2023 Inducement Plan (the "2023 Inducement Plan") pursuant to which the Company reserved 50,000 shares of common stock for issuance under the 2023 Inducement Plan. The 2023 Inducement Plan provides for the grant of non-statutory stock options to eligible individuals. In accordance with Nasdaq Marketplace Rule 5635(c)(4), awards under the 2023 Inducement Plan may only be made to individuals not previously employees or directors of the Company (or following such individuals' bona fide period of non-employment with the Company), as an inducement material to the individuals' entry into employment with the Company. Awards granted under the 2023 Inducement Plan must be approved by either a majority of the Company's independent directors or the compensation committee of the Company's board of directors. As of September 30, 2024, the Company had 10,000 shares of its common stock available for future issuance under the 2023 Inducement Plan.

The following table presents a summary of awards outstanding:

	As of September 30, 2024							
	2018 Plan 2019 Plan Inducement Awards Total							
Granted and outstanding awards:								
Stock options	73,935	964,206	40,000	1,078,141				
Total	73,935	964,206	40,000	1,078,141				

Stock option valuation

The Company estimates the option's fair value on the date of grant using the Black-Scholes option-pricing model. Black-Scholes utilizes assumptions related to expected term, volatility, the risk-free interest rate, the dividend and employee exercise behavior. Forfeitures are accounted for when they occur. Expected volatilities utilized in the

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED) (continued)

Black-Scholes model are based on historical volatilities of a group of comparable companies. The group of representative companies have characteristics similar to the Company, including the stage of product development and focus on the life science industry. Management believes that this represents the most accurate basis for estimating expected future volatilities under the current conditions. The risk-free interest rate is derived from the yields for U.S. Treasuries with a remaining term approximating the expected life of the options. The expected term represents the period of time that the options granted are expected to be outstanding.

The following table summarizes the assumptions used in the Black-Scholes option-pricing model for estimating the fair value of stock options granted during:

	Three months ended S	eptember 30,	Nine months ended S	eptember 30,
	2024	2023	2024	2023
Risk-free interest rate	4.12 %	4.48 %	4.52 %	3.70 %
Expected term (in years)	5.9	4.4	6.0	5.7
Expected volatility	103.0 %	90.6 %	101.5 %	93.5 %
Expected dividends	— · %	<u> </u>	— %	— %

For the 2024 and 2023 grants, the Company used the simplified method in developing an estimate of the expected term due to a lack of historical exercise data.

Stock option activity

The following table summarizes the Company's stock option activity since January 1, 2024 (in thousands, except share and per share amounts):

	Number of Shares	A	Veighted Average Exercise Price	Weighted Average Remaining Contractual Term (in years)	L	ggregate ntrinsic Value
Outstanding as of December 31, 2023	810,942	\$	42.76	7.4	\$	486
Granted	429,781		7.53			
Exercised	_		_			
Forfeited	(162,582)		29.99			
Outstanding as of September 30, 2024	1,078,141	\$	30.64	5.7	\$	224
Options exercisable as of September 30, 2024	497,606	\$	54.79	3.9	\$	224
Options unvested as of September 30, 2024	580,535	\$	9.94	7.2	\$	_

The aggregate intrinsic value of stock options was calculated as the difference between the exercise price of the stock options and the fair value of the Company's common stock for those stock options that had exercise prices lower than the fair value of the Company's common stock. The fair value per common stock used for calculating the intrinsic values as of September 30, 2024 and December 31, 2023, was \$4.30 and \$8.10, respectively.

No cash was received from stock option exercise under share-based payment arrangements for the nine months ended September 30, 2024. Cash received from stock option exercises under share-based payment arrangements for the nine months ended September 30, 2023 was \$1 thousand.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED) (continued)

Restricted Stock Units

In the three months ended September 30, 2024, the Company granted restricted stock units with time-based vesting conditions to officers. The restricted stock units vest in two equal installments in July 2025 and in July 2026. The Company measures the fair value of restricted stock units on the date of grant using the underlying common stock fair value. Expenses are recorded using the graded-vesting method. The table below summarizes the Company's restricted stock unit activity since December 31, 2023:

			Weighted erage Grant
	Number of	Γ	Date Fair
	Shares		Value
Outstanding as of December 31, 2023	_	\$	_
Granted	178,570		6.44
Vested	_		_
Forfeited	_		_
Outstanding as of September 30, 2024	178,570	\$	6.44

Stock-based compensation

Stock-based compensation expense was classified in the condensed consolidated statements of operations and comprehensive loss as follows (in thousands):

	Three	Three months ended September 30,				months end	ded September 30,		
		2024 2023			2024		2023		
Research and development expenses ⁽¹⁾	\$	248	\$	216	\$	251	\$	764	
General and administrative expenses ⁽¹⁾		691		358		898		1,164	
	\$	939	\$	574	\$	1,149	\$	1,928	

⁽¹⁾ The nine months ended September 30, 2024 includes negative stock-based compensation expense that occurred in the three months ended March 31, 2024 as a result of forfeitures.

13. Income taxes

Income tax expense during the nine months ended September 30, 2024 and September 30, 2023 resulted from minimum tax obligations in Austria, and U.S. federal and state income tax as well as minimum tax obligations in Austria, respectively. During the three and nine months ended September 30, 2024 and 2023, the Company recorded no income tax benefits for the net operating losses incurred due to its uncertainty of realizing a benefit from those items. The Company's losses before income taxes were generated in the United States and Austria. The Company has evaluated the positive and negative evidence bearing upon its ability to realize the deferred tax assets resulting from its net operating loss carryforwards. Management has considered the Company's history of cumulative net losses incurred since inception and its lack of commercialization of any products or generation of any revenue from product sales since inception and has concluded that it is more likely than not that the Company will not realize the benefits of its deferred tax assets. Accordingly, a full valuation allowance has been established against the deferred tax assets as of September 30, 2024 and December 31, 2023. Management reevaluates the positive and negative evidence at each reporting period.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED) (continued)

14. Commitments and contingencies

Operating and Finance Leases

The Company leases for real estate, including office and laboratory space, and has entered into various other agreements with respect to assets used in conducting its business. The Company is required to maintain a cash balance of \$0.2 million to secure letters of credit associated with real estate leases. This amount was classified as non-current restricted cash in the Company's condensed consolidated balance sheet as of September 30, 2024.

As of September 30, 2024 and December 31, 2023, the Company's operating lease right-of-use assets were \$2.9 million and \$5.5 million, respectively, which are reported in operating lease right-of-use assets in the Company's condensed consolidated balance sheets. As of September 30, 2024, the Company had outstanding operating lease obligations of \$2.8 million, of which \$1.2 million is reported in operating lease liabilities, current portion and \$1.6 million is reported in operating lease liabilities, non-current portion in the Company's condensed consolidated balance sheets. As of December 31, 2023, the Company had outstanding operating lease obligations of \$5.4 million, of which \$1.6 million is reported in operating lease liabilities, current portion and \$3.8 million is reported in operating lease liabilities, non-current portion in the Company's condensed consolidated balance sheets. The Company's weighted average discount rate and weighted average lease term remaining on operating lease liabilities is approximately 4.5% and 2.8 years, respectively.

Contract manufacturing arrangements

The Company has entered into arrangements with contract manufacturing organizations ("CMOs") for manufacturing of materials for research and development purposes, including manufacturing of clinical trial materials. These contracts generally provide for non-cancellable obligations or cancellation penalties depending on the time of cancellation. As of September 30, 2024, the Company's total non-cancellable obligations under contracts with CMOs were \$5.9 million, of which \$1.7 million relates to 2024 (remaining three months) deliverables, and \$4.2 million relates to 2025 deliverables.

Intellectual property licenses

The Company has entered into certain license agreements under which it is obligated to make milestone payments upon the achievement of certain development and regulatory milestones, to pay royalties on net sales of licensed products, and to pay a percentage of the sublicense fees which the Company receives from its sublicensees.

In the three and nine months ended September 30, 2024, the Company recorded \$0.6 million and \$3.5 million, respectively, in licensing fees related to intellectual property licenses as research and development expenses. The amount is mainly related to the upfront payment and milestone payments received by the Company under the Gilead Collaboration Agreement and the Roche Collaboration Agreement. The amount recognized as expenses has been agreed to by the licensors but calculation of sublicensing fees on future payments may be subject to interpretation and may change until agreed to by the receiving party.

Indemnification agreements

In the ordinary course of business, the Company may provide indemnification of varying scope and terms to vendors, lessors, business partners and other parties with respect to certain matters including, but not limited to, losses arising out of breach of such agreements or from intellectual property infringement claims made by third parties. In addition, the Company has entered into indemnification agreements with members of its board of directors and senior management that will require the Company, among other things, to indemnify them against certain liabilities that may arise by reason of their status or service as directors or officers. The maximum potential amount of future payments the

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED) (continued)

Company could be required to make under these indemnification agreements is, in many cases, unlimited. To date, the Company has not incurred any material costs as a result of such indemnifications. The Company is not aware of any claims under indemnification arrangements, and it has not accrued any liabilities related to such obligations in its condensed consolidated financial statements as of September 30, 2024 or December 31, 2023.

Legal proceedings

The Company is not currently a party to any material legal proceedings. From time to time, the Company may become involved in litigation or legal proceedings relating to claims arising in the ordinary course of business. At each reporting date, the Company evaluates whether or not a potential loss amount or a potential range of loss is probable and reasonably estimable under the provisions of the authoritative guidance that addresses accounting for contingencies. The Company expenses the costs related to such legal proceedings as incurred.

