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

FORM 8-K

CURRENT REPORT
Pursuant to Section 13 or 15(d)
of the Securities Exchange Act of 1934

Date of report (Date of earliest event reported): February 5, 2024

Invivyd, Inc.

(Exact Name of Registrant as Specified in Its Charter)

Delaware	**001-40703**	**85-1403134**
(State or Other Jurisdiction of Incorporation)	**(Commission File Number)**	**(IRS Employer Identification No.)**

1601 Trapelo Road **Suite 178** **Waltham, Massachusetts** **(Address of Principal Executive Offices)**	**02451** **(Zip Code)**

Registrant's telephone number, including area code: 781 819-0080

Not applicable
(Former Name or Former Address, if Changed Since Last Report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common stock, par value $0.0001 per share	IVVD	The Nasdaq Stock Market LLC

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§ 230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§ 240.12b-2 of this chapter).

Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Item 5.02. Departure of Directors or Certain Officers; Election of Directors; Appointment of Certain Officers; Compensatory Arrangements of Certain Officers.

(b) On February 5, 2024, Tomas Heyman, a member of the Board of Directors of Invivyd, Inc. (the "Company"), informed the Company of his decision not to stand for re-election when his term expires at the Company's 2024 annual meeting of stockholders.

Item 8.01 Other Events.

In connection with the issuance of the consent by the Company's independent registered public accounting firm as part of the Company's filing of a registration statement on Form S-3, the Company is refiling herewith as Exhibit 99.1 its consolidated financial statements that were previously included in its Annual Report on Form 10-K for the year ended December 31, 2022, filed with the Securities and Exchange Commission (the "SEC") on March 23, 2023 (the "Form 10-K"), and the related report of the Company's independent registered public accounting firm.

The consolidated financial statements filed herewith as Exhibit 99.1 are identical to those included in the Form 10-K, other than an update to Note 1 to the consolidated financial statements to disclose that, due to circumstances arising after the filing of the Form 10-K, there is now substantial doubt about the Company's ability to continue as a going concern. The report of the Company's independent registered public accounting firm included in Exhibit 99.1 also includes an explanatory paragraph noting the conclusion regarding substantial doubt about the Company's ability to continue as a going concern. Other than as described in the preceding sentences, Exhibit 99.1 does not revise, modify, update or otherwise affect the Form 10-K, including the consolidated financial statements.

As described in the update to Note 1 to the consolidated financial statements included in Exhibit 99.1, subsequent to the original issuance of the consolidated financial statements for the year ended December 31, 2022 in the Form 10-K, the Company continued to spend according to its operating plan in 2023. Based on current operating plans and excluding any contribution from revenues or external financing, the Company believes that its existing cash and cash equivalents will be sufficient to fund its operating expenses and capital expenditure requirements into the fourth quarter of 2024. As such, excluding any contribution from revenues or external financing, the Company will not have sufficient cash and cash equivalents to fund its operating expenses and capital requirements beyond one year from the reissuance of the consolidated financial statements filed herewith as Exhibit 99.1, in connection with the Company's filing of a registration statement on Form S-3 on February 9, 2024, and therefore, the Company has concluded that there is substantial doubt about its ability to continue as a going concern.

This Current Report on Form 8-K (this "Form 8-K") is being filed only for the purposes described above, and all other information in the Form 10-K remains unchanged. In order to preserve the nature and character of the disclosures set forth in the Form 10-K, the items included in Exhibit 99.1 of this Form 8-K have been updated solely for the matters described above. No attempt has been made in this Form 8-K to reflect events or occurrences after the date of the filing of the Form 10-K, and it should not be read to modify or update other disclosures as presented in the Form 10-K. As a result, this Form 8-K should be read in conjunction with the Form 10-K and the Company's filings made with the SEC subsequent to the filing of the Form 10-K.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits.

Exhibit Number	Description
23.1	Consent of PricewaterhouseCoopers LLP, Independent Registered Public Accounting Firm
99.1	Financial Statements and Supplementary Data
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

SIGNATURES

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

INVIVYD, INC.

Date: February 9, 2024

By: /s/ William Duke, Jr.

William Duke, Jr.
Chief Financial Officer
(Principal Financial and Principal Accounting Officer)

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-3 (No. 333-267643) and Form S-8 (Nos. 333-259008 and 333-264920) of Invivyd, Inc. of our report dated March 23, 2023, except with respect to the matters that raise substantial doubt about the Company's ability to continue as a going concern discussed in Note 1, as to which the date is February 9, 2024, relating to the financial statements, which appears in this Current Report on Form 8-K.

/s/ PricewaterhouseCoopers LLP
Boston, Massachusetts
February 9, 2024

Exhibit 99.1

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of Invivyd, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Invivyd, Inc. and its subsidiaries (the "Company") as of December 31, 2022 and 2021, and the related consolidated statements of operations and comprehensive loss, of convertible preferred stock and stockholders' equity (deficit) and of cash flows for the years then ended, including the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, and the results of its operations and its cash flows for the years then ended in conformity with accounting principles generally accepted in the United States of America.

Substantial Doubt about the Company's Ability to Continue as a Going Concern

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the consolidated financial statements, the Company has incurred recurring losses from operations since inception and will require additional funding to finance its future operations. These conditions raise substantial doubt about its ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 1. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits of these consolidated financial statements in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ PricewaterhouseCoopers LLP
Boston, Massachusetts

March 23, 2023, except with respect to the matters that raise substantial doubt about the Company's ability to continue as a going concern discussed in Note 1, as to which the date is February 9, 2024

We have served as the Company's auditor since 2021.

INVIVYD, INC.

CONSOLIDATED BALANCE SHEETS

(In thousands, except share and per share amounts)

	December 31,	
	2022	2021
Assets		
Current assets:		
Cash and cash equivalents	$ 92,076	$ 542,224
Marketable securities	279,915	49,194
Prepaid expenses and other current assets	4,926	25,293
Total current assets	376,917	616,711
Property and equipment, net	2,282	83
Operating lease right-of-use assets	3,777	—
Other non-current assets	191	3,297
Total assets	$ 383,167	$ 620,091
Liabilities, Convertible Preferred Stock and Stockholders' Equity (Deficit)		
Current liabilities:		
Accounts payable	$ 1,517	$ 5,783
Accrued expenses	21,911	56,277
Operating lease liabilities, current	1,559	—
Other current liabilities	44	—
Total current liabilities	25,031	62,060
Operating lease liabilities, non-current	2,165	—
Early-exercise liability	1	6
Other non-current liability	—	6
Total liabilities	27,197	62,072
Commitments and contingencies (Note 9)		
Stockholders' equity (deficit):		
Preferred stock (undesignated), $0.0001 par value; 10,000,000 shares authorized and no shares issued and outstanding at December 31, 2022 and December 31, 2021	—	—
Common stock, $0.0001 par value; 1,000,000,000 shares authorized, 109,044,046 shares issued and outstanding at December 31, 2022; 1,000,000,000 shares authorized, 111,251,660 shares issued and 110,782,909 shares outstanding at December 31, 2021	11	11
Treasury stock, at cost; 0 shares and 468,751 shares at December 31, 2022 and December 31, 2021, respectively	—	—
Additional paid-in capital	889,657	850,125
Accumulated other comprehensive income (loss)	(272)	(8)
Accumulated deficit	(533,426)	(292,109)
Total stockholders' equity	355,970	558,019
Total liabilities, convertible preferred stock and stockholders' equity	$ 383,167	$ 620,091

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

INVIVYD, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS

(In thousands, except share and per share amounts)

	Year Ended December 31,	
	2022	2021
Operating expenses:		
Research and development[1]	$ 179,214	$ 182,891
Acquired in-process research and development[2]	4,400	7,500
Selling, general and administrative	47,044	36,517
Warrant expense[3]	17,373	—
Total operating expenses	248,031	226,908
Loss from operations	(248,031)	(226,908)
Other income (expense):		
Other income (expense), net	6,714	118
Total other income (expense), net	6,714	118
Net loss	(241,317)	(226,790)
Other comprehensive loss:		
Unrealized loss on available-for-sale securities, net of tax	(264)	(8)
Comprehensive loss	$ (241,581)	$ (226,798)
Net loss per share attributable to common stockholders, basic and diluted	$ (2.23)	$ (5.32)
Weighted-average common shares outstanding, basic and diluted	108,268,289	42,621,265

(1) Includes related-party amounts of $8,154 and $4,150 for the years ended December 31, 2022 and 2021, respectively (see Notes 7 and 8).
(2) Includes related-party amounts of $4,400 and $7,500 for the years ended December 31, 2022 and 2021, respectively (see Note 7).
(3) Includes related-party amounts of $17,373 and $0 for the years ended December 31, 2022 and 2021, respectively (see Note 8).

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

INVIVYD, INC.

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

(In thousands, except share amounts)

	Convertible Preferred Stock		Common Stock		Treasury Stock		Additional Paid-in	Accumulated Other Comprehensive	Accumulated	Total Stockholders'
	Shares	Amount	Shares	Amount	Shares	Amount	Capital	Loss	Deficit	Equity (Deficit)
Balances at December 31, 2021	—	—	110,782,909	11	468,751	—	850,125	(8)	(292,109)	558,019
Issuance of warrants for common stock	—	—	—	—	—	—	17,373	—	—	17,373
Exercise of stock options	—	—	298,353	—	—	—	241	—	—	241
Repurchase of unvested restricted common stock	—	—	(2,150,737)	—	2,150,737	—	—	—	—	—
Retirement of treasury stock	—	—	—	—	(2,619,488)	—	—	—	—	—
Stock-based compensation expense	—	—	—	—	—	—	21,648	—	—	21,648
Issuance of common stock under the employee stock purchase plan	—	—	113,521	—	—	—	269	—	—	269
Vesting of restricted common stock from early-exercised options	—	—	—	—	—	—	1	—	—	1
Unrealized loss on available-for-sale securities, net of tax	—	—	—	—	—	—	—	(264)	—	(264)
Net loss	—	—	—	—	—	—	—	—	(241,317)	(241,317)
Balances at December 31, 2022	—	$ —	109,044,046	$ 11	—	$ —	$ 889,657	$ (272)	$ (533,426)	$ 355,970

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

INVIVYD, INC.