15. Net loss per share

The following table sets forth the computation of the basic and diluted net loss per share attributable to common stockholders (in thousands, except for share and per share amounts):

	Three months ended September 30, 2024 2023						ended September 30, 2023		
Numerator:									
Net loss	\$	(13,841)	\$	(19,066)	\$	(18,553)	\$	(56,762)	
Denominator:									
Weighted-average common shares outstanding,									
basic and diluted		9,894,974		8,395,011		9,894,974		6,793,358	
Weighted-average Series A convertible preferred shares outstanding, basic and diluted, presented as if converted into common stock ⁽¹⁾		37,000		37,000		37,000		99,218	
Weighted-average Series A-1 convertible preferred shares outstanding, basic and diluted, presented as if converted into common stock ⁽¹⁾		1,080,000		1,080,000		1,080,000		1,310,769	
Weighted-average Series A-2 convertible preferred shares outstanding, basic and diluted, presented as if converted into common stock ⁽¹⁾		1,526,800		1,526,800	_	1,526,800		654,343	
Total number of shares used to calculate net loss per		12 520 774		11 020 011		12 520 774		0.057.600	
share, basic and diluted Net loss per share, basic and diluted	\$	12,538,774 (1.10)	\$	11,038,811 (1.73)	¢	12,538,774 (1.48)	\$	8,857,688 (6.41)	
ivet ioss per snare, basic and unuted	Φ	(1.10)	Ф	(1.73)	Ф	(1.46)	Φ	(0.41)	

⁽¹⁾ Class A common stock and Series A, Series A-1 and Series A-2 convertible preferred stock are participating securities that have substantially the same terms and features as the Company's common stock. The Class A common stock and Series A, Series A-1 and Series A-2 convertible preferred stock are therefore included in the weighted-average number of shares outstanding to calculate net loss per share, basic and diluted as if converted into common stock. Each ten shares of Class A common stock and each share of Series A, Series A-1 and Series A-2 convertible preferred stock is independently convertible into one and 100 shares of common stock, respectively. In the three and nine months ended September 30, 2024, 239,952 shares of the Company's common stock were issuable upon conversion of the Class A common stock, 37,000 shares of the Company's common stock were issuable upon conversion of Series A convertible

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED) (continued)

preferred stock, 1,080,000 shares of the Company's common stock were issuable upon conversion of Series A-1 convertible preferred stock and 1,526,800 shares of the Company's common stock were issuable upon conversion of Series A-2 convertible preferred stock (see Note 11).

Since the Company was in a loss position for all periods presented, basic net loss per share is the same as diluted net loss per share for all periods as the inclusion of all potential common shares (common stock and Class A common stock) outstanding would have been anti-dilutive. Potentially dilutive securities that were not included in the diluted per share calculations because they would be anti-dilutive were as follows:

	Three and nine months e	nded September 30,
	2024	2023
Options issued and outstanding	1,078,141	836,221
Unvested restricted stock units	178,570	_
Total	1,256,711	836,221

16. Related Parties

Effective September 15, 2023, Malte Peters, a member of the Company's board of directors, agreed to lead the Company's clinical activities as ad interim Senior Clinical Advisor. No expense was recorded during the three months ended September 30, 2024, the Company recorded expense of \$0.2 million related to a consultancy services agreement entered into with Dr. Peters, effective September 15, 2023. The consultancy services agreement was terminated on March 31, 2024.

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

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our unaudited condensed consolidated financial statements and related notes appearing elsewhere in this Quarterly Report on Form 10-Q and our audited consolidated financial statements and related notes for the year ended December 31, 2023 included in our Annual Report on Form 10-K filed with the Securities and Exchange Commission ("SEC"). As a result of many factors, including those factors set forth in the "Risk Factors" section of this Quarterly Report on Form 10-Q and our Annual Report on Form 10-K for the year end December 31, 2023, our actual results could differ materially from the results described in, or implied by, the forward-looking statements contained in the following discussion and analysis.

Overview

We are a clinical-stage biopharmaceutical company developing a new class of immunotherapeutics based on our proprietary arenavirus platform that is designed to target and amplify T cell and immune responses to fight diseases. Our replicating and non-replicating technologies are engineered to induce robust and durable antigen-specific CD8+ T cell responses and pathogen-neutralizing antibodies. We believe that our technologies can meaningfully leverage the human immune system for therapeutic purposes by inducing CD8+ T cell response levels previously not achieved by other immune therapy approaches.

We are building a proprietary immuno-oncology pipeline utilizing our replicating technology. Our oncology portfolio targets oncoviral cancer antigens and next-generation antigens and includes two primary programs in development: eseba-vec (formerly HB-200) and HB-700. Eseba-vec is in clinical development for the treatment of Human Papillomavirus 16-positive ("HPV16+") head and neck cancers. Eseba-vec in combination with pembrolizumab received Fast Track Designation from the U.S. Food and Drug Administration ("FDA") in January 2022 and PRIME designation from the European Medicines Agency in April 2024 for the treatment of first-line HPV16+ recurrent/metastatic oropharyngeal squamous cell carcinoma. In April 2024, we received Investigational New Drug ("IND") clearance from the FDA for HB-700 for the treatment of KRAS mutated cancers, including, lung, colorectal and pancreatic cancers.

Our strategic priority has been the development of our oncology portfolio, most importantly the advancement of our eseba-vec program, and the initiation of the AVALON-1 trial, a randomized Phase 2/3 trial of eseba-vec. Additionally, we are developing infectious disease therapies in partnership with other companies. Our Hepatitis B ("HBV") program, HB-400, and our Human Immunodeficiency Virus ("HIV") program, HB-500, are developed in a partnership with Gilead Sciences Inc. ("Gilead").

Eseba-vec, our first program in oncology, is being evaluated in an ongoing Phase 1/2 clinical trial for the treatment of HPV16+ cancers. This trial has completed enrollment in Phase 2 and is evaluating eseba-vec therapy in combination with pembrolizumab in the first line setting of HPV16+ PD-L1+ oropharynx cancer.

In November, we reported updated eseba-vec clinical 1L results in patients with HPV16+ PD-L1+ oropharynx cancer from the Phase 2 part of the Phase 1/2 H-200-001 study, which also now included data for the selected Phase 3 dose. The study reported data as of the September 30, 2024 data cut-off with 66 participants treated with eseba-vec + pembrolizumab, of which at present 30/66 (45.5%) participants remain on treatment in the study. Efficacy data was reported specifically in the PD-L1 CPS \geq 20 population, selected for further development, with a reported overall response rate ("ORR") of 55.0% (16% complete response) in the 20 evaluable for response by RECIST v1.1 participants who were treated at the selected Phase 3 dose of eseba-vec (includes confirmed and unconfirmed responses), and 52% ORR (15% complete response) in the 25 participants treated with both dose levels. The disease control rate ("DCR") was 75% and 80%, respectively. This was accompanied by a promising DOR with 60.0% and 66.7%, respectively, of confirmed responders ongoing at the time of reporting. Early PFS and OS are encouraging but still maturing and in patients treated with all dose levels, the median PFS is 16.3 months, while the reported 12-month OS rate was 83%. Clinical activity continues to be supported by a rapid, robust, and durable tumor antigen specific T cell response. The data continues to show a pronounced potential on the background of historical data reported for SoC pembrolizumab alone (19% ORR and 3.4m mPFS). The combination treatment of eseba-vec with pembrolizumab demonstrated a

favorable safety profile with manageable toxicity with mostly mild to moderate toxicity and serious adverse events in only 7.6% and adverse events leading to discontinuation in only 4.5% of participants. The results of the study successfully confirm the selected patient population of 1^{st} line HPV16+ PD-L1 CPS \geq 20 R/M oropharyngeal cancer as well as the selected Phase 3 eseba-vec dose in combination with pembrolizumab which is to be taken forward.

HB-700 was designed for treatment of cancers encoding mutated KRAS, especially KRAS-mutated pancreatic, colorectal, and lung cancers. By simultaneously targeting the five most common mutations, we believe HB-700 has the potential to benefit more patients than single mutation inhibitors. In April 2024, we received FDA clearance of our IND application for HB-700.

In October 2022, we entered into a Research Collaboration and License Agreement (the "Roche Collaboration Agreement"), with Roche to (i) grant Roche an exclusive license to research, develop, manufacture and commercialize our pre-clinical HB-700 cancer program, an arenaviral immunotherapeutic for KRAS-mutated cancers, and (ii) grant Roche an option right to exclusively license for research, development manufacturing and commercialization, a second, novel arenaviral immunotherapeutic program targeting undisclosed cancer antigens. We announced in January 2024 that we received notification from Roche of their decision to terminate the collaboration and licensing agreement for our HB-700 program in KRAS mutated cancers. Effective April 25, 2024, we regained full control of the associated intellectual property portfolio and have full collaboration and licensing rights for this program. Pursuant to the Roche Collaboration Agreement, we received a non-refundable upfront payment of \$25.0 million, and milestone payments of \$20.0 million.

We are collaborating with Gilead Sciences, Inc. ("Gilead") to research arenavirus functional cures for chronic Hepatitis B and HIV infections under a Collaboration and License Agreement signed in 2018 (the "Gilead Collaboration Agreement"). Both programs have completed preclinical research, and in April 2023 the first participant in a Phase 1 clinical trial of the Hepatitis B product candidate being conducted by Gilead was dosed. Gilead is solely responsible for further development and commercialization of the Hepatitis B product candidate and we are eligible for up to a further \$185.0 million in development and commercialization milestone payments, plus tiered royalties. According to the amendment to the Gilead Collaboration Agreement, signed in February 2022, we have taken on development responsibilities for the HIV program candidate through a Phase 1b clinical trial and Gilead will provide funding through a combination of an initiation payment of \$15.0 million, a milestone payment of \$5.0 million and equity contributions of up to \$35.0 million. In November 2023, we received FDA clearance of our IND application for HB-500 and started the Phase 1b trial in the second quarter of 2024. The first person was dosed on July 1, 2024, resulting in the achievement of a \$5.0 million milestone payment which was received on July 25, 2024. Gilead retains the exclusive option, to further develop and commercialize the HIV program, in which case we are eligible for up to a further \$227.5 million in developmental and commercialization milestone payments, inclusive of a \$10.0 million option exercise payment, plus tiered royalties.

On January 29, 2024, we announced our decision to prioritize the clinical development of our eseba-vec program for the treatment of HPV16+ head and neck cancers and our two Gilead-partnered infectious disease programs and to pause development activities related to HB-300, targeting self-antigens for the treatment of prostate cancer, and most of our preclinical research activities. In connection with this strategic refocus, our Board of Directors approved a plan to reduce our workforce by 55 full-time employees, or approximately 30% of the then-current employee base, and to rebalance our cost structure in alignment with the new prioritization of research and development programs. The prioritization of our eseba-vec program and our two Gilead-partnered programs also included the discontinuation of our GMP manufacturing facility project. This part of the restructuring plan was completed by the end of the second quarter of 2024.

Additionally, in September 2024, our Board of Directors approved a plan to reduce our workforce by another 28 employees, or approximately 20% of the then-current employe base, and to further rebalance our cost structure in alignment with the prioritization of clinical development programs. We announced and began the implementation of this additional restructuring plan in the third quarter of 2024 and we expect the restructuring to be substantially completed by the end of the first quarter of 2025. Going forward, we may implement further cost-saving initiatives that could result in additional restructuring charges including severance and other employee charges.