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

(In thousands, except share amounts)

	Convertible Preferred Stock		Common Stock		Treasury Stock		Additional Paid-in	Accumulated Other Comprehensive	Accumulated	Total Stockholders'
	Shares	Amount	Shares	Amount	Shares	Amount	Capital	Loss	Deficit	Equity (Deficit)
Balances at December 31, 2020	12,647,934	$ 169,548	5,593,240	$ 1	22,600,000	$ (85)	$ 154	$ —	$ (65,319)	$ (65,249)
Issuance of Series C convertible preferred stock, net of issuance costs of $337	4,296,550	335,163	—	—	—	—	—	—	—	—
Issuance of common stock	—	—	6,000	—	—	—	66	—	—	66
Issuance of common stock upon completion of initial public offering, net of commissions, underwriting discounts and offering costs	—	—	20,930,000	2	—	—	327,518	—	—	327,520
Conversion of convertible preferred stock to common stock	(16,944,484)	(504,711)	84,722,420	8	—	—	504,703	—	—	504,711
Retirement of treasury stock	—	—	—	—	(22,600,000)	$ 85	(85)	—	—	—
Vesting of restricted common stock from early-exercised options	—	—	—	—	—	—	5	—	—	5
Repurchase of unvested restricted common stock	—	—	(468,751)	—	468,751	—	—	—	—	—
Stock-based compensation expense	—	—	—	—	—	—	17,764	—	—	17,764
Unrealized loss on available-for-sale securities, net of tax	—	—	—	—	—	—	—	(8)	—	(8)
Net loss	—	—	—	—	—	—	—	—	(226,790)	(226,790)
Balances at December 31, 2021	—	$ —	110,782,909	$ 11	468,751	$ —	$ 850,125	$ (8)	$ (292,109)	$ 558,019

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

INVIVYD, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS

(In thousands)

	Year Ended December 31,	
	2022	**2021**
Cash flows from operating activities:		
Net loss	$ (241,317)	$ (226,790)
Adjustments to reconcile net loss to net cash used in operating activities:		—
Stock-based compensation expense	21,648	17,764
Warrant expense	17,373	—
Net amortization of premiums and accretion of discounts on marketable securities	(2,023)	1,430
Amortization of operating lease right-of-use assets	421	—
Non-cash payments	—	66
Depreciation expense	41	1
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	20,367	(22,899)
Other non-current assets	3,106	(3,297)
Accounts payable	(4,300)	(2,370)
Accrued expenses	(34,867)	51,358
Operating lease liabilities	(475)	—
Other current liabilities	44	—
Other non-current liabilities	(5)	1
Net cash used in operating activities	(219,987)	(184,736)
Cash flows from investing activities:		
Purchases of marketable securities	(297,962)	(188,627)
Maturities of marketable securities	69,000	138,000
Purchases of property and equipment	(1,705)	(84)
Net cash used in investing activities	(230,667)	(50,711)
Cash flows from financing activities:		
Proceeds from issuance of convertible preferred stock, net of issuance costs	—	335,163
Proceeds from issuance of common stock, net of commissions and underwriting discounts	—	330,905
Payments of initial public offering costs	—	(3,385)
Proceeds from exercises of stock options	241	—
Proceeds from issuance of common stock under the employee stock purchase plan	269	—
Payments for repurchases of unvested restricted common stock	(4)	—
Net cash provided by financing activities	506	662,683
Net (decrease) increase in cash and cash equivalents	(450,148)	427,236
Cash and cash equivalents at beginning of period	542,224	114,988
Cash and cash equivalents at end of period	$ 92,076	$ 542,224
Supplemental disclosure of cash flow information:		
Operating lease right-of-use asset recognized upon adoption of ASC 842	$ 1,728	$ —
Operating lease right-of-use asset recognized under ASC 842	$ 2,470	$ —
Supplemental disclosure of non-cash investing activities:		
Purchases of property and equipment in accounts payable and accrued expenses	$ 535	$ —

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

1. Nature of the Business and Basis of Presentation

Invivyd, Inc., (formerly Adagio Therapeutics, Inc.) together with its consolidated subsidiaries (the "Company"), is a biopharmaceutical company on a mission to rapidly and perpetually deliver antibody-based therapies that protect vulnerable people from the devastating consequences of circulating viral threats, beginning with SARS-CoV-2 ("COVID-19"). The Company's technology works at the intersection of evolutionary virology, predictive modeling, and antibody engineering, and is designed to identify high-quality, long-lasting antibodies with a high barrier to viral escape. The Company is generating a robust pipeline of product candidates which could be used in prevention or treatment of serious viral diseases, starting with COVID-19 and expanding into influenza and other high-need indications.

In March 2023, the Company announced the election of VYD222 to advance into the clinic as a monoclonal antibody ("mAb") therapeutic option for COVID-19 with a focus on serving vulnerable populations. The Company aims to leverage evolving COVID-19 regulatory paradigms and maximize efficiency to deliver this much-needed product for immunocompromised individuals and other vulnerable populations.

VYD222 is one of two mAb components of NVD200, a combination mAb product candidate that the Company previously selected for clinical advancement prior to evolution in the current global COVID-19 regulatory paradigm. The Company is prioritizing the clinical development of VYD222 instead of NVD200 with the aim of providing patients with a therapeutic option for COVID-19 as quickly and efficiently as possible. VYD222 was engineered from adintrevimab, the Company's investigational mAb that has a robust safety data package and demonstrated clinically meaningful results in global Phase 3 clinical trials for both the prevention and treatment of COVID-19.

Beyond VYD222, the Company continues to leverage its expanded lab capabilities and integrated discovery platform to produce additional candidates that will be optimized to stay ahead of the evolving SARS-CoV-2 virus. In addition, the Company continues to work with regulatory agencies to streamline the development and commercialization plans for novel antibodies to protect immunocompromised and other high-risk populations against the evolving SARS-CoV-2 virus.

The Company was incorporated in the State of Delaware in June 2020. The Company operates as a virtual company and maintains a corporate headquarters for general and administrative purposes only. In June 2022, and subsequently amended in September 2022, the Company entered into a lease for dedicated laboratory and office space in Newton, MA for research and development purposes. The Company performs research and development activities internally and engages third parties, including Adimab, LLC ("Adimab"), to perform ongoing research and development and other services on its behalf.

The Company is subject to a number of risks and uncertainties common to early-stage companies in the biopharmaceutical industry, including, but not limited to, completing clinical trials, the ability to raise additional capital to fund operations, obtaining regulatory approval for product candidates, market acceptance of products, competition from substitute products, protection of proprietary intellectual property, compliance with government regulations, the impact of COVID-19, dependence on key personnel, the ability to attract and retain qualified employees, and reliance on third-party organizations for the discovery, manufacturing, clinical and commercial success of its product candidates.

In July 2021, the Company effected a five-for-one stock split of its issued and outstanding shares of common stock and a proportional adjustment to the existing conversion ratios of each series of the Company's preferred stock (see Note 10). Accordingly, all share and per share amounts for all periods presented in the accompanying condensed consolidated financial statements and notes thereto have been adjusted retroactively, where applicable, to reflect this stock split and adjustment of the preferred stock conversion ratios.

In August 2021, the Company completed its initial public offering ("IPO") pursuant to which it issued and sold 20,930,000 shares of its common stock, including 2,730,000 shares pursuant to the full exercise of the underwriters' option to purchase additional shares. The aggregate net proceeds received by the Company from the IPO were approximately $327.5 million, after deducting underwriting discounts and commissions and offering expenses payable by the Company. Upon the closing of the IPO, all shares of the Company's convertible preferred stock then outstanding converted into 84,722,420 shares of common stock (see Note 11).

The Company has not generated any revenue since inception. The Company's product candidates require significant additional research and development efforts, including extensive clinical testing and regulatory approval prior to commercialization. These efforts require significant amounts of additional capital, adequate personnel and infrastructure and compliance-reporting capabilities. Even if the Company's development efforts are successful, it is uncertain when, if ever, the Company will generate revenue from product sales, including government supply contracts.

Substantial Doubt about Ability to Continue as a Going Concern

The accompanying consolidated financial statements have been prepared on the basis of continuity of operations, realization of assets, and the satisfaction of liabilities and commitments in the ordinary course of business. The Company has primarily funded its operations with proceeds from sales of convertible preferred stock and proceeds from the Company's initial public offering of common stock. The Company has incurred losses and negative cash flows from operations since its inception, including a net loss of $241.3 million for the year ended December 31, 2022. As of December 31, 2022, the Company had an accumulated deficit of $533.4 million. The Company expects to continue to generate operating losses for the foreseeable future.

Subsequent to the original issuance of the consolidated financial statements for the year ended December 31, 2022, the Company continued to spend according to its operating plan in 2023. Based on current operating plans and excluding any contribution from revenues or external financing, the Company believes that its existing cash and cash equivalents will be sufficient to fund its operating expenses and capital expenditure requirements into the fourth quarter of 2024. As such, excluding any contribution from revenues or external financing, the Company will not have sufficient cash and cash equivalents to fund its operating expenses and capital requirements beyond one year from the reissuance of these consolidated financial statements on February 9, 2024, and therefore, the Company has concluded that there is substantial doubt about its ability to continue as a going concern.

The Company will require additional funding through a combination of contribution from revenues, equity offerings, government or private-party grants, debt financings or other capital sources, including collaborations with other companies, strategic alliances and licensing arrangements to finance its future operations. The Company may not be able to obtain financing on acceptable terms, or at all, and the Company may not be able to enter into collaborations or other arrangements. The terms of any financing may adversely affect the holdings or rights of the Company's stockholders.

If the Company is unable to obtain sufficient capital, the Company will be forced to delay, reduce or eliminate some or all of its research and development programs, product portfolio expansion or future commercialization efforts, which could adversely affect its business prospects, or the Company may be unable to continue operations. Although management continues to pursue these plans, there is no assurance that the Company will be successful in obtaining sufficient funding on terms acceptable to the Company to fund continuing operations, if at all.

Impact of COVID-19 on Our Operations

The full impact of the COVID-19 pandemic and the disease continues to evolve and change as of the date of this Annual Report on Form 10-K, and such impact will directly affect the potential commercial prospects of VYD222 and other product candidates for the prevention and treatment of COVID-19. The severity of the COVID-19 pandemic, the evolution of the disease and the continued emergence of variants of concern ("VoCs"), the availability, administration and acceptance of vaccines, monoclonal antibodies, antiviral agents and other therapeutic modalities, vaccine mandates by employers and/or local or national governments, and the potential development of "herd immunity" by the global population will affect the design and enrollment of the Company's clinical trials, the potential regulatory authorization or approval of the Company's product candidates and the commercialization of the Company's product candidates, if approved.

Similarly, it is not possible to determine the scale and rate of economic recovery from the pandemic, supply chain disruptions, and labor availability and costs, or the impact of other indirect factors that may be attributable to the pandemic. The ultimate extent of the impact of the COVID-19 pandemic on the Company's business, financial condition, operations and product development timelines and plans remains uncertain and will depend on future developments, including the duration and spread of outbreaks and the continued emergence of variants, its impact on the Company's clinical trial design and enrollment, trial sites, contract research organizations ("CROs"), contract development and manufacturing organizations ("CDMOs"), and other third parties with which the Company does business, as well as its impact on regulatory authorities and the Company's key scientific and management personnel. To date, the Company has experienced some delays and disruptions in its development activities as a result of the COVID-19 pandemic. Some of the Company's CROs, CDMOs and other service providers also continue to be impacted. The Company will continue to monitor developments as it addresses the disruptions, delays and uncertainties relating to the COVID-19 pandemic. If the financial markets and/or the overall economy are impacted for an extended period, the Company's results and operations may be materially adversely affected and may affect the Company's ability to raise capital.

Basis of Presentation

The accompanying consolidated financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America ("GAAP"). Any reference in these notes to applicable guidance is meant to refer to the authoritative GAAP as found in the Accounting Standards Codification ("ASC") and Accounting Standards Update ("ASU") of the Financial Accounting Standards Board ("FASB").

The accompanying consolidated financial statements include the accounts of Invivyd, Inc. and its wholly owned subsidiaries, Invivyd Security Corporation, Invivyd Switzerland GmbH, and Invivyd Netherlands B.V. All intercompany accounts and transactions have been eliminated in consolidation. The Company views its operations and manages its business in one operating segment, which is the business of discovering, developing and commercializing differentiated products for the prevention and treatment of infectious diseases.

2. Summary of Significant Accounting Policies

Use of Estimates

The preparation of the Company's consolidated 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 consolidated financial statements, and the reported amounts of expenses during the reporting periods. Significant estimates and assumptions reflected in these consolidated financial statements include, but are not limited to, research and development expenses and related prepaid or accrued costs, stock-based compensation expense and warrant expense. The Company bases its estimates on historical experience, known trends and other market-specific or relevant factors 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. Changes in estimates are recorded in the period in which they become known. Actual results may differ materially from those estimates or assumptions.

The Company is monitoring the potential impact of the COVID-19 pandemic on its business and consolidated financial statements. The Company is not aware of any specific event or circumstance that would require any update to its estimates or judgments reflected in these consolidated financial statements or a revision of the carrying value of its assets or liabilities as of the issuance date of these consolidated financial statements. These estimates may change as new events occur and additional information is obtained.

Concentrations of Credit Risk, Significant Suppliers and License Rights

Financial instruments that potentially expose the Company to concentrations of credit risk consist of cash, cash equivalents and marketable securities. The Company invests its excess cash in money market funds and marketable securities that are subject to minimal credit and market risks. The Company maintains its cash, cash equivalents and marketable securities at two accredited financial institutions that it believes are creditworthy. From time to time, these deposits may exceed federally insured limits. The Company has not experienced any losses historically in these accounts. Accordingly, the Company does not believe it is exposed to unusual credit risk related to its cash, cash equivalents and marketable securities beyond the normal credit risk associated with commercial banking relationships.

The Company is dependent on third-party organizations to manufacture and process its product candidates for its development programs. In particular, the Company relies on a single third-party contract manufacturer to produce and process its product candidates and to manufacture supply of its product candidates for preclinical and clinical activities (see Note 9). The Company also currently relies on this same third-party contract manufacturer for any anticipated requirements of commercial supply, including both drug substance and drug product. The Company expects to continue to be dependent on a small number of manufacturers to supply it with its requirements for all products. The Company's research and development programs, including any associated potential commercialization efforts, could be adversely affected by a significant interruption in the supply of the necessary materials.

The Company is dependent on a limited number of third parties that provide license rights used by the Company in the development and potential commercialization of its product candidates and programs. Through December 31, 2022, the Company's research and development programs primarily relate to rights conveyed by Adimab (see Note 7). The Company could experience delays in the development and potential commercialization of its product candidates and programs if the Adimab agreements or any other license agreement utilized in the Company's research and development activities is terminated, if the Company fails to meet the obligations required under its arrangements, or if the Company is unable to successfully secure new strategic alliances or licensing agreements.

Cash Equivalents

The Company considers all highly liquid investments with original maturities of three months or less at the acquisition date to be cash equivalents.

Marketable Securities

Marketable securities represent holdings of available-for-sale marketable debt securities in accordance with the Company's investment policy. The Company determines the appropriate classification of marketable securities at the time of purchase and reevaluates such designation at each balance sheet date. The Company classified all of its marketable securities at December 31, 2022 as "available-for-sale" pursuant to ASC320, Investments – Debt and Equity Securities. Investments not classified as cash equivalents are presented as either short-term or long-term investments based on both their maturities as well as the time period the Company intends to hold such securities. Available-for-sale securities are maintained by an investment manager and consist of U.S. Treasury securities and federal agency securities. Available-for-sale securities are carried at fair value with the unrealized gains and losses included in other comprehensive income (loss) as a component of stockholders' equity (deficit) until realized. Any premium or discount arising at purchase is amortized or accreted to interest expense or income over the life of the instrument. Realized gains and losses are determined using the specific identification method and are included in other income (expense). There were no material realized gains or losses on marketable securities recognized for the year ended December 31, 2022.

The Company reviews marketable securities for other-than-temporary impairment whenever the fair value of a marketable security is less than the amortized cost and evidence indicates that a marketable security's carrying amount is not recoverable within a reasonable period of time. Other-than-temporary impairments of investments are recognized in the consolidated statements of operations and comprehensive loss if the Company has experienced a credit loss, has the intent to sell the marketable security, or if it is more likely than not that the Company will be required to sell the marketable security before recovery of the amortized cost basis. Evidence considered in this assessment includes reasons for the impairment, compliance with the Company's investment policy, the severity and duration of the impairment and changes in value subsequent to the end of the period. There were no other-than-temporary impairments of investments recognized for the years ended December 31, 2022 or 2021.

Fair Value Measurements

Certain assets of the Company are carried at fair value under GAAP. Fair value is defined as the exchange price that would be received for an asset or an exit price that would be paid to transfer a liability 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 and marketable securities are carried at fair value, determined according to the fair value hierarchy described above (see Note 4). The carrying values of the Company's accounts payable and accrued expenses approximate their fair values due to the short-term nature of these liabilities.

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
Machinery and equipment	3 to 5 years
Furniture and fixtures	3 to 5 years
Leasehold improvements	Shorter of lease term of useful life

Costs for capital assets not yet placed into service are capitalized as construction-in-progress and depreciated in accordance with the above guidelines once placed into service. Upon retirement or sale, the cost of assets disposed of and the related accumulated depreciation and amortization are removed from the accounts and any resulting gain or loss is included in loss from operations. Expenditures for repairs and maintenance that do not improve or extend the life of the respective assets are charged to expense as incurred.

Impairment of Long-Lived Assets

Long-lived assets consist of property and equipment. The Company continually evaluates long-lived assets for potential impairment whenever events or changes in circumstances indicate that the carrying value 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 industry 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 the carrying values of the asset group to the expected future undiscounted cash flows that the asset group is expected to generate from the use and eventual disposition of the long-lived asset group. 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. If such asset group is considered to be impaired, the impairment loss to be recognized would be based on the excess of the carrying value of the impaired asset group over its fair value. The Company did not recognize any impairment losses on long-lived assets during the years ended December 31, 2022 and 2021.

Leases

Effective January 1, 2022, the Company adopted ASU No. 2016-02, Leases (Topic 842) ("ASC 842") using the required modified retrospective approach and utilizing the effective date as its date of initial application. As a result, prior periods are presented in accordance with the previous guidance in ASC 840, Leases ("ASC 840").