We have funded our operations to date primarily from public offerings of common stock and convertible preferred stock, including our initial public offering, as well as private placements of our redeemable convertible preferred stock, grant funding and loans from an Austrian government agency, and upfront, milestone and initiation payments from Gilead and Roche in connection with our respective collaboration and license agreements. As of September 30, 2024 we had cash, cash equivalents and restricted cash of \$60.0 million.

We do not expect to generate revenue from any product candidates that we develop until we obtain regulatory approval for one or more of such product candidates, if at all, and commercialize our products or enter into additional collaboration agreements with third parties. Substantially all of our net losses have resulted from costs incurred in connection with our research and development programs and from general and administrative costs associated with our operations.

All of our product candidates, including our most advanced oncology product candidate, eseba-vec, will require substantial additional development time and resources before we would be able to apply for and receive regulatory approvals and begin generating revenue from product sales. We currently have no marketing and sales organization and have no experience in marketing products; accordingly, we will incur significant expenses to develop a marketing organization and sales force in advance of generating any commercial product sales. As a result, we will need substantial additional capital to support our operating activities. In addition, we expect to continue to incur legal, accounting and other expenses in operating our business, including the costs associated with operating as a public company.

We currently anticipate that we will seek to fund our operations through equity or debt financings or other sources, such as government grants and additional collaboration agreements with third parties. Adequate funding may not be available to us on acceptable terms, or at all. If sufficient funds on acceptable terms are not available when needed, we will be required to significantly reduce our operating expenses and delay, reduce the scope of, or eliminate one or more of our development programs.

We have incurred recurring losses, including net losses of \$13.8 million and \$18.6 million for the three and nine months ended September 30, 2024. As of September 30, 2024, we had an accumulated deficit of \$387.8 million and we do not expect positive cash flows from operations in the foreseeable future, if ever. We expect to continue to incur net operating losses for at least the next several years as we advance our product candidates through clinical development, seek regulatory approval, prepare for and, if approved, proceed to commercialization, continue our research and development efforts and invest to establish further commercial manufacturing capacity.

Impacts of Market Conditions on Our Business

Unfavorable conditions in the economy in the United States, Austria and elsewhere may negatively affect the growth of our business and our results of operations. Macroeconomic events and conditions such as heightened inflation, increased interest rates, disruptions to global financial markets or a recession or other market correction, including as a result of the ongoing military conflict between Russia and Ukraine and the related sanctions imposed against Russia, any escalation of the conflict in the Middle East, and other global macroeconomic factors, could reduce our ability to access capital, which could materially impact our business and the value of our common stock.

Components of Our Results of Operations

Revenue from collaboration and licensing

To date, we have not generated any revenue from product sales and do not expect to do so in the near future, if at all. All of our revenue to date has been derived from research collaboration and license agreements with Gilead and Roche.

Gilead Collaboration Agreement

On June 4, 2018, we entered into the Gilead Collaboration Agreement to evaluate potential vaccine products using or incorporating our replicating technology and non-replicating technology for the treatment, cure, diagnosis or prevention of HBV and HIV.

Under the Gilead Collaboration Agreement, we granted Gilead an exclusive, royalty-bearing license to our technology platform for researching, developing, manufacturing and commercializing products for HIV or HBV. We received a non-refundable \$10.0 million upfront payment upon entering the Gilead Collaboration Agreement. In February 2022, we signed an amended and restated collaboration agreement (the "Restated Gilead Collaboration Agreement") which revised the terms only for the HIV program, whereby we took on development responsibilities for the HIV program candidate through a Phase 1b clinical trial. Pursuant to the Restated Gilead Collaboration Agreement, Gilead retains an exclusive right (the "Option") to take back the development responsibilities, thus keeping the rights for the HIV program, including further development and commercialization in return for an option exercise payment of \$10.0 million. Pursuant to the Restated Gilead Collaboration Agreement, we are eligible for up to \$140.0 million in developmental milestone payments for the HBV program and \$50.0 million in commercialization milestone payments. If Gilead exercises the Option, we are eligible for up to \$172.5 million in developmental milestone payments for the HIV program, inclusive of the \$10.0 million Option exercise payment, and \$65.0 million in commercialization milestone payments for the HIV program. Upon the commercialization of a product, we are eligible to receive tiered royalties of a high single-digit to midteens percentage on the worldwide net sales of each HBV product, and royalties of a mid-single-digit to 10% of worldwide net sales of each HIV product. Gilead is obligated to reimburse us for our costs, including all benefits, travel, overhead, and any other expenses, relating to performing research and development activities under the Restated Gilead Collaboration Agreement with respect to the HBV program, and if the Option is exercised, any manufacturing costs related to the HIV program. Through September 30, 2024, we have received a non-refundable upfront payment of \$10.0 million, a program initiation fee of \$15.0 million, a \$5.0 million milestone payment for the first person dosed in a Phase 1b clinical trial of HB-500 and \$21.2 million in milestone payments for the achievement of pre-clinical research milestones from Gilead. In addition, we have recognized \$42.7 million of cost reimbursements for research and development services performed under the Restated Gilead Collaboration Agreement.

We determined that our performance obligations under the terms of the original Gilead Collaboration Agreement included one combined performance obligation for each of the HBV and HIV research programs, comprised of the transfer of intellectual property rights and providing research and development services. Accordingly, we recognized these amounts as revenue over the performance period of the respective services on a percent of completion basis using total estimated research and development labor hours for each of the performance obligations. The terms of the Restated Gilead Collaboration Agreement added an additional performance obligation to us to perform research and development work for the HIV program. We recognize the amounts of revenue allocated to the performance obligation resulting from the Restated Gilead Collaboration Agreement on a percent of completion basis over the performance period, using total estimated research and development costs as the measure of progress.

Roche Collaboration Agreement

On October 18, 2022, we entered into the Roche Collaboration Agreement to (i) grant Roche an exclusive license to research, develop, manufacture and commercialize our pre-clinical HB-700 cancer program, an arenaviral immunotherapeutic for KRAS-mutated cancers, and (ii) grant Roche an exclusive option right to exclusively license for research, development manufacturing and commercialization, a second, novel arenaviral immunotherapeutic program targeting undisclosed cancer antigens. In January 2024, Roche provided us with written notice of the termination of the collaboration and licensing agreement.

Under the terms of the terminated Roche Collaboration Agreement, we granted Roche an exclusive, royalty-bearing license to our technology platforms for KRAS-mutated cancers, and an option right to exclusively license a second, novel arenaviral immunotherapeutic program targeting undisclosed cancer antigens. Pursuant to the terms of the Roche Collaboration Agreement, following the termination notice, the Roche Collaboration Agreement was terminated on April 25, 2024. Effective April 25, 2024, we regained full control of the associated intellectual property portfolio and have full collaboration and licensing rights for the KRAS program.

Through September 30, 2024, we have received from Roche the non-refundable upfront payment of \$25.0 million, \$10.0 million in milestone payments for the achievement of a GMP manufacturing milestone under the HB-700 program and \$10.0 million in milestone payments associated with an IND submission for the HB-700 program. In addition, we have recognized \$0.6 million of cost reimbursements for research and development activities related to a first human trial.

We determined that our performance obligations under the terms of the Roche Collaboration Agreement included one combined performance obligation for the transfer of intellectual property rights (licenses) and providing research and development services for the HB-700 program, and a second, separate performance obligation during the UCA Option period to perform research and development services with respect to the UCA Program. Accordingly, we allocated the non-refundable upfront payment of \$25.0 million between the two performance obligations. Milestone payments that were contingent on future events were added to the transaction price when the triggering event became probable. The consideration allocated to a performance obligation has been recognized as revenue over the performance period of the respective services on a percent of completion basis using total estimated research and development costs for each of the performance obligations. Milestone payments, or parts thereof, that related to completed services were reflected via a cumulative catch up for past performance.

Operating Expenses

Our operating expenses since inception have only consisted of research and development costs, general and administrative costs and restructuring and impairment expenses.

Research and Development Expenses

Since our inception, we have focused significant resources on our research and development activities, including establishing our arenavirus platform, conducting preclinical studies, developing a manufacturing process, conducting Phase 1 and Phase 2 clinical trials, including the ongoing eseba-vec (formerly HB-200) clinical trials, and progressing IND applications, including for HB-700. Research and development activities account for a significant portion of our operating expenses. Research and development costs are expensed as incurred. These costs include:

- salaries, benefits and other related costs, including stock-based compensation, for personnel engaged in research and development functions;
- expenses incurred in connection with the preclinical development of our programs and clinical trials of our
 product candidates, including under agreements with third parties, such as consultants, contractors, academic
 institutions and contract research organizations ("CROs");
- the cost of manufacturing drug products for use in clinical trials, including under agreements with third parties, such as CMOs, consultants and contractors;
- laboratory costs;
- leased facility costs, equipment depreciation and other expenses, which include direct and allocated expenses; and
- third-party license fees.

The majority of our research and development costs are external costs, which we track on a program-by-program basis. We do not track our internal research and development expenses on a program-by-program basis as they primarily relate to shared costs deployed across multiple projects under development.

We expect our research and development expenses to increase substantially in the future as we advance our existing and future product candidates into and through clinical trials and pursue regulatory approval. The process of

conducting the necessary clinical studies to obtain regulatory approval is costly and time-consuming. Clinical trials generally become larger and more costly to conduct as they advance into later stages and, in the future, we will be required to make estimates for expense accruals related to clinical trial expenses.

At this time, we cannot reasonably estimate or know the nature, timing and estimated costs of the efforts that will be necessary to complete the development of any product candidates that we develop from our programs. We are also unable to predict when, if ever, material net cash inflows will commence from sales of product candidates we develop, if at all. This is due to the numerous risks and uncertainties associated with developing product candidates, including the uncertainty of:

- successful completion of preclinical studies and clinical trials;
- sufficiency of our financial and other resources to complete the necessary preclinical studies and clinical trials;
- substantial doubt regarding our ability to continue as a going concern;
- acceptance of INDs for our planned clinical trials or future clinical trials;
- successful enrollment and completion of clinical trials;
- successful data from our clinical program that support an acceptable risk-benefit profile of our product candidates in the intended populations;
- receipt and maintenance of regulatory and marketing approvals from applicable regulatory authorities;
- scaleup of our manufacturing processes and formulation of our product candidates for later stages of development and commercialization;
- establishing our own manufacturing capabilities or agreements with third-party manufacturers for clinical supply for our clinical trials and commercial manufacturing, if our product candidate is approved;
- entry into collaborations to further the development of our product candidates;
- obtaining and maintaining patent and trade secret protection or regulatory exclusivity for our product candidates;
- successfully launching commercial sales of our product candidates, if approved;
- acceptance of the product candidates benefits and uses, if approved, by patients, the medical community and third-party payors;
- the prevalence and severity of adverse events experienced with our product candidates;
- maintaining a continued acceptable safety profile of the product candidates following approval;
- effectively competing with other therapies;
- obtaining and maintaining healthcare coverage and adequate reimbursement from third-party payors; and
- qualifying for, maintaining, enforcing and defending intellectual property rights and claims.