The Company evaluates whether an arrangement is or contains a lease at the inception date. If determined to be or contain a lease, the Company determines the classification of the lease at the commencement date, which represents the date at which the lessor makes the underlying asset available for use by the Company. When determining the expected accounting lease term, the Company includes the noncancellable lease term, together with periods covered by (i) an option to extend the lease if the Company is reasonably certain to exercise such option, (ii) an option to terminate the lease if the Company is reasonably certain not to exercise such option and (iii) an option to extend or not terminate the lease where the exercise of such option is controlled by the lessor. The Company has elected the short-term lease exemption, which allows the Company to not recognize lease liabilities and right-of-use assets arising from lease arrangements with original lease terms of twelve months or less. The Company elected the practical expedient to not separate lease and non-lease components for its leases.

Right-of-use assets represent the Company's right to use an underlying asset over the lease term and lease liabilities represent the Company's obligation to make lease payments under the arrangement. The Company measures its lease liabilities as the present value of the lease payments, discounted using an incremental borrowing rate, as interest rates implicit in lease arrangements are generally not readily determinable. The Company measures its right-of-use assets as the present value of its lease payments at the commencement date. The incremental borrowing rate represents the interest rate at which the Company could borrow an amount equal to the lease payments on a fully collateralized basis, over a similar term, in a similar economic environment. The Company recognizes rent expense for operating leases on a straight-line basis. The Company recognizes variable lease expenses as incurred.

The Company remeasures right-of-use assets and lease liabilities when a lease is modified, and the modification is not accounted for as a separate contract. A modification is accounted for as a separate contract if the modification grants the Company an additional right of use not included in the original lease arrangement and the increase in lease payments is commensurate with the additional right of use. The Company assesses its right-of-use assets for impairment in a manner consistent with its assessment for long-lived assets held and used in operations.

Patent Costs

Costs to secure, defend and maintain patents, including those incurred in connection with filing and prosecuting patent applications, are expensed as incurred due to the uncertainty about the recovery of the expenditure. Amounts incurred for patent-related expenditures are classified as general and administrative expenses.

Segment Information

The Company manages its operations as a single segment for the purposes of assessing performance and making operating decisions. The Company is focused on the discovery, development and commercialization of antibody-based solutions for infectious diseases with pandemic potential. The Company's chief operating decision maker reviews the Company's financial information on an aggregated basis for purposes of assessing performance and allocating resources.

Research and Development Expenses

Research and development costs are expensed as incurred. Research and development expenses consist of costs incurred in performing research and development activities, including expenses incurred under agreements with external vendors and consultants engaged to perform non-clinical studies, preclinical studies and clinical trials as well as to manufacture research and development materials for use in such studies and trials; salaries and related personnel costs; stock-based compensation; consultant fees; and third-party license fees.

Nonrefundable advance payments for goods and services to be received in the future for use in research and development activities are recorded as prepaid expenses. The prepaid amounts are expensed as the related goods are delivered or the services are performed, or when it is no longer expected that the goods will be delivered or the services rendered.

Accrued Research and Development Costs

The Company has entered into various research, development and manufacturing contracts with third-party service providers, including contract research organizations and contract manufacturing organizations. With the exception of the Company's manufacturing arrangement with WuXi Biologics (Hong Kong) Limited (see Note 9), these agreements are generally cancelable. The Company recognizes research and development expense associated with such arrangements as the costs are incurred and records accruals for estimated ongoing research, development and manufacturing costs, where necessary. When billing terms under these contracts do not coincide with the timing of when the work is performed, the Company is required to make estimates of outstanding obligations to those third parties as of period end. Any accrual estimates are based on a number of factors, including the Company's knowledge of the progress towards completion of the specific tasks to be performed, invoicing to date under the contracts, communication from the vendors of any actual costs incurred during the period that have not yet been invoiced and the costs included in the contracts. Significant judgments and estimates may be made in determining the accrued balances at the end of any reporting period. Actual results could differ from the estimates made by the Company. The historical accrual estimates made by the Company have not been materially different from the actual costs.

Asset Acquisitions and Acquired In-Process Research and Development Expenses

The Company measures and recognizes asset acquisitions that are not deemed to be business combinations based on the cost to acquire the asset or group of assets, which includes transaction costs. Goodwill is not recognized in asset acquisitions. In an asset acquisition, the cost allocated to acquire in-process research and development ("IPR&D") with no alternative future use is recognized as expense on the acquisition date.

Contingent consideration in asset acquisitions payable in the form of cash is recognized in the period the triggering event is determined to be probable of occurrence and the related amount is reasonably estimable. Such amounts are expensed or capitalized based on the nature of the associated asset at the date the related contingency is resolved.

Stock-Based Compensation

The Company grants stock-based awards to employees, directors and non-employee consultants in the form of stock options to purchase shares of its common stock. The Company measures stock options with service-based vesting granted to employees, non-employees and directors based on the fair value on the date of grant using the Black-Scholes option-pricing model. The Company has issued awards with only service-based vesting conditions through December 31, 2022.

Compensation expense for awards granted to employees and directors for their service on the board of directors is recognized on a straight-line basis over the requisite service period of the respective award, which is generally the vesting period of the award. Compensation expense for awards granted to non-employees is recognized in the same period and manner as if the Company had paid cash for the goods or services provided, which is generally the vesting period of the award. The Company accounts for forfeitures of stock-based awards as they occur.

The Company classifies stock-based compensation expense in its statements of operations and comprehensive loss in the same manner in which the award recipient's salary and related costs are classified or in which the award recipient's service payments are classified.

Warrant Expense

The Company recognizes stock-based compensation for warrants granted to non-employee service providers based upon the awards' estimated grant date fair value. The warrants vest subject to the satisfaction of service-based conditions. Warrant expense is measured based on the fair value of the award on the date of grant and expense is recognized on a straight-line basis over the requisite service period, which varies for each non-employee service provider on a grant-by-grant basis.

The Company accounts for forfeitures as they occur. The Company classifies stock-based compensation for non-employee service providers as warrant expense in its statements of operations and comprehensive loss.

The Company estimates the fair value of warrants using the Geometric Brownian Motion model. The assumptions used in estimating the fair value of these awards, such as expected term, expected dividend yield, volatility, and risk-free interest rate represent management's best estimates and involve inherent uncertainties and the application of management's judgment. If actual results are not consistent with the Company's assumptions and judgments used in making these estimates, the Company may be required to increase or decrease warrant expense, which could be material to the Company's consolidated results of operations.

Income Taxes

The Company accounts for income taxes using the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been recognized in the consolidated financial statements or in the Company's tax returns. Deferred tax assets and liabilities are determined on the basis of the differences between the financial statement and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. Changes in deferred tax assets and liabilities are recorded in the provision for income taxes. The Company assesses the likelihood that its deferred tax assets will be recovered from future taxable income, and to the extent it believes, based upon the weight of available evidence, that it is more likely than not that all or a portion of the deferred tax assets will not be realized, a valuation allowance is established through a charge to income tax expense. Potential for recovery of deferred tax assets is evaluated by estimating the future profits expected and considering prudent and feasible tax planning strategies.

The Company accounts for uncertainty in income taxes recognized in the consolidated financial statements by applying a two-step process to determine the amount of tax benefit to be recognized. First, the tax position must be evaluated to determine the likelihood that it will be sustained upon external examination by the taxing authorities. If the tax position is deemed more likely than not to be sustained, the tax position is then assessed to determine the amount of benefit to recognize in the consolidated financial statements. The amount of the benefit that may be recognized is the largest amount that has a greater than 50% likelihood of being realized upon ultimate settlement. The provision for income taxes includes the effects of any resulting tax reserves, or unrecognized tax benefits, that are considered appropriate as well as the related net interest and penalties. The Company had no amounts accrued for interest and penalties on its consolidated balance sheets as of December 31, 2022 and 2021.

Comprehensive Loss

Comprehensive loss includes net loss as well as other changes in stockholders' equity (deficit) that result from transactions and economic events other than those with stockholders. For the years ended December 31, 2022 and 2021, the Company's only element of other comprehensive loss was unrealized losses on marketable securities.

Net Loss per Share

The Company follows the two-class method when computing net income (loss) per share attributable to common stockholders as the Company has issued shares that meet the definition of participating securities. The two-class method determines net income (loss) per share for each class of common and participating securities according to dividends declared or accumulated and participation rights in undistributed earnings. The two-class method requires income (loss) for the period to be allocated between common and participating securities based upon their respective rights to share in the undistributed earnings as if all income (loss) for the period had been distributed. The Company considers its convertible preferred stock to be participating securities as, in the event a dividend is paid on common stock, the holders of convertible preferred stock would be entitled to receive dividends on a basis consistent with the common stockholders. The Company also considers the shares

issued upon the early exercise of stock options that are subject to repurchase to be participating securities because holders of such shares have non-forfeitable dividend rights in the event a dividend is paid on common stock. There is no allocation required under the two-class method during periods of loss since the participating securities do not have a contractual obligation to share in the losses of the Company.

Basic net income (loss) per share attributable to common stockholders is computed by dividing the net income (loss) attributable to common stockholders by the weighted-average number of common shares outstanding for the period, excluding shares of unvested restricted common stock. Diluted net income (loss) per share attributable to common stockholders is computed by adjusting net loss attributable to common stockholders to reallocate undistributed earnings based on the potential impact of dilutive securities. Diluted net income (loss) per share attributable to common stockholders is computed by dividing the diluted net income (loss) attributable to common stockholders by the weighted-average number of common shares outstanding for the period, including potential dilutive common shares. For the purposes of this calculation, the Company's convertible preferred stock, outstanding stock options, unvested restricted common stock and outstanding warrants are considered potential dilutive common shares.

The Company has generated a net loss for each of the periods presented. Accordingly, basic and diluted net loss per share attributable to common stockholders are the same because the inclusion of the potentially dilutive securities would be anti-dilutive.

Recently Issued and Adopted Accounting Pronouncements

The Company is an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012 (the "JOBS Act"), and may remain an emerging growth company until the last day of the fiscal year following the fifth anniversary of the completion of its initial public offering. However, if certain events occur prior to the end of such five-year period, including if it becomes a "large accelerated filer," its annual gross revenues exceeds $1.235 billion or it issues more than $1.0 billion of non-convertible debt in the previous three-year period, it will cease to be an emerging growth company prior to the end of such five-year period. For so long as the Company remains an emerging growth company, it is permitted and intends to rely on exemptions from certain disclosure requirements that are applicable to other public companies that are not emerging growth companies. For example, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of these accounting standards until they would otherwise apply to private companies.

In February 2016, the FASB issued ASC 842, as subsequently amended. ASC 842 sets forth the principles for the recognition, measurement, presentation and disclosure of leases for both parties to a contract (i.e., lessees and lessors). ASC 842 replaces the existing guidance in ASC 840. ASC 842 requires lessees to apply a dual approach, classifying leases as either finance or operating leases based on the principle of whether or not the lease is effectively a financed purchase by the lessee. A lessee is also required to record (i) a right-of-use asset and a lease liability on its balance sheets for all leases with a term of greater than 12 months regardless of their classification and (ii) lease expense on its statement of operations for operating leases and amortization and interest expense on its statement of operations for financing leases. Leases with a term of 12 months or less may be accounted for similar to existing guidance for operating leases under ASC 840. The Company adopted the new standard and used the modified retrospective approach with January 1, 2022 as the initial date of application. The Company elected the available package of practical expedients which allowed the Company to not reassess previous accounting conclusions around whether arrangements are or contain leases, the classification of leases, and the treatment of initial direct costs. As a result of the adoption of ASC 842, the Company recorded (i) an operating lease liability, current of $0.3 million, (ii) an operating lease liability, non-current of $1.4 million and (iii) an operating lease right-of-use asset of $1.7 million, net of the unamortized balance of deferred rent liability as of the transition date. There was no impact from the adoption of ASC 842 to the Company's results of operations and cash flows from operations. A summary of the impact of the adoption is as follows (in thousands):

	December 31, 2021	Impact of Adoption	January 1, 2022
Operating lease right-of-use asset	$ —	$ 1,728	$ 1,728
Operating lease liability, current	—	308	308
Other non-current liability	6	(6)	—
Operating lease liability, non-current	—	1,426	1,426

3. Marketable Securities

Marketable securities held by the Company are classified as available-for-sale debt securities pursuant to ASC 320, Investments – Debt and Equity Securities, and carried at fair value in the accompanying consolidated balance sheets on a settlement date basis.

The following tables summarize the gross unrealized gains and losses of the Company's marketable securities as of December 31, 2022 and 2021 (in thousands):

December 31, 2022	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
U.S. Treasury securities	$ 107,973	$ 13	$ (115)	$ 107,871
Federal agency securities	172,214	39	(209)	172,044
Total financial assets	$ 280,187	$ 52	$ (324)	$ 279,915

December 31, 2021	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
U.S. Treasury securities	$ 49,202	$ —	$ (8)	$ 49,194

No available-for-sale marketable securities held as of December 31, 2022 or 2021 had remaining maturities greater than twelve months.

4. Fair Value Measurements

The following tables present the Company's fair value hierarchy for its assets and liabilities that are measured at fair value on a recurring basis (in thousands):

	Fair Value Measurements at December 31, 2022:			
	Level 1	Level 2	Level 3	Total
Assets:				
Cash equivalents:				
Money market funds	$ 91,050	$ —	$ —	$ 91,050
Marketable securities:				
U.S. Treasury securities	$ 107,871	—	—	$ 107,871
Federal agency securities	—	172,044	—	$ 172,044
	$ 198,921	$ 172,044	$ —	$ 370,965

	Fair Value Measurements at December 31, 2021:			
	Level 1	Level 2	Level 3	Total
Assets:				
Cash equivalents:				
Money market funds	$ 541,220	$ —	$ —	$ 541,220
Marketable securities:				
U.S. Treasury securities	49,194	—	—	49,194
	$ 590,414	$ —	$ —	$ 590,414

As of December 31, 2022 and 2021, the money market funds and U.S. Treasury securities were valued by the Company based on quoted market prices, which represent a Level 1 measurement within the fair value hierarchy.

As of December 31, 2022, the Company's marketable securities also consisted of federal agency securities, which were valued based on Level 2 inputs. In determining the fair value of its federal agency securities, the Company relied on quoted prices for similar securities in active markets or other inputs that are observable or can be corroborated by observable market data. Since Federal agency securities typically do not trade as U.S. government agency securities and no exchange exists to price such investments, they are recognized as Level 2 assets.

There were no changes to the valuation methods during the years ended December 31, 2022 or 2021.

The Company evaluates transfers between levels at the end of each reporting period. There were no transfers into or out of Level 1, Level 2 or Level 3 fair value measurements during the years ended December 31, 2022 or 2021.

5. Prepaid Expenses and Other Current Assets

Prepaid expenses and other current assets consisted of the following (in thousands):

	December 31,	
	2022	2021
Prepaid external research, development and manufacturing costs	$ 843	$ 20,582
Prepaid insurance	2,392	3,190
Prepaid compensation and other	1,314	1,292
Interest receivable	377	229
	$ 4,926	$ 25,293

6. Accrued Expenses

Accrued expenses consisted of the following (in thousands):

	December 31,	
	2022	2021
Accrued external research, development and manufacturing costs	$ 13,955	$ 48,590
Accrued professional and consultant fees	1,153	2,155
Accrued employee compensation	5,985	4,945
Other	818	587
	$ 21,911	$ 56,277

7. License and Collaboration Agreements

Adimab Assignment Agreement

In July 2020, the Company entered into an Assignment and License Agreement with Adimab (the "Adimab Assignment Agreement"). Under the terms of the agreement, Adimab assigned to the Company all rights, title and interest in and to certain of its coronavirus-specific antibodies (each, a "CoV Antibody" and together, the "CoV Antibodies"), including modified or derivative forms thereof, and related intellectual property ("Adimab CoV Assets"). In addition, Adimab granted to the Company a non-exclusive, worldwide, royalty-bearing, sublicensable license to certain of its platform patents and technology for the development, manufacture and commercialization of the CoV Antibodies and pharmaceutical products containing or comprising one or more CoV Antibodies (each, a "Product") for all indications and uses, with the exception of certain diagnostic uses and use as a research reagent (the "Field"). The Company is entitled to sublicense the assigned rights and licensed intellectual property solely with respect to any CoV Antibody or Product, subject to specified conditions of the agreement. The Company is obligated to use commercially reasonable efforts to achieve specified development and regulatory milestones for Products in certain major markets and to commercialize a product in any country in which the Company obtains marketing approval.

Pursuant to the terms of the Adimab Assignment Agreement, the parties will establish one or more work plans that set forth the activities to be performed under the agreement (each, a "Work Plan"), and each party is responsible for performing the obligations to which it is assigned under such Work Plans. Upon execution of the Adimab Assignment Agreement, the Company and Adimab agreed on an initial Work Plan that outlined the services that will be performed commencing at inception of the arrangement. The Company is obligated to pay Adimab quarterly for its services performed under each Work Plan at a specified full-time equivalent rate. Otherwise, the Company is solely responsible for the development, manufacture and commercialization of the CoV Antibodies and associated Products at its own cost and expense. The Company is solely responsible for preparing and submitting all investigational new drug applications, new drug applications, biologics license applications and other regulatory filings for the CoV Antibodies and Products in the Field, and for obtaining and maintaining all marketing approvals for Products in the Field, at its sole expense. Additionally, the Company has the sole right to prosecute, maintain, enforce and defend patents covering the CoV Antibodies and Products, all at its own expense.

Amounts paid with respect to services performed by Adimab on the Company's behalf under the Adimab Assignment Agreement are recognized as research and development expense as such amounts are incurred. For the years ended December 31, 2022 and 2021, the Company recognized $0.6 million and $1.3 million, respectively, of research and development expense in connection with services performed by Adimab on the Company's behalf. Please refer to Note 16 for additional information.

In July 2020, in consideration for the rights assigned and license conveyed under the Adimab Assignment Agreement, the Company issued 5,000,000 shares of its Series A convertible preferred stock (the "Series A Preferred Stock"), then having a fair value of $40.0 million, to Adimab. Concurrently, Adimab relinquished 21,250,000 shares of the Company's common stock to the Company, then having a fair value of $85,000. Additionally, the Company is obligated to pay Adimab up to $16.5 million upon the achievement of specified development and regulatory milestones for the first Product under the agreement that achieves such specified milestones and up to $8.1 million upon the achievement of specified development and regulatory milestones for the second Product under the agreement that achieves such specified milestones. The maximum aggregate amount of milestone payments payable under the agreement for any and all Products is $24.6 million; however, milestone payments do not accrue for certain *in vitro* diagnostic devices consisting of or containing CoV Antibodies.