A change in the outcome of any of these variables with respect to the development of a product candidate could mean a significant change in the costs and timing associated with the development of that product candidate. For example, if the FDA or another regulatory authority were to require us to conduct clinical trials beyond those that we anticipate will be required for the completion of clinical development of a product candidate, or if we experience significant delays in our clinical trials due to patient enrollment or other reasons, we would be required to expend significant additional financial resources and time on the completion of clinical development.

The following table summarizes our research and development expenses by product candidate or program (in thousands):

	Three months ended September 30,				Nine months ended September 30,			
	2024		2023		2024		2023	
Eseba-vec (formerly HB-200) program	\$	11,099	\$	10,862	\$	40,488	\$	31,310
HB-300 program		1,656		2,312		3,567		7,649
Gilead partnered programs	2,011		3,234		4,860			10,889
HB-700 & HB-800 (formerly Roche partnered programs)		438		6,689		5,331		10,014
Other and earlier-stage programs		(22)		1,122		502		4,215
Other unallocated research and development expenses		383		406		734		1,185
Total research and development expenses	\$	15,565	\$	24,625	\$	55,482	\$	65,262

Other unallocated research and development expenses include stock-based compensation expense, certain lease expenses and other operating expenses that we do not track on a program-by-program basis, since our research and development employees and infrastructure resources are utilized across our programs.

General and Administrative Expenses

Our general and administrative expenses consist primarily of personnel costs in our executive, finance and investor relations, business development and administrative functions. Other general and administrative expenses include consulting fees and professional service fees for auditing, tax and legal services, lease expenses related to our offices, premiums for directors and officers liability insurance, intellectual property costs incurred in connection with filing and prosecuting patent applications, depreciation and other costs. We expect our general and administrative expenses to continue to increase in the future as we expand our operating activities and prepare for potential commercialization of our current and future product candidates, increase our headcount and investor relations activities and maintain compliance with requirements of the Nasdaq Capital Market and the Securities and Exchange Commission.

Impairment Expenses

Impairment expenses consist of non-cash impairment charges relating to long-lived assets. Impairments are determined using management's judgment about the anticipated performance of our business in relation to expectations, significant negative technological, scientific or economic trends and significant changes or planned changes in the use of the assets and their effects based on information available as of the date of the condensed consolidated financial statements appearing elsewhere in this Quarterly Report. Management makes decisions to disposes of fixed assets during the regular course of business due to damage, obsolescence, strategic shifts, and loss.

Long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset group may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset group to future undiscounted net cash flows expected to be generated by the assets. If the carrying amount of an asset group exceeds its estimated undiscounted net future cash flows, an impairment charge is recognized for the amount by which the carrying amount of the asset group exceeds its fair value.

Restructuring Expenses

Restructuring expenses consist of severance and other personnel costs and professional services and consulting costs associated with exit and disposal activities.

Grant Income

Since inception, we have received grants from the Austrian Research Promotions Agency, either under funding agreements or under research incentive programs. In addition, we have received loans under funding agreements that bear interest at below market interest rate. We account for the grants received as other income and for the imputed benefits arising from the difference between a market rate of interest and the rate of interest as additional grant income, and record interest expense for the loans at a market rate of interest.

We participate in a research incentive program provided by the Austrian government under which we are entitled to reimbursement of a percentage of qualifying research and development expenses and capital expenditures incurred in Austria. Submissions for reimbursement under the program are submitted annually. Incentive amounts are generally paid out during the calendar year that follows the year of the expenses but remain subject to subsequent examinations by the responsible authority.

Furthermore, we participated in the life sciences research and development program provided by the New York State government under which we were entitled to reimbursement of a percentage of qualifying research and development expenses in New York State up to \$0.5 million per year for the years 2019 to 2021. Submissions for reimbursement under the program were submitted in the fourth quarter of 2023 and certificates of tax credits were received. Incentive amounts are generally paid out six to nine months after amended tax returns including a certificate of tax credit issued by Empire State Development are filed. We account for the grants received as other income.

We also participate in the New York City biotechnology tax credit program, according to which certain expenses for business in the biotechnology field in New York City limited to \$0.25 million per year for three consecutive years from January 1, 2023 to December 31, 2025 are incentivized. We account for the grants received as other income.

Interest Income

Interest income results from interest earned on our cash, cash equivalents, and restricted cash.

Interest Expense

Interest expense results primarily from loans under funding agreements with the Austrian Research Promotion Agency, recorded at a market rate of interest. The difference between interest payments payable pursuant to the loans, which rates are at below market interest rates, and the market interest rate, is accounted for as grant income.

Income Taxes

Income tax expense results from U.S. federal and state income tax as well as foreign minimum income tax and profit on a legal entity basis. The losses that we have incurred since inception result primary from the losses of our Austrian subsidiary. We have considered that, at this point in time, it is uncertain whether we will ever be able to realize the benefits of the deferred tax asset, and accordingly, have established a full valuation allowance as of September 30, 2024.

Results of Operations

Comparison of the Three and Nine Months Ended September 30, 2024 and 2023

The following table summarizes our results of operations for the three and nine months ended September 30, 2024 and 2023 (in thousands):

	Three months ended September 30,			Nine months ended September 30,				
	2024	2023	Change	2024	2023	Change		
Revenue from collaboration and licensing	\$ 4,703	\$ 6,867 \$	(2,164)	\$ 42,592	\$ 12,722 \$	29,870		
Operating expenses:								
Research and development	(15,565)	(24,625)	9,060	(55,482)	(65,262)	9,780		
General and administrative	(6,732)	(4,912)	(1,820)	(14,733)	(14,259)	(474)		
Restructuring	(878)	_	(878)	(2,201)	_	(2,201)		
Impairment	(172)		(172)	(172)	_	(172)		
Total operating expenses	(23,347)	(29,537)	6,190	(72,588)	(79,521)	6,933		
Loss from operations	(18,644)	(22,670)	4,026	(29,996)	(66,799)	36,803		
Other income:								
Grant income	2,183	2,916	(733)	6,924	7,486	(562)		
Interest income	809	1,570	(761)	3,213	4,052	(839)		
Interest expense	_	(49)	49	(2)	(268)	266		
Other income (expense), net	1,811	(833)	2,644	1,308	(1,029)	2,337		
Total other income, net	4,803	3,604	1,199	11,443	10,241	1,202		
Net loss before tax	(13,841)	(19,066)	5,225	(18,553)	(56,558)	38,005		
Income tax expense	(0)	0	(0)	(0)	(204)	204		
Net loss	\$ (13,841)	\$ (19,066)\$	5,225	\$ (18,553)	\$ (56,762)\$	38,209		

Revenue from Collaboration and Licensing

Revenue was \$4.7 million and \$42.6 million for the three and nine months ended September 30, 2024, respectively, compared to \$6.9 million and \$12.7 million for the three and nine months ended September 30, 2023, respectively.

During the three months ended September 30, 2024, revenue decreased by \$2.2 million compared to the three months ended September 30, 2023. This decrease was primarily due to no recognition of the upfront and milestone payments under the Roche Collaboration Agreement as a result of the termination of the Roche Collaboration Agreement, partially offset by revenue recognized for a \$5.0 million milestone payment for the first person dosed in a Phase 1b clinical trial of HB-500 received in the three months ended September 30, 2024 under the Restated Gilead Collaboration Agreement.

For the three months ended September 30, 2024 and 2023, revenue included \$0.3 million and \$0.8 million, respectively, from reimbursement of research and development expenses, and \$4.4 million and \$6.1 million, respectively, from partial recognition of upfront, milestone and initiation payments that were initially recorded as deferred revenue.

For the three months ended September 30, 2024, revenue included \$4.7 million related to the Restated Gilead Collaboration Agreement, of which \$0.3 million resulted from reimbursement of research and development expenses and \$4.4 million resulted from partial recognition of milestone and initiation payments that were initially recorded as deferred revenue.

For the three months ended September 30, 2023, revenue included \$1.7 million related to the Restated Gilead Collaboration Agreement, of which \$0.5 million resulted from reimbursement of research and development expenses and \$1.2 million from partial recognition of milestone and initiation payments that were initially recorded as deferred revenue. In addition, revenue included \$5.2 million related to the Roche Collaboration Agreement, of which \$0.3 million

resulted from reimbursement of expenses, and \$4.9 million resulted from partial recognition of milestone and initiation payments that were initially recorded as deferred revenue.

During the nine months ended September 30, 2024, revenue increased by \$29.9 million compared to the nine months ended September 30, 2023. This increase was primarily due to higher partial recognition of the upfront and milestone payments under the Roche Collaboration as a result of the termination of the Roche Collaboration Agreement leading to accelerated recognition of the upfront and milestone payments that were initially recorded as deferred revenue, including the partial recognition of revenue from a \$10.0 million milestone achieved in March 2024 and revenue recognized for a \$5.0 million milestone payment for the first person dosed in a Phase 1b clinical trial of HB-500 received in July 2024 under the Restated Gilead Collaboration Agreement.

For the nine months ended September 30, 2024 and 2023, revenue included \$0.6 million and \$1.6 million, respectively, from reimbursement of research and development expenses, and \$42.0 million and \$11.1 million, respectively, from partial recognition of upfront, milestone and initiation payments that were initially recorded as deferred revenue.

For the nine months ended September 30, 2024, revenue included \$6.2 million related to the Restated Gilead Collaboration Agreement, of which \$0.5 million resulted from reimbursement of research and development expenses and \$5.7 million resulted from partial recognition of milestone and initiation payments that were initially recorded as deferred revenue. In addition, revenue included \$36.4 million related to the terminated Roche Collaboration Agreement, of which \$0.1 million resulted from reimbursement of expenses and \$36.3 million resulted from revenue recognized. Revenue recognized includes \$26.3 million of the upfront and milestone payments that were originally recorded as deferred revenue and \$10.0 million related to a milestone payment achieved in March 2024 and received in April 2024 associated with an IND submission for the HB-700 program.