In February 2021, the Company achieved the first specified milestone under the agreement upon dosing of the first patient in a Phase 1 global clinical trial evaluating adintrevimab, which obligated the Company to make a $1.0 million milestone payment to Adimab. In April 2021, the Company achieved the second specified milestone under the agreement upon dosing of the first patient in a Phase 2 global clinical trial evaluating adintrevimab for the prevention of COVID-19, which obligated the Company to make a $2.5 million milestone payment to Adimab. In August 2021, the Company achieved the third specified milestone under the agreement upon dosing of the first patient in a Phase 3 global clinical trial evaluating adintrevimab for the prevention of COVID-19, which obligated the Company to make a $4.0 million milestone payment to Adimab. The Company recognized each expense when achievement of each of the first, second and third milestones became probable of achievement in February, April and August 2021, respectively. The next potential milestone under the Adimab Assignment Agreement is a low six-digit dollar milestone related to dosing of the first subject in a Phase 1 trial, which was not considered probable as of December 31, 2022.

For the year ended December 31, 2022, the Company did not recognize any IPR&D expense in connection with contingent consideration payable under the Adimab Assignment Agreement. For the year ended December 31, 2021, the Company recognized $7.5 million as IPR&D expense in connection with contingent consideration payable under the Adimab Assignment Agreement.

The Company is obligated to pay Adimab royalties of a mid-single-digit percentage based on net sales of any Products, once commercialized. The royalty rate is subject to reductions specified under the agreement. Royalties are due on a Product-by-Product and country-by-country basis beginning upon the first commercial sale of each Product and ending on the later of (i) 12 years after the first commercial sale of such Product in such country and (ii) the expiration of the last valid claim of a patent covering such Product in such country ("Royalty Term"). In addition, the Company is obligated to pay Adimab royalties of a specified percentage in the range of 45% to 55% of any compulsory sublicense consideration received by the Company in lieu of certain royalty payments. Except for the first milestone payment of $1.0 million, the second milestone payment of $2.5 million and the third milestone payment of $4.0 million, which were paid by the Company to Adimab in March, May and September 2021, respectively, no other milestone, royalty or other contingent payments had become due to Adimab through December 31, 2022.

Unless earlier terminated, the Adimab Assignment Agreement remains in effect until the expiration of the last-to-expire Royalty Term for any and all Products. The Company may terminate the agreement at any time for any or no reason upon advance written notice to Adimab, or in the event of a material breach by Adimab that is not cured with specific periods. Adimab may only terminate the agreement for an uncured material breach by the Company for its due diligence obligation or a payment obligation. Upon any termination of the agreement prior to its expiration, all licenses and rights granted pursuant to the arrangement will automatically terminate and revert to the granting party and all other rights and obligations of the parties will terminate.

The Company concluded that the Adimab Assignment Agreement represented an asset acquisition of IPR&D assets with no alternative future use. The arrangement did not qualify as a business combination because substantially all of the fair value of the assets acquired was concentrated in a single asset.

Adimab Collaboration Agreement

In May 2021, the Company entered into a Collaboration Agreement with Adimab, as amended in November 2022 (the "Adimab Collaboration Agreement") for the discovery and optimization of proprietary antibodies as potential therapeutic product candidates. Under the Adimab Collaboration Agreement, the Company and Adimab will collaborate on research programs for a specified number of targets selected by the Company within a specified time period. Under the Adimab Collaboration Agreement, Adimab granted the Company a worldwide, non-exclusive license to certain of its platform patents and technology and antibody patents to perform the Company's responsibilities during the ongoing research period and for a specified evaluation period thereafter (the "Evaluation Term"). In addition, the Company granted Adimab a license to certain of the Company's patents and intellectual property solely to perform Adimab's responsibilities under the research plans. Under the Adimab Collaboration Agreement, the Company has an exclusive option, on a program-by-program basis, to obtain licenses

and assignments to commercialize selected products containing or comprising antibodies directed against the applicable target, which option may be exercised upon the payment of a specified option fee for each program. Upon exercise of an option by the Company, Adimab will assign to the Company all right, title and interest in the antibodies of the optioned research program and will grant the Company a worldwide, royalty-free, fully paid-up, non-exclusive, sublicensable license under the Adimab platform technology for the development, manufacture and commercialization of the antibodies for which the Company has exercised its options and products containing or comprising those antibodies. The Company is obligated to use commercially reasonable efforts to develop, seek marketing approval for, and commercialize one product that contains an antibody discovered in each optioned research program.

The Company is obligated to pay Adimab a quarterly fee of $1.3 million, which may be cancelled at the Company's option at any time. For so long as the Company is paying such quarterly fee (or earlier if (i) the Company experiences a change of control after the third anniversary of the Adimab Collaboration Agreement or (ii) Adimab owns less than a specified percentage of the Company's equity), Adimab and its affiliates will not assist or direct certain third parties to discover or optimize antibodies that are intended to bind to coronaviruses or influenza viruses. The Company may also elect to decrease the scope of Adimab's exclusivity obligations and obtain a corresponding decrease in the quarterly fee. For the years ended December 31, 2022 and 2021, the Company recognized $5.2 million and $2.6 million, respectively, of research and development expense related to the quarterly fee.

For each agreed upon research program that is commenced, the Company is obligated to pay Adimab quarterly for its services performed during a given research program at a specified full-time equivalent rate; a discovery delivery fee of $0.2 million; and an optimization completion fee of $0.2 million. For each option exercised by the Company to commercialize a specific research program, the Company is obligated to pay Adimab an exercise fee of $1.0 million. Amounts paid with respect to services performed by Adimab on the Company's behalf in each of the research programs under the Adimab Collaboration Agreement are recognized as research and development expense as such amounts are incurred and services are rendered. For the years ended December 31, 2022 and 2021, the Company recognized $1.7 million and $0.3 million, respectively, of research and development expense in connection with services performed by Adimab on the Company's behalf. Through December 31, 2022, the Company recognized $0.4 million and $1.0 million of IPR&D expense related to drug delivery fees and an option exercise, respectively. Additionally, through December 31, 2022, the Company has not paid an optimization completion fee to Adimab. Please refer to Note 16 for additional information.

The Company is obligated to pay Adimab up to $18.0 million upon the achievement of specified development and regulatory milestones for each product under the Adimab Collaboration Agreement that achieves such milestones. The next potential milestone under the Adimab Collaboration Agreement is a low single-digit million dollar milestone related to dosing of the first subject in a Phase 1 trial, which was not considered probable as of December 31, 2022. The Company is also obligated to pay Adimab royalties of a mid-single-digit percentage based on net sales of any product under the Adimab Collaboration Agreement, subject to reductions for third-party licenses. The royalty term will expire for each product on a country-by-country basis upon the later of (i) 12 years after the first commercial sale of such product in such country and (ii) the expiration of the last valid claim of any patent claiming composition of matter or method of making or using any antibody identified or optimized under the Adimab Collaboration Agreement in such country.

In addition, the Company is obligated to pay Adimab for Adimab's performance of certain validation work with respect to certain antigens acquired from a third party. In consideration for this work, the Company is obligated to pay Adimab royalties of a low single-digit percentage based on net sales of products that contain such antigens for the same royalty term as antibody-based products, but the Company is not obligated to make any milestone payments for such antigen products. Through December 31, 2022, the Company had not paid any royalties to Adimab under the Adimab Collaboration Agreement.

The Adimab Collaboration Agreement will expire (i) if the Company does not exercise any option, upon the conclusion of the last Evaluation Term for the research programs, or (ii) if the Company exercises an option, on the expiration of the last royalty term for a product in a particular country, unless the agreement is earlier terminated. The Company may terminate the Adimab Collaboration Agreement at any time upon advance written notice to Adimab. In addition, subject to certain conditions, either party may terminate the Adimab Collaboration Agreement in the event of a material breach by the other party that is not cured within specified periods.

The Company concluded that the Adimab Collaboration Agreement represented an asset acquisition of IPR&D with no alternative future use. Therefore, payments made by the Company to Adimab for milestones achieved will be recognized as acquired IPR&D expense in the related period in which the services are performed or the related milestone is considered probable of achievement. Amounts paid with respect to services performed by Adimab on the Company's behalf under the Adimab Collaboration Agreement are recognized as research and development expense as such amounts are incurred and services are rendered. Please refer to Note 16 for additional information.

Adimab Platform Transfer Agreement

In September 2022 ("Effective Date"), the Company entered into a Platform Transfer Agreement with Adimab (the "Adimab Platform Transfer Agreement") under which the Company was granted the right under certain intellectual property of Adimab to practice certain elements of Adimab's platform technology, including B-cell cloning using Adimab's proprietary yeast cell lines and other antibody optimization libraries, trade secrets, protocols and software of Adimab, to discover, engineer and optimize antibodies. The Company does not have access to Adimab's proprietary discovery libraries. The Company was also granted the right under certain intellectual property of Adimab to research, develop, make, sell and exploit such antibodies and products containing such antibodies. The Adimab platform will be transferred to the Company in accordance with the terms of the Adimab Platform Transfer Agreement. In September 2022, the Company recognized $3.0 million as IPR&D expense in connection with the upfront consideration payable for the rights assigned pursuant to the Adimab Platform Transfer Agreement.

The Company is obligated to pay Adimab an annual fee of single digit millions on each of the first four anniversaries of the Effective Date, which will allow the Company to receive material improvements to the platform technology, including materially improved antibody optimization libraries, updates that provide new functionality to the platform, and software upgrades, from Adimab through June 2027. The first annual fee will become due in September 2023. Beginning in July 2027 and ending in June 2042, unless terminated earlier, the Company has the option to receive additional material improvements to the platform technology from Adimab, subject to a commercially reasonable fee to be negotiated by the parties.

The Company is obligated to pay Adimab up to $9.5 million upon the achievement of specified development and regulatory milestones for each product under the Adimab Platform Transfer Agreement that achieves such milestones. The next potential milestone under the Adimab Platform Transfer Agreement is a mid-six-digit dollar milestone related to the start of IND-enabling toxicology studies, which was not considered probable as of December 31, 2022.