For the nine months ended September 30, 2023, revenue included \$5.1 million related to the Restated Gilead Collaboration Agreement, of which \$1.3 million resulted from reimbursement of research and development expenses and \$3.8 million from partial recognition of milestone and initiation payments that were initially recorded as deferred revenue. In addition, revenue included \$7.6 million from partial recognition of upfront and milestone payments under the terminated Roche Collaboration Agreement of which \$0.3 million resulted from reimbursement of expenses, and \$7.3 million resulted from partial recognition of milestone and initiation payments that were initially recorded as deferred revenue.

Research and Development Expenses

For the three and nine months ended September 30, 2024, research and development expenses were \$15.6 million and \$55.5 million, respectively, compared to \$24.6 million and \$65.3 million for the three and nine months ended September 30, 2023, respectively.

The decrease of \$9.1 million for the three months ended September 30, 2024 compared to the three months ended September 30, 2023 was attributable to a decrease in indirect research and development expenses of \$2.2 million and a decrease in direct research and development expenses of \$6.9 million. Indirect research and development expenses decreased mainly because of lower personnel-related expenses of \$1.4 million, lower expenses for laboratory consumables of \$0.4 million and lower expenses for consulting and professional services of \$0.4 million. The decrease in personnel-related expenses mainly resulted from the effects of our workforce reduction, including the effects of stock option forfeitures. The decrease in direct research and development expenses was primarily driven by lower manufacturing expenses of \$6.0 million, lower expenses for research and development services of \$2.2 million, primarily for our Gilead partnered programs, and decreased spending for our other programs, partially offset by higher clinical study expenses of \$1.3 million, primarily for our eseba-vec program.

The decrease of \$9.8 million for the nine months ended September 30, 2024 compared to the nine months ended September 30, 2023 was attributable to a decrease in indirect research and development expenses of \$5.6 million and a decrease in direct research and development expenses of \$4.2 million. Indirect research and development expenses decreased mainly because of lower personnel-related expenses of \$3.5 million, lower expenses for laboratory

consumables of \$1.2 million and lower expenses for tavel, training and recruitment of \$0.6 million. The decrease in personnel-related expenses mainly resulted from the effects of our workforce reduction, including the effects of stock option forfeitures. The decrease in direct research and development expenses was primarily driven by lower manufacturing expenses of \$10.9 million, lower expenses for research and development services of \$3.0 million, primarily for our esebavec program and Gilead partnered programs, and decreased spending for our other programs, partially offset by higher clinical study expenses of \$7.3 million, primarily for our eseba-vec program, as well as amortization expenses related to capitalized sublicense payments following the termination of the Roche Collaboration of \$2.4 million.

General and Administrative Expenses

General and administrative expenses for the three and nine months ended September 30, 2024 were \$6.7 million and \$14.7 million, respectively, compared to \$4.9 million and \$14.3 million for the three and nine months ended September 30, 2023, respectively.

The increase of \$1.8 million for the three months ended September 30, 2024 compared to the three months ended September 30, 2023 was primarily due to an increase in personnel-related expenses of \$1.3 million and an increase in professional and consulting fees of \$0.6 million, partially offset by lower expenses for travel, training and recruitment of \$0.1 million. The increase in personnel-related expenses resulted primarily from severance arrangements not related to the restructuring programs, and the increase in professional and consulting fees was primarily attributable to specialized organizational programs including related legal fees.

The increase of \$0.5 million for the nine months ended September 30, 2024 compared to the nine months ended September 30, 2023 was primarily due to an increase in personnel-related expenses of \$0.6 million and an increase in professional and consulting fees of \$0.4 million, partially offset by a decrease in other expenses of \$0.3 million and lower expenses for tavel, training and recruitment of \$0.2 million. The increase in personnel-related expenses resulted primarily from severance arrangement not related to the restructuring programs, partially offset by lower stock-based compensation expenses. The increase in professional and consulting fees was primarily attributable to specialized organizational programs including related legal fees.

Restructuring Expenses

Restructuring expenses for the three and nine months ended September 30, 2024 were \$0.9 million and \$2.2 million, respectively.

Restructuring expenses for the three months ended September 30, 2024 consisted of \$0.8 million of severance and other personnel costs and less than \$0.1 million of professional fees and consulting costs associated with exit and disposal activities. There were no restructuring expenses for the three months ended September 30, 2023.

Restructuring expenses for the nine months ended September 30, 2024 consisted of \$2.1 million of severance and other personnel costs and \$0.1 million of professional fees and consulting costs associated with exit and disposal activities. There were no restructuring expenses for the nine months ended September 30, 2023.

Impairment Expenses

Impairment expenses for both the three and nine months ended September 30, 2024 were \$0.2 million.

Impairment expenses for both the three and nine months ended September 30, 2024 consisted of \$0.2 million asset write-downs related to laboratory equipment. There were no impairment expenses for the three and nine months ended September 30, 2023.

Grant Income

In the three months ended September 30, 2024, we recorded grant income of \$2.2 million, compared to \$2.9 million in the three months ended September 30, 2023. Income from grants mainly included research incentives. The decrease of \$0.7 million was primarily due to lower income from Austrian research and development incentives as a result of lower eligible research and development expenses, and lower imputed benefits associated with the FFG Loans.

In the nine months ended September 30, 2024, we recorded grant income of \$6.9 million, compared to \$7.5 million in the nine months ended September 30, 2023. Income from grants mainly included research incentives and imputed benefits from below market interest rates on loans from governmental agencies. The decrease of \$0.6 million was primarily due to lower income from Austrian research and development incentives as a result of lower eligible research and development expenses, and lower imputed benefits associated with the FFG Loans.

Interest Income and Expense

Interest income was \$0.8 million and \$3.2 million for the three and nine months ended September 30, 2024, respectively, compared to interest income of \$1.6 million and \$4.1 million for the three and nine months ended September 30, 2023, respectively. The decrease in interest income for the three and nine months ended September 30, 2024 was a result of a lower cash position and by decreasing U.S. dollar and euro interest rates. Interest income represents interest from cash and cash equivalents held in U.S. dollars and euros resulting from the proceeds from the issuance of common stock and convertible preferred stock as well as payments received under our Gilead and Roche collaborations. During the three and nine months ended September 30, 2024 our cash, cash equivalents and restricted cash were mainly held in dollars at U.S. investment grade financial institutions or in money market funds. In addition, smaller amounts were held in euros and dollars at our Austrian subsidiary.

No interest expenses were recorded for the three months ended September 30, 2024, compared to interest expenses for loans from government agencies of less than \$0.1 million for the three months ended September 30, 2023. Interest expenses for loans from government agencies were less than \$0.1 million for the nine months ended September 30, 2024, compared to \$0.3 million for the nine months ended September 30, 2023. Interest expense was recorded at the market rate of interest, which exceeded the contractual interest rate. The decrease of interest expenses was primarily due to the final principal repayment related to the FFG Loans in the second quarter of 2024.

Other Income and Expenses

Other income was \$1.8 million for the three months ended September 30, 2024, compared to other expenses of \$0.8 million for the three months ended September 30, 2023. The change in the three months ended September 30, 2024 resulted primarily from exchange rate differences and foreign currency remeasurements.

Other income was \$1.3 million for the nine months ended September 30, 2024, compared to other expenses of \$1.0 million for the nine months ended September 30, 2023. The change in the nine months ended September 30, 2024 resulted primarily from exchange rate differences and foreign currency remeasurements.

Liquidity and Capital Resources

Since our inception in 2011, we have funded our operations primarily from public offerings and private placements of common stock and convertible preferred stock, including our initial public offering, as well as private placements of our redeemable convertible preferred stock, grant funding and loans from an Austrian government agency, and upfront, milestone and initiation payments from Gilead and Roche in connection with research collaboration agreements.

Prior to our IPO, we raised gross proceeds of approximately \$142.5 million from the issuance of our redeemable convertible preferred stock. In April 2019, we completed our IPO in which we issued and sold 600,000 (6,000,000 before the Reverse Stock Split) shares of our common stock, at \$140.00 per share, for gross proceeds of \$84.0 million, or net proceeds of \$74.6 million. In December 2020, we completed a follow-on public offering in which

we issued 391,000 (3,910,000 before the Reverse Stock Split) shares of our common stock, at \$117.50 per share, and 2,978 shares of our Series A convertible preferred stock, at \$11,750.00 per share, for net proceeds of \$75.0 million after deducting underwriting discounts and commissions and offering expenses. In March 2022, we completed a follow-on public offering in which we issued 2,170,000 (21,700,000 before the Reverse Stock Split) shares of our common stock, at \$20.00 per share, and 15,800 shares of our Series A-1 convertible preferred stock, at \$2,000.00 per share, for net proceeds of \$70.2 million after deducting underwriting discounts and commissions and offering expenses. In June 2023, we completed a follow-on public offering in which we issued 2,290,077 (22,900,768 before the Reverse Stock Split) shares of our common stock, at \$13.10 per share, and 15.268 shares of our Series A-2 convertible preferred stock, at \$1.310.00 per share, for net proceeds of \$46.2 million after deducting underwriting discounts and commissions and offering expenses. In addition, in February 2022, Gilead purchased 166,666 (1,666,666 before the Reverse Stock Split) shares of our common stock for \$5.0 million, at a purchase price of \$30.00 per share, and in December 2023, Gilead purchased 1,500,000 (15,000,000 before the Reverse Stock Split) shares of our common stock, at \$14.167 per share, for net proceeds of approximately \$21.1 million after deducting offering expenses. Pursuant to the terms of the Amended Stock Purchase Agreement, we may require Gilead to purchase the balance of the \$8.75 million of common stock as pro-rata participation in potential future equity raises (see "Note 11. Common stock, Class A common stock and convertible preferred stock" to our consolidated financial statements appearing elsewhere in this Quarterly Report). We also received \$51.2 million from non-refundable upfront, milestone and initiation payments pursuant to the Restated Gilead Collaboration Agreement and \$45.0 million from non-refundable upfront and milestone payments related to the Roche Collaboration Agreement. As of September 30, 2024, we had cash, cash equivalents and restricted cash of \$60.0 million.

On July 12, 2022, we filed a registration statement on Form S-3 (the "Registration Statement"), with the SEC, which was declared effective on July 21, 2022. The Registration Statement registers the offering, issuance and sale of an unspecified amount of common stock, preferred stock, debt securities, warrants and/or units of any combination thereof. We simultaneously entered into a Sales Agreement with Leerink Partners LLC ("Leerink"), as sales agent, to provide for the issuance and sale by us of up to \$50.0 million of common stock from time to time in "at-the-market" offerings under the Registration Statement and related prospectus filed with the Registration Statement ("Leerink ATM Program"). As of June 30, 2024, no sales had been made pursuant to the Leerink ATM Program. On August 5, 2024, we delivered a termination notice to Leerink to terminate the Sales Agreement, effective as of August 8, 2024. At the time of termination, \$50.0 million remained available for issuance pursuant to the Sales Agreement. On August 8, 2024, we entered into an Open Market Sale Agreement With Jefferies LLC, as sales agent, to provide for the issuance and sale by us of up to \$50.0 million of common stock from time to time in "at-the-market" offerings under the Registration Statement and related prospectus filed with the Registration Statement ("Jefferies ATM Program"). As of September 30, 2024, no sales had been made pursuant to the Jefferies ATM Program.