In addition, the Company is obligated to pay Adimab royalties of a low single-digit percentage based on net sales of products containing an antibody discovered, engineered or optimized using Adimab's platform technology, once commercialized. The royalty rate is subject to reductions specified under the Adimab Platform Transfer Agreement. Royalties are due on a product-by-product and country-by-country basis. The royalty term will expire for each product on a country-by-country basis upon the later of (i) 12 years after the first commercial sale of such product in such country and (ii) the expiration of the last valid claim of a program antibody patent for covering the program antibody contained in such product in such country. Through December 31, 2022, the Company had not paid any royalties to Adimab under the Adimab Platform Transfer Agreement.

The Company may terminate the Adimab Platform Transfer Agreement at any time upon advance written notice to Adimab. In addition, subject to certain conditions, either party may terminate the Adimab Platform Transfer Agreement in the event of a material breach by the other party that is not cured within specified periods or in connection with the other party's insolvency.

The Company concluded that the Adimab Platform Transfer Agreement represented an asset acquisition of IPR&D with no alternative future use. Therefore, payments made by the Company to Adimab for milestones achieved will be recognized as acquired IPR&D expense in the related period in which the services are performed or the related milestone is considered probable of achievement. Amounts paid with respect to the annual material improvement fees are recognized as research and development expense as such amounts are incurred. Please refer to Note 16 for additional information.

WuXi Biologics Cell Line License Agreement

In December 2020, as amended in February 2023, the Company entered into a Cell Line License Agreement with WuXi Biologics (Hong Kong) Limited ("WuXi Biologics") (the "Cell Line License Agreement"), under which WuXi Biologics granted to the Company a non-exclusive, non-transferable, worldwide, royalty-bearing, sublicensable license to certain of its intellectual property, including certain patent rights associated with a proprietary cell line developed by WuXi Biologics for the exploitation of certain recombinant antibodies developed using such proprietary cell line (each, a "Licensed Product"). Each Licensed Product generated under the arrangement will be produced from a transformed or transfected version of the proprietary cell line derived by WuXi Biologics (each of such transformed or transfected cell lines, a "Licensed Cell Line").

The Company paid an upfront fee of $0.2 million to WuXi Biologics upon completion of cell bank generation for the first Licensed Cell Line created under the Cell Line License Agreement. The Company is also obligated to pay royalties in the range of less than 1.0% to WuXi Biologics based on net sales of any Licensed Products manufactured by the Company or a third party on its behalf. However, if the Company uses WuXi Biologics to manufacture all of its commercial supplies for Licensed Products, no royalties would be owed by the Company to WuXi Biologics for net sales of Licensed Products. The Company has an option to buy out its royalty obligations on a Licensed Cell Line-by-Licensed Cell Line basis by making a one-time payment in the low eight-figures to WuXi Biologics. Royalties are due on a Licensed Product-by-Licensed Product basis commencing on the date of the first commercial sale of the applicable product and continuing for so long as the Company commercializes Licensed Products or, if earlier, until the Company exercises its option to buy out the royalty obligations. Through December 31, 2022, no royalties had become due to WuXi Biologics.

The Cell Line License Agreement remains in effect until it is terminated. The Company may terminate the Cell Line License Agreement at any time with notice to WuXi Biologics. WuXi Biologics may terminate the Cell Line License Agreement in the event the Company fails to make a payment when due under the Cell Line License Agreement and such non-payment is not cured within a specified period after notice. Either party may terminate the Cell Line License Agreement in the event of a material breach by the other party that is not cured within a specified period after notice. Upon termination of the Cell Line License Agreement, the license conveyed by WuXi Biologics to the Company will continue in full force and effect with respect to all Licensed Products manufactured using the Licensed Cell Line already generated under the Cell Line License Agreement, provided that the Company continues to pay its royalty obligations, if any.

The Company concluded that the Cell Line License Agreement represented an asset acquisition of IPR&D with no alternative future use. The Cell Line License Agreement did not qualify as a business combination because substantially all of the fair value of the assets acquired was concentrated in a single asset. Therefore, the aggregate acquisition cost of $0.2 million, consisting solely of the upfront fee, was recognized as acquired IPR&D expense for the period from June 3, 2020 (inception) to December 31, 2020.

Research Collaboration and License Agreement with The Scripps Research Institute

In August 2021, the Company entered into a Research Collaboration and License Agreement (the "Research Agreement") with The Scripps Research Institute ("TSRI"). Under the terms of the Research Agreement, TSRI performed research activities to identify vaccine candidates for the prevention, diagnosis or treatment of influenza or beta coronaviruses. In August 2021, the Company paid TSRI $1.5 million in funding, which was credited against research funding payable by the Company under the Research Agreement.

In April 2022, the Company provided written notice to TSRI to terminate the Research Agreement. Following early termination in the second quarter of 2022, all licenses were terminated and reverted to TSRI.

Amounts incurred for services performed by TSRI under the Research Agreement were expensed to research and development expense as the services were rendered. During the years ended December 31, 2022 and December 31, 2021, the Company recognized $1.7 million and $2.3 million, respectively, of research and development expense associated with services performed under the Research Agreement.

8. Population Health Partners, L.P

In November 2022 (the "PHP Effective Date"), the Company entered into a Master Services Agreement with Population Health Partners, L.P. ("PHP"), pursuant to which PHP agreed to provide services and create deliverables for the Company as agreed between the Company and PHP and set forth in one or more work orders under such agreement (the "PHP MSA"). The term of the PHP MSA commenced on the PHP Effective Date and will continue for a period of one year, unless terminated earlier in accordance with its terms. On the PHP Effective Date, the Company and PHP entered into the first work order under the PHP MSA (the "PHP Work Order"), pursuant to which PHP agreed to advise and counsel the Company regarding clinical development and regulatory matters with respect to the Company's product candidates. The PHP Work Order is effective for six months from the Effective Date and may be extended by written agreement of the Company and PHP. The PHP MSA contains customary confidentiality provisions and representations and warranties of the parties, as well as mutual non-solicitation of certain employees during the term of the PHP MSA and for a period of one year thereafter.

As compensation for the services and deliverables under the PHP Work Order, the Company shall pay PHP a cash fee of $0.5 million per month during the term of the PHP Work Order for an aggregate fee of $3.0 million (the "Aggregate Fee"). In the event that (i) the Company terminates the PHP Work Order for any reason other than material breach by PHP or (ii) PHP terminates the PHP Work Order due to material breach by the Company, in each case, pursuant to the terms of the PHP MSA, the Company would be required to pay PHP the balance of the Aggregate Fee as of the date the PHP Work Order is terminated. The cash fee is subject to change if the parties extend the term of the PHP Work Order in accordance with the terms thereof.

For the year ended December 31, 2022, the Company recognized $0.8 million of research and development expense related to the cash compensation paid to PHP.

In addition to the cash compensation, on the PHP Effective Date, the Company issued a warrant to purchase shares of the Company's common stock to PHP (the "PHP Warrant"). The exercise price of the PHP Warrant is $3.48 per share of Common Stock, which is equal to the Nasdaq Official Closing Price of a share of Common Stock on the trading day immediately prior to the PHP Effective Date. The PHP Warrant is exercisable for up to an aggregate of 6,824,712 shares of Common Stock, and vests in three separate tranches as follows:

- 3,591,954 shares of the Company's common stock underlying the PHP Warrant vests if the Company's Market Capitalization (as defined below) equals or exceeds $758,517,511 by November 15, 2028;
- 1,795,977 shares of the Company's common stock underlying the PHP Warrant vests if the Company's Market Capitalization equals or exceeds $1,137,776,266 by November 15, 2029; and
- 1,436,781 shares of the Company's common stock underlying the PHP Warrant vests if the Company's Market Capitalization equals or exceeds $1,517,035,022 by November 15, 2030.

For purposes of the PHP Warrant, the term "Market Capitalization" means, with respect to a particular trading day, the total value of the outstanding shares of Common Stock on such date, calculated by multiplying the Company's volume weighted average price for the ten (10) trading days immediately preceding such date by the Company's total number of outstanding shares of Common Stock as reflected in (i) the Company's most recent periodic or annual report filed with the U.S. Securities and Exchange Commission ("SEC") (e.g., Annual Report on Form 10-K or Quarterly Report on Form 10-Q), as the case may be, (ii) a more recent public announcement by the Company or (iii) a more recent written notice by the Company or the Company's transfer agent setting forth the number of shares of the Company's common stock outstanding.

The PHP Warrant is exercisable for ten years from the PHP Effective Date with respect to the vested portion(s) of the PHP Warrant. The PHP Warrant may be exercised by cash exercise or, at the election of PHP, by means of "cashless exercise" pursuant to a formula set forth in the PHP Warrant. The Company has also granted PHP certain "piggyback" registration rights requiring the Company to register any shares of the Company's common stock underlying the Warrant for resale with the SEC, subject to the Company's existing obligations under that certain Second Amended and Restated Investors' Rights Agreement, dated April 16, 2021, by and among the Company and the investors party thereto.

Upon the consummation of a change of control of the Company (as defined in the PHP Warrant) on or prior to November 15, 2028, all of the shares underlying the PHP Warrant would become immediately vested and exercisable; upon the consummation of a change of control of the Company after November 15, 2028 but on or prior to November 15, 2029, the shares underlying the second and third tranches of the PHP Warrant would become immediately vested and exercisable; and upon the consummation of a change of control of the Company after November 15, 2029 but on or prior to November 15, 2030, the shares underlying the third tranche of the PHP Warrant would become immediately vested and exercisable.

Refer to Note 12 for additional information on the PHP Warrant.

Clive Meanwell, M.D. and Tamsin Berry, members of the Company's board of directors, are Managing Partner and Partner of PHP, respectively.