We entered into various funding agreements with the Austrian Research Promotion Agency (Österreichische Forschungsförderungsgesellschaft, or "FFG"). The loans by FFG (the "FFG Loans") were made on a project-by-project basis and bear interest at a rate of 0.75% per annum. In the event that the underlying program research results in a scientific or technical failure, the principal then outstanding under any loan may be forgiven by FFG and converted to non-repayable grant funding on a project-by-project basis. The FFG Loans contained no financial covenants and were not secured by any of our assets. As of September 30, 2024, there is no remaining debt obligation under the FFG loan following the final principal repayment in April 2024.

Because the FFG Loans bear interest at below market rates we account for the imputed benefit arising from the difference between an estimated market rate of interest and the contractual interest rate as grant funding from FFG, which is included in grant income. On the date that FFG Loan proceeds are received, we recognize the portion of the loan proceeds allocated to grant funding as a discount to the carrying value of the loan and as unearned income. As of September 30, 2024, the unamortized debt discount related to FFG Loans was zero due to the final maturity on March 31, 2024 and the final repayment on April 2, 2024.

We have entered into arrangements with contract manufacturing organizations. As of September 30, 2024, we had total non-cancellable obligations under such contracts of \$5.9 million.

We do not expect positive cash flows from operations in the foreseeable future, if at all. Historically, we have incurred operating losses as a result of ongoing efforts to develop our arenavirus technology platform and our product

candidates, including conducting ongoing research and development, preclinical studies, clinical trials, providing general and administrative support for these operations and developing our intellectual property portfolio. We expect to continue to incur net operating losses for at least the next several years as we progress clinical development, seek regulatory approval, prepare for and, if approved, proceed to commercialization of our most advanced oncology product candidate eseba-vec, continue our research and development efforts relating to our other and future product candidates, and invest in our manufacturing capabilities and our own manufacturing facility.

Going Concern

We evaluated whether there are conditions and events, considered in the aggregate, that raise substantial doubt about our ability to continue as a going concern within one year after the date that the condensed consolidated financial statements appearing elsewhere in this Quarterly Report on Form 10-Q are issued. This evaluation initially does not take into consideration the potential mitigating effect of management's plans that have not been fully implemented as of the date the financial statements are issued. When substantial doubt exists under this methodology, management evaluates whether the mitigating effect of its plans sufficiently alleviates substantial doubt about our ability to continue as a going concern. The mitigating effect of management's plans, however, is only considered if both (1) it is probable that the plans will be effectively implemented within one year after the date that the condensed consolidated financial statements are issued, and (2) it is probable that the plans, when implemented, will mitigate the relevant conditions or events that raise substantial doubt about our ability to continue as a going concern within one year after the date that the accompanying condensed consolidated financial statements are issued. In performing its analysis, management excluded certain elements of its operating plan that cannot be considered probable. Under ASC 205-40, the future receipt of potential funding from future partnerships, equity or debt issuances, the potential milestones from the Gilead Collaboration Agreement and potential reductions in force cannot be considered probable at this time because these plans are not entirely within our control and/or have not been approved by the Board of Directors as of the date of the accompanying condensed consolidated financial statements.

Our expectation to generate operating losses and negative operating cash flows in the future and the need for additional funding to support our planned operations raise substantial doubt regarding our ability to continue as a going concern for a period of one year after the date that condensed consolidated financial statements appearing elsewhere in this Quarterly Report on Form 10-Q are issued. Management's plans to alleviate the conditions that raise substantial doubt include reduced spending and the pursuit of additional capital. Management has concluded that the likelihood that its plan to successfully obtain sufficient funding, or adequately reduce expenditures, while reasonably possible, is less than probable. Accordingly, we have concluded that substantial doubt exists about our ability to continue as a going concern for a period of at least 12 months from the date of issuance of the accompanying condensed consolidated financial statements.

The accompanying condensed 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.

Future Funding Requirements

We have no products approved for commercial sale. To date, we have devoted substantially all of our resources to organizing and staffing our company, business planning, raising capital, undertaking preclinical studies and clinical trials of our product candidates. As a result, we are not profitable and have incurred losses in each period since our inception in 2011, except for the first quarter of 2024. As of September 30, 2024, we had an accumulated deficit of \$387.8 million. We expect to continue to incur significant losses for the foreseeable future. Based on our cash and cash equivalents as of September 30, 2024 and our planned operating expenses and capital expenditure requirements, there is substantial doubt regarding our ability to continue as a going concern for a period of one year after the issuance date of

the condensed consolidated financial statements accompanying this Quarterly Report on Form 10-Q. We anticipate that we will require additional funding to:

- pursue the clinical and preclinical development of our current and future product candidates;
- leverage our technologies to advance product candidates into preclinical and clinical development;
- seek regulatory approvals for product candidates that successfully complete clinical trials, if any;
- attract, hire and retain additional clinical, quality control and scientific personnel;
- establish our manufacturing capabilities through third parties or by ourselves and scale-up manufacturing to provide adequate supply for clinical trials and commercialization;
- expand our operational, financial and management systems and increase personnel, including personnel to support our clinical development, manufacturing and commercialization efforts and our operations as a public company;
- expand and protect our intellectual property portfolio;
- establish a sales, marketing, medical affairs and distribution infrastructure to commercialize any products for which we may obtain marketing approval and intend to commercialize on our own or jointly;
- acquire or in-license other product candidates and technologies; and
- incur additional legal, accounting and other expenses in operating our business, including ongoing costs associated with operating as a public company.

Even if we succeed in commercializing one or more of our product candidates, we will continue to incur substantial research and development and other expenditures to develop and market additional product candidates. We may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect our business. The size of our future net losses will depend, in part, on the rate of future growth of our expenses and our ability to generate revenue. Our prior losses and expected future losses have had and will continue to have an adverse effect on our stockholders' equity and working capital.

We will require substantial additional financing and a failure to obtain this necessary capital could force us to delay, limit, reduce or terminate our product development programs, commercialization efforts or other operations.

Since our inception, we have invested a significant portion of our efforts and financial resources in research and development activities for our non-replicating and replicating technologies and our product candidates derived from these technologies. Preclinical studies and clinical trials and additional research and development activities will require substantial funds to complete. We believe that we will continue to expend substantial resources for the foreseeable future in connection with the development of our current product candidates and programs as well as any future product candidates we may choose to pursue, as well as the gradual gaining of control over our required manufacturing capabilities and other corporate uses. These expenditures will include costs associated with conducting preclinical studies and clinical trials, obtaining regulatory approvals, and manufacturing and supply, as well as marketing and selling any products approved for sale. In addition, other unanticipated costs may arise. Because the outcome of any preclinical study or clinical trial is highly uncertain, we cannot reasonably estimate the actual amounts necessary to successfully complete the development and commercialization of our current or future product candidates.

Our future capital requirements depend on many factors, including:

- the scope, progress, results and costs of researching and developing our current and future product candidates and programs, and of conducting preclinical studies and clinical trials;
- the number and development requirements of other product candidates that we may pursue, and other indications for our current product candidates that we may pursue;
- the stability, scale and yields of our future manufacturing process as we scale-up production and formulation of our product candidates for later stages of development and commercialization;
- the timing of, and the costs involved in, obtaining regulatory and marketing approvals and developing our ability to establish sales and marketing capabilities, if any, for our current and future product candidates we develop if clinical trials are successful;
- the success of our collaboration with Gilead;
- our ability to establish and maintain collaborations, strategic licensing or other arrangements and the financial terms of such agreements;
- the cost of commercialization activities for our current and future product candidates that we may develop, whether alone or with a collaborator;
- the costs involved in preparing, filing, prosecuting, maintaining, expanding, defending and enforcing patent claims, including litigation costs and the outcome of such litigation;
- the timing, receipt and amount of sales of, or royalties on, our future products, if any; and
- the emergence of competing oncology and infectious disease therapies and other adverse market developments.

A change in the outcome of any of these or other variables with respect to the development of any of our current and future product candidates could significantly change the costs and timing associated with the development of that product candidate. Furthermore, our operating plans may change in the future, and we will need additional funds to meet operational needs and capital requirements associated with such operating plans.

We do not have any committed external source of funds or other support for our development efforts. Until we can generate sufficient product and royalty revenue to finance our cash requirements, which we may never do, we expect to finance our future cash needs through a combination of public or private equity offerings, debt financings, collaborations, strategic alliances, licensing arrangements and other marketing or distribution arrangements as well as grant funding. Based on our research and development plans, we have concluded that substantial doubt exists that our cash and cash equivalents, including the funds received under the Restated Gilead Collaboration Agreement will enable us to fund our operating expenses and capital expenditure requirements for at least the next 12 months from the issuance date of the condensed consolidated financial statements appearing elsewhere in this Quarterly Report. These estimates are based on assumptions that may prove to be wrong, and we could utilize our available capital resources sooner than we expect.

If we raise additional capital through marketing and distribution arrangements or other collaborations, strategic alliances or licensing arrangements with third parties, we may have to relinquish certain valuable rights to our product candidates, technologies, future revenue streams or research programs or grant licenses on terms that may not be favorable to us. If we raise additional capital through public or private equity offerings, the terms of these securities may include liquidation or other preferences that adversely affect our stockholders' rights. Further, to the extent that we raise additional capital through the sale of common stock or securities convertible or exchangeable into common stock, the ownership interest of our shareholders will be diluted. If we raise additional capital through debt financing, we would be

subject to fixed payment obligations and may be subject to covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. If we are unable to obtain additional funding on favorable terms when needed, we may have to delay, reduce the scope of or terminate one or more of our research and development programs or clinical trials or our other operations.

Cash Flows

The following table sets forth a summary of the primary sources and uses of cash (in thousands):

	Nine months ended September 30,				
		2024		2023	
Net cash used in operating activities	\$	(56,040)	\$	(46,300)	
Net cash used in investing activities		(192)		(3,737)	
Net cash (used in) provided by financing activities		(1,276)		44,421	
Net decrease in cash and cash equivalents		(57,508)		(5,616)	

Cash Used in Operating Activities

During the nine months ended September 30, 2024, cash used in operating activities was \$56.0 million, which consisted of a net loss of \$18.6 million, adjusted by non-cash charges of \$3.4 million and cash used due to changes in our operating assets and liabilities of \$40.8 million. The non-cash charges consisted primarily of depreciation and amortization expense of \$2.1 million, stock-based compensation of \$1.1 million and non-cash impairment charges of \$0.2 million. The change in our operating assets and liabilities was primarily due to a decrease in deferred revenues of \$26.7 million, primarily resulting from the early-recognition of deferred revenues related to the terminated Roche Collaboration Agreement, partially offset by a \$5.0 million milestone payment received under the Gilead Collaboration Agreement, an increase in prepaid expenses and other non-current assets of \$5.9 million, an increase in receivable research incentives of \$5.6 million, a decrease in accounts payable of \$5.1 million, and a decrease in operating lease liabilities of \$1.2 million, partially offset by a decrease in prepaid expenses and other current assets of \$2.2 million, a decrease in accrued expenses and other current liabilities of \$0.9 million, and a decrease in accounts receivable of \$0.6 million.

During the nine months ended September 30, 2023, cash used in operating activities was \$46.3 million, which consisted of a net loss of \$56.8 million, adjusted by non-cash charges of \$4.2 million and cash provided due to changes in our operating assets and liabilities of \$6.3 million. The non-cash charges consisted primarily of depreciation and amortization expense of \$2.3 million and stock-based compensation of \$1.9 million. The change in our operating assets and liabilities was primarily due to a decrease in accounts receivable of \$5.8 million, primarily resulting from the collection of a \$5.0 million milestone payment and cost reimbursements from Gilead, an increase in accounts payable of \$4.1 million, a decrease in prepaid expenses and other current assets of \$3.5 million, an increase in accrued expenses and other current liabilities of \$2.1 million, and an increase in other non-current liabilities of \$0.2 million, partially offset by an increase in receivable research incentives of \$7.2 million, a decrease in deferred revenues of \$1.2 million, a decrease in operating lease liabilities of \$0.8 million, and an increase in other non-current assets of \$0.2 million.

Cash Used in Investing Activities

During the nine months ended September 30, 2024, cash used in investing activities was \$0.2 million. The decrease of \$3.5 million compared to the nine months ended September 30, 2023 resulted from deceased capital expenditures in connection with our GMP manufacturing facility project and lower expenditures for purchase of equipment.

During the nine months ended September 30, 2023, cash used in investing activities was \$3.7 million and resulted primarily from capital expenditures in connection with our GMP manufacturing facility project as well as purchase of equipment.

Cash (Used in) Provided by Financing Activities

During the nine months ended September 30, 2024, cash used in financing activities was \$1.3 million and consisted mainly of a principal repayment of loans of \$1.1 million and costs related to Gilead's purchase of common stock in December 2023.

During the nine months ended September 30, 2023, cash provided by financing activities was \$44.4 million and consisted mainly of net proceeds of \$46.3 million from our follow-on public offering in June 2023, partially offset by principal repayments of loans of \$1.8 million.

Critical Accounting Policies and Estimates

Our management's discussion and analysis of our financial condition and results of operations is based on our condensed consolidated financial statements accompanying this Quarterly Report, which we have prepared in accordance with the rules and regulations of the SEC and generally accepted accounting principles in the United States ("GAAP"). The preparation of these condensed consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements, as well as the reported expenses during the reporting periods. We evaluate our estimates and judgments on an ongoing basis. We base our estimates on historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Our actual results may differ from these estimates under different assumptions or conditions.

Our critical accounting policies and the methodologies and assumptions we apply under them have not materially changed, as compared to those disclosed in "Management's Discussion and Analysis of Financial Condition and Results of Operations - Critical Accounting Policies" in our Annual Report on Form 10-K for the year ended December 31, 2023 filed with the Securities and Exchange Commission ("SEC") on March 22, 2024.

Recently Issued Accounting Pronouncements

A description of recently issued accounting pronouncements that may potentially impact our financial position and results of operations is disclosed in Note 2 to our condensed consolidated financial statements appearing in this Quarterly Report on Form 10-Q.

Emerging Growth Company Status and Smaller Reporting Company

As an "emerging growth company," the Jumpstart Our Business Startups Act of 2012 allows us to delay adoption of new or revised accounting standards applicable to public companies until such standards are made applicable to private companies. However, we have irrevocably elected not to avail ourselves of this extended transition period for complying with new or revised accounting standards and, therefore, we will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

We are also a "smaller reporting company" meaning that the market value of our stock held by non-affiliates is less than \$700 million and our annual revenue was less than \$100 million during our 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 or (ii) our annual revenue was 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. 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 so long as we

remain a smaller reporting company, we are permitted and intend to rely on exemptions from certain disclosure and other requirements that are applicable to other public companies that are not smaller reporting companies.

Item 3. Quantitative and Qualitative Disclosures About Market Risk.

We are exposed to market risk from changes in interest rates, foreign exchange rates and inflation. All of these market risks arise in the ordinary course of business, as we do not engage in speculative trading activities. The following analysis provides additional information regarding these risks.

Foreign Currency and Exchange Risk

We are subject to the risk of fluctuations in foreign currency exchange rates, specifically with respect to the euro. Our functional currency is the U.S. dollar and the functional currency of our wholly owned foreign subsidiary, HOOKIPA Biotech GmbH, is the euro. Our cash, cash equivalents and restricted cash as of September 30, 2024 included small amounts of cash balances held by HOOKIPA Biotech GmbH in euro. Assets and liabilities of HOOKIPA Biotech GmbH are translated into U.S. dollars at the exchange rate in effect on the balance sheet date. Income items and expenses are translated at the average exchange rate in effect during the period. Unrealized translation gains and losses are recorded as a cumulative translation adjustment, which is included in the condensed consolidated Statements of Convertible Preferred Stock and Stockholders' Equity as a component of accumulated other comprehensive loss. Adjustments that arise from exchange rate changes on transactions denominated in a currency other than the local currency are included in other income and expenses, net in the condensed consolidated Statements of Operations and Comprehensive Loss as incurred. A significant portion of our operating costs are in Austria, which are denominated in the euro. This foreign currency exposure gives rise to market risk associated with exchange rate movements of the U.S. dollar against the euro. Furthermore, we anticipate that a significant portion of our expenses will continue to be denominated in the euro. A hypothetical 10% weakening of the U.S. dollar compared to the euro would have increased our net loss for the nine months ended September 30, 2024, by approximately \$1.1 million and increased our currency translation adjustment by approximately \$3.1 million. A hypothetical 10% strengthening of the U.S. dollar compared to the euro would have an equal and opposite effect on our financial statements.

Interest Rate Risk

We are exposed to market risk related to changes in interest rates. We had cash, cash equivalents and restricted cash of \$60.0 million as of September 30, 2024, which included account balances with foreign banks. Interest income is sensitive to changes in the general level of interest rates; however, due to the nature of these investments, we do not believe that we have any material exposure to changes in the fair value of our investment portfolio as a result of changes in interest rates.

Impacts of Inflation

While it is difficult to accurately measure the impact of inflation due to the imprecise nature of the estimates required, we do not believe inflation has had a material effect on our historical results of operations and financial condition. However, inflation, has had, and may continue to have, an impact on the labor costs we incur to attract and retain qualified personnel, costs to conduct clinical trials and other operational costs. If our costs were to become subject to significant inflationary pressures, we may not be able to fully offset higher costs through raising funds or other corrective measures, and our inability or failure to do so could adversely affect our business, financial condition, and results of operations. In addition, increased inflation has had, and may continue to have, an effect on interest rates. Increased interest rates may adversely affect our borrowing rate and our ability to obtain, or the terms under which we can obtain, any potential additional funding.

Item 4. Controls and Procedures.

The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, refers to controls and procedures that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in

the reports that it files or submits under the Exchange Act is accumulated and communicated to the company's management, including its principal executive and principal financial officers, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure.

In designing and evaluating our disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints and that management is required to apply judgment in evaluating the benefits of possible controls and procedures relative to their costs.

Evaluation of Disclosure Controls and Procedures

As of September 30, 2024, management, with the participation of our Principal Executive Officer and Principal Financial Officer, evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act). Our disclosure controls and procedures are designed to ensure that information required to be disclosed in the reports we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including the Principal Executive Officer and the Principal Financial Officer, to allow timely decisions regarding required disclosures.

Any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objective and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on that evaluation, our Principal Executive Officer and Principal Financial Officer concluded that our disclosure controls and procedures were effective at a reasonable assurance level as of September 30, 2024.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting (as defined in Rules 13a 15(f) and 15d 15(f) under the Exchange Act) identified that occurred during the quarter ended September 30, 2024 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II—OTHER INFORMATION

Item 1. Legal Proceedings.

We are not currently a party to any material legal proceedings. From time to time, we may become involved in litigation or legal proceedings relating to claims arising in the ordinary course of business.

Item 1A. Risk Factors.

Our business is subject to risks and events that, if they occur, could adversely affect our financial condition and results of operations and the trading price of our securities. Except as set forth below, there have been no material changes from our risk factors described in "Part I, Item 1A. Risk Factors" of our Annual Report on Form 10-K for the year ended December 31, 2023.

Our strategic refocus and the associated workforce reduction announced in January 2024 and additional workforce reduction implemented in September 2024 may not result in anticipated cost savings, could result in total costs and expenses that are greater than expected and could disrupt our business.

In January 2024, we announced a reduction in workforce by approximately 30% in connection with the strategic refocus of our business to prioritize and focus on our lead assets. The reduction in force was a component of our broader efforts to prioritize the clinical development of our eseba-vec (formerly HB-200) program for the treatment of HPV16+ head and neck cancers and our two Gilead-partnered infectious disease programs and to pause development activities related to HB-300 and most of our preclinical research activities. In September 2024, in connection with this strategic refocus, we implemented an enterprise-wide initiative intended to improve our business through specialized

organizational programs that include targeted cost-savings, which included a further reduction in workforce by approximately 20%. Going forward, we may implement further cost-saving initiatives that could result in additional restructuring charges including severance and other employee charges. We may not realize, in full or in part, the anticipated benefits, savings and improvements in our operating structure from our restructuring efforts due to unforeseen difficulties, delays or unexpected costs. If we are unable to realize the expected operational efficiencies and cost savings from the restructuring, our results of operation and financial condition would be adversely affected. We expect to incur additional costs as we recognize one-time employee termination-related charges. Furthermore, our strategic restructuring plan may be disruptive to our operations. For example, our workforce reductions could yield unanticipated consequences, such as attrition beyond planned staff reductions, increased difficulties in our day-to-day operations and reduced employee morale. If employees who were not affected by the reduction in force seek alternate employment, this could result in us seeking contract support which may result in unplanned additional expense or harm our productivity. Our workforce reductions could also harm our ability to attract and retain qualified management, scientific, and clinical personnel who are critical to our business. Any failure to attract or retain qualified personnel could prevent us from successfully developing our product candidates in the future.

We are highly dependent on our key personnel to grow our business, and if we are not successful in attracting and retaining highly qualified personnel, we may not be able to successfully implement our business strategy.

We are highly dependent on members of our executive team. Although we have formal employment agreements with our executive officers, any of our executive officers could leave our employment at any time, or within a contractual termination period that is too short to find an adequate replacement. We currently do not have "key person" insurance on any of our employees. The loss of the services of our executive officers or other key employees may adversely impact the achievement of our research, development and commercialization objectives and seriously harm our ability to successfully implement our business strategy. Any significant leadership change or senior management transition involves risk, especially nearly simultaneous changes involving senior level leadership positions. For example, on July 22, 2024, Joern Aldag separated as our Chief Executive Officer and Reinhard Kandera separated as our Chief Financial Officer. In addition, on July 22, 2024, Dr. Malte Peters was appointed as our Chief Executive Officer and Terry Coelho was appointed as our Executive Vice President and Chief Financial Officer. Any failure to effectively transition these senior executive leadership changes or to retain Dr. Peters or Ms. Coelho on our executive team could hinder our strategic planning, business execution and future performance.

Recruiting and retaining qualified employees, consultants and advisors for our business, including scientific and technical personnel, also will be critical to our success. We primarily conduct our operations at our facility in Vienna, Austria. This region is headquarters to many other biopharmaceutical companies and many academic and research institutions. Competition for skilled personnel is intense and the turnover rate can be high. We may not be able to attract and retain personnel on acceptable terms given the competition among numerous biotechnology and pharmaceutical companies and academic institutions for skilled individuals. In addition, failure to succeed in preclinical studies, clinical trials or applications for marketing approval may make it more challenging to recruit and retain qualified personnel.

To induce valuable employees to join and remain at our company, in addition to salary and cash incentives, we have provided, and intend to continue to provide, stock options that vest over time. The value of these equity grants that vest over time to our employees may be significantly affected by movements in the fair market value of our capital stock that are beyond our control, and may at any time be insufficient to counteract more lucrative offers from other companies.

Moreover, many of our employees have become or will soon become vested in a substantial amount of our common stock or a number of common stock options. Our employees may be more likely to leave us if the shares they own have significantly appreciated in value relative to the original purchase prices of the shares, or if the exercise prices of the options that they hold are significantly below the market price of our common stock.

Accordingly, our future success depends on our ability to continue to attract and retain current and additional executive officers and other key employees. The inability to recruit, or the loss of services of certain executives, key employees, consultants or advisors, may impede the progress of our research, development and commercialization objectives and have a material adverse effect on our business, financial condition, results of operations and prospects.

There is substantial doubt regarding our ability to continue as a going concern. We will need to raise substantial additional funding, which may not be available on acceptable terms, if at all, to be able to continue as a going concern and advance any our product candidates. Failure to obtain capital when needed may force us to delay, limit or terminate our product development efforts or other operations. Raising additional capital may dilute our existing shareholders, restrict our operations or cause us to relinquish valuable rights.

There is substantial doubt regarding our ability to continue as a going concern. Our continued existence is dependent upon our ability to obtain additional capital. As of December 31, 2023, and September 30, 2024, we had cash, cash equivalents and restricted cash of approximately \$117.5 million and \$60.0 million, respectively. Our management believes that such cash, cash equivalents and restricted cash will not be sufficient to fund our operating expenses and capital requirements for one year after the date that the financial statements are issued, whether or not we curtail efforts with respect to certain of our product candidates. We will require significant additional funding to advance any of our product candidates beyond the short term.

We are seeking funds through collaborations, strategic alliances, or licensing arrangements with third parties, and such agreements may impact rights to our product candidates or technologies, future revenue streams, research programs or products candidates or to grant licenses on terms that may not be favorable to us. Such arrangements will limit our participation in the success of any of our product candidates that receive regulatory approval.

We may also seek to raise such capital through public or private equity, royalty financing or debt financing. Raising funds in the current economic environment is challenging and financing may not be available in sufficient amounts or on acceptable terms, if at all. The issuance of additional securities, whether equity or debt, or the possibility of such issuance, may cause the market price of our shares to decline. The sale of additional equity or convertible securities may dilute the ownership of existing shareholders. Incurring debt would result in increased fixed payment obligations, and we may agree to restrictive covenants, such as limitations on our ability to incur additional debt or limitations on our ability to acquire, sell or license intellectual property rights that could impede our ability to conduct our business.

Item 5. Other Information.

During the three months ended September 30, 2024, none of the Company's directors or officers (as defined in Rule 16a-1(f) of the Securities Exchange Act) adopted, terminated or modified a Rule 10b5-1 trading arrangement or non-Rule 10b5-1 trading arrangement (as such terms are defined in Item 408 of Regulation S-K).

Item 6. Exhibits.

The exhibits listed on the Exhibit Index immediately preceding such exhibits, which is incorporated herein by reference, are filed or furnished as part of this Quarterly Report on Form 10-Q.

Exhibit Number	Description
1.1	Open Market Sale Agreement SM between Jefferies LLC and the Company, dated August 8, 2024 (filed as Exhibit 1.1 to the Company's Quarterly Report on Form 10-Q filed on August 8, 2024 (File No. 001-38869) and incorporated herein by reference)
3.1	Amended and Restated Certificate of Incorporation of the Company (filed as Exhibit 3.1 to the Company's Annual Report on Form 10-K filed on March 24, 2022 (File No. 001-38869) and incorporated herein by reference)
3.1.1	Certificate of Amendment of the Amended and Restated Certificate of Incorporation of the Company (filed as Exhibit 3.1 to the Company's Current Report on Form 8-K filed on July 1, 2022 (File No. 001-38869) and incorporated herein by reference)
3.1.2	Certificate of Designation of Preferences, Rights and Limitations of the Series A Preferred Stock of the Company (filed as Exhibit 3.1 to the Company's Current Report on Form 8-K filed on December 11, 2020 (File No. 001-38869) and incorporated herein by reference)
3.1.3	Certificate of Designation of Preferences, Rights and Limitations of the Series A-1 Preferred Stock of the Company (filed as Exhibit 3.1 to the Company's Current Report on Form 8-K filed on March 3, 2022 (File No. 001-38869) and incorporated herein by reference)
3.1.4	Certificate of Designation of Preferences, Rights and Limitations of the Series A-2 Preferred Stock of the Company (filed as Exhibit 3.1 to the Company's Current Report on Form 8-K filed on June 2, 2023 (File No. 001-38869) and incorporated herein by reference)
3.1.5	Certificate of Amendment of Amended and Restated Certificate of Incorporation of the Company (filed as Exhibit 3.1 to the Company's Current Report on Form 8-K filed on June 18, 2024 (File No. 001-38869) and incorporated herein by reference)
3.1.6	Certificate of Amendment of Amended and Restated Certificate of Incorporation of the Company (filed as Exhibit 3.1 to the Company's Current Report on Form 8-K filed on July 10, 2024 (File No. 001-38869) and incorporated herein by reference)
3.2	Amended and Restated Bylaws of the Company (filed as Exhibit 3.2 to the Company's Current Report on Form 8-K filed on April 23, 2019 (File No. 001-38869) and incorporated herein by reference)
10.1#	Employment Agreement between Dr. Malte Peters and HOOKIPA Biotech GmbH, dated July 22, 2024 (filed as Exhibit 10.1 to the Company's Current Report on Form 8-K filed on July 26, 2024 (File No. 001-38869) and incorporated herein by reference)
10.2#	Employment Agreement between Terry Coelho and the Company, dated July 22, 2024 (filed as Exhibit 10.2 to the Company's Current Report on Form 8-K filed on July 26, 2024 (File No. 001-38869) and incorporated herein by reference)
31.1*	Certificate of Principal Executive Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2*	Certificate of Principal Financial Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

32.1**	Certificate of Principal Executive Officer and Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes Oxley Act of 2002
101.INS*	Inline XBRL Instance Document
101.SCH*	Inline XBRL Taxonomy Extension Schema Document
101.CAL*	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF*	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB*	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE*	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104*	Cover Page Interactive Data File (formatted as inline XBRL with applicable taxonomy extension information contained in Exhibits 101)

^{*} Filed herewith.

SIGNATURES

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

HOOKIPA Pharma Inc.

Date: November 14, 2024 By:/s/ Malte Peters

Malte Peters

Chief Executive Officer (Principal Executive Officer)

By:/s/ Terry Coelho

Terry Coelho

Executive Vice President and Chief Financial Officer (Principal Financial Officer)

^{**} The certification furnished in Exhibit 32.1 hereto is deemed to accompany this Quarterly Report on Form 10-Q and will not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liability of that section. Such certification will not be deemed to be incorporated by reference into any filings under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, except to the extent that the Registrant specifically incorporates it by reference.

[#] Indicates a management contract or compensatory plan or arrangement.

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER PURSUANT TO RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

- I, Malte Peters, certify that:
- 1. I have reviewed this Quarterly Report on Form 10-Q of HOOKIPA Pharma Inc.;
- 2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
- 3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
- 4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
- a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
- b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
- c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
- d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report), that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
- 5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
- a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
- b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Dated: November 14, 2024 /s/ Malte Peters

Malte Peters Chief Executive Officer (Principal Executive Officer)

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER PURSUANT TO RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

- I, Terry Coelho, certify that:
- 1. I have reviewed this Quarterly Report on Form 10-Q of HOOKIPA Pharma Inc.;
- 2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
- 3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
- 4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
- a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
- b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
- c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
- d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report), that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
- 5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
- a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
- b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Dated: November 14, 2024 /s/ Terry Coelho

Terry Coelho Executive Vice President and Chief Financial Officer (Principal Financial Officer)

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 HOOKIPA Pharma 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"), each of the undersigned officers hereby certifies, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to the best of their knowledge:

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

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

Dated: November 14, 2024 /s/ Malte Peters

Malte Peters

Chief Executive Officer (Principal Executive Officer)

Dated: November 14, 2024 /s/ Terry Coelho

Terry Coelho

Executive Vice President and Chief Financial Officer

(Principal Financial Officer)