9. Commitments and Contingencies

Operating Lease Commitments

In September 2021, the Company entered into a five-year noncancelable facilities lease agreement for approximately 9,600 square feet of office space in Waltham, Massachusetts. The monthly rental payments under the lease, which include base rent charges of $0.4 million per year, are subject to periodic rent increases through September 2026. In addition to base rent, monthly rental payments include the Company's proportionate share of operating expenses. The lease terms provide for one five-year extension term with base rent calculated on the then-market rate.

In June 2022, the Company entered into a two-year noncancelable agreement for dedicated laboratory and office space in Newton, Massachusetts (the "Newton, MA Lease"). The monthly rental payments under the agreement include base rent charges of $0.7 million per year. The agreement terms provide for a month-to-month extension after completion of the initial two-year term with base rent calculated on the then-market rate with three months' prior notice.

In September 2022, the Company amended the Newton, MA Lease. Pursuant to the amendment, the Company entered into a separate two-year noncancelable agreement for new dedicated laboratory and office space on the same campus as the Newton, MA Lease. The Company took occupancy of the new dedicated laboratory and office space in December 2022. The monthly rental payments under the amended agreement include base rent charges of $1.3 million per year. The agreement terms provide for a month-to-month extension, after completion of the initial two-year term extending through November 2024, with base rent calculated on the then-market rate with three months' prior notice.

The components of operating lease expense were as follows (in thousands):

	December 31, 2022
Lease cost:	
Operating lease cost	$ 754
Variable lease cost	31
Total lease cost	$ 785
Cash paid for amounts included in the measurement of lease liabilities:	
Operating cash flows related to operating leases	$ 837

Future minimum lease payments under the noncancelable leases as of December 31, 2022 was as follows (in thousands):

Year Ending December 31,	Operating Lease
2023	$ 1,731
2024	1,521
2025	430
2026	328
Total lease payments	4,010
Present value adjustment	(286)
Present value of operating lease liability	$ 3,724

As of December 31, 2022, the Company's operating lease was measured using a weighted-average incremental borrowing rate of 6.0% over a weighted-average remaining lease term of 2.6 years.

The total operating liability is presented on the Company's condensed consolidated balance sheet based on maturity dates. $1.5 million of the total operating liability is classified under "operating lease liability, current" for the portion due within twelve months, and $2.2 million is classified under "operating lease liability, non-current".

License Agreements

The Company has entered into license agreements with Adimab and WuXi Biologics (see Note 7).

Other Agreements

In November 2022, the Company entered into the PHP MSA (see Note 8). Concurrently with the PHP MSA, the Company entered into the PHP Work Order, pursuant to which PHP agreed to advise and counsel the Company regarding clinical development and regulatory matters with respect to its product candidates. The PHP Work Order is effective for six months from November 2022 and may be extended by written agreement of the Company and PHP. As compensation for the services and deliverables under the PHP Work Order, the Company is obligated to pay PHP a cash fee of $0.5 million per month during the term of the PHP Work Order for an Aggregate Fee of $3.0 million. In the event that (i) the Company terminates the PHP Work Order for any reason other than material breach by PHP or (ii) PHP terminates the PHP Work Order due to material breach by the Company, in each case, pursuant to the terms of the PHP MSA, the Company would be required to pay PHP the balance of the Aggregate Fee as of the date the PHP Work Order is terminated. The cash fee is subject to change if the parties extend the term of the PHP Work Order in accordance with the terms thereof.

Clinical and Manufacturing Agreements

In July 2020, the Company entered into a Clinical Master Services Agreement with WuXi Biologics (the "Clinical Master Services Agreement"). The Clinical Master Services Agreement outlines the terms and conditions under which WuXi Biologics coordinates biologics development and clinical manufacturing services for the Company.

In December 2020, the Company entered into a Commercial Manufacturing Services Agreement with WuXi Biologics, which was amended and restated in August 2021 (as amended and restated, the "Commercial Manufacturing Agreement"). The Commercial Manufacturing Agreement outlines the terms and conditions under which WuXi Biologics manufactures drug substance and drug product for commercial use.

The Company committed to minimum noncancelable purchase obligations related to batches of adintrevimab drug substance and certain services with respect to the product requirements for 2022 and 2023 and batches of adintrevimab drug product and certain services with respect to the product requirements for 2022, the payments for which will extend into 2023.

In April 2022, the total volume of contractually binding drug substance and drug product batches to be manufactured under the Commercial Manufacturing Agreement was reduced to $51.6 million, a decrease of $107.8 million from the previous commitment of minimum non-cancelable purchase obligations of $159.4 million. In addition, WuXi Biologics agreed to provide the Company with a credit in the low eight-figures to offset future services rendered by WuXi.

In July 2022, the Company provided notice to WuXi Biologics to cancel the contractually binding adintrevimab drug product batches.

In November 2022, WuXi Biologics reassigned the remaining contractually binding adintrevimab drug substance batches under the Commercial Manufacturing Agreement to contractually binding NVD200 drug substance batches under its Clinical Master Services Agreement. As of December 31, 2022, the total remaining cost of contractually binding NVD200 drug substance batches to be manufactured under the Clinical Master Services Agreement is $18.1 million, which is expected to be incurred and paid in 2023.

In March 2023, the remaining contractually binding batches were repurposed, and the related services now relate to manufacturing of VYD222.

During the year ended December 31, 2022, the majority of the low eight-figure credit was applied to WuXi Biologics services as a reduction of research and development expenses and a reduction of accounts payable and accrued expenses. The remaining portion of the credit is expected to be utilized during the first quarter of 2023.

Unless earlier terminated, the Commercial Manufacturing Agreement remains in effect for an initial period of five years and thereafter automatically renews for further successive periods of five years each. Either party may terminate the agreement upon the breach or default by the other party, other than a non-payment breach, that is not cured within 90 days after notice. Both parties are also entitled to terminate the Commercial Manufacturing Agreement if the other party becomes insolvent or is the subject of a petition in bankruptcy or of any other related proceeding or event. Either party may terminate either the Commercial Manufacturing Agreement in its entirety, or an individual order, (i) to the extent the other party suffers a force majeure event that is continuing for a predefined period of time and (ii) if the other party fails to make a payment when due under the arrangement and such non-payment is not cured within 30 days after notice.

Other Contracts

The Company enters into agreements with third parties in the ordinary course of business for various products and services, including those related to research, preclinical and clinical operations, manufacturing and support, supply chain, and distribution. These contracts do not contain any material minimum purchase commitments. Certain of these agreements provide for termination rights subject to the payment of termination fees and/or wind-down costs. Under such agreements, the Company is contractually obligated to make certain payments to vendors upon early termination, primarily to reimburse them for their unrecoverable outlays incurred prior to cancellation as well as any amounts owed by the Company prior to early termination. The actual amounts the Company could pay in the future to the vendors under such agreements may differ from the purchase order amounts due to cancellation provisions. The termination fees were not probable of payment as of December 31, 2022 and 2021.

Legal Proceedings

From time to time, the Company may become involved in legal proceedings or other litigation relating to claims arising in the ordinary course of business. The Company accrues a liability for such matters when it is probable that future expenditures will be made and that such expenditures can be reasonably estimated. Significant judgment is required to determine both probability and estimated exposure amount. Legal fees and other costs associated with such proceedings are expensed as incurred. As of December 31, 2022 and 2021, the Company was not a party to any material legal proceedings.

On January 31, 2023, a securities class action lawsuit captioned Brill v. Invivyd, Inc., et. al., Case No. 1:23-CV-10254-LTS, was filed against the Company and certain of its former officers in the U.S. District Court for the District of Massachusetts. The complaint alleges violations of Sections 10(b) and 20(a) of the Exchange Act and Rule 10b-5 promulgated thereunder on the basis of purportedly materially false and misleading statements and omissions concerning ADG20's effectiveness against the Omicron variant of COVID-19. The complaint seeks, among other things, unspecified damages, attorneys' fees, expert fees, and other costs.

The Company believes that is has strong defenses and it intends to vigorously defend against this action. The lawsuit is in early stages, and, at this time, no assessment can be made as to the likely outcome or whether the outcome will be material to the Company.

Additionally, the Company received a request from the SEC, dated March 22, 2023, for documents and information concerning, among other matters, the Company's testing and analysis of the efficacy of ADG20 against Omicron and other COVID-19 variants, its public statements regarding the potential use of ADG20 against the Omicron variant, and related communications with investors and the media. The Company intends to cooperate fully with this fact-finding inquiry.

Indemnification Agreements

In the ordinary course of business, the Company may provide indemnification of varying scope and terms to its vendors, lessors, contract research organizations, contract manufacturing organizations, 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 its executive officers that 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 that the Company could be required to make under these indemnification agreements is, in many cases, unlimited. The Company has not incurred any material costs as a result of such indemnifications and is not currently aware of any indemnification claims.

10. Convertible Preferred Stock

The Company has issued Series A convertible preferred stock (the "Series A Preferred Stock"), Series B convertible preferred stock (the "Series B Preferred Stock"), and Series C Preferred Stock (the "Series C Preferred Stock"), all of which are collectively referred to as the "Preferred Stock."

In July 2020, the Company issued and sold 6,237,500 shares of Series A Preferred Stock, at a price of $8.00 per share, for gross proceeds of $49.9 million and incurred $0.2 million of issuance costs. Concurrently, the Company issued 5,000,000 shares of Series A Preferred Stock to Adimab as consideration payable pursuant to the Adimab Assignment Agreement (see Note 7).

In October and November 2020, the Company issued and sold 1,410,434 shares of Series B Preferred Stock, at a price of $56.72 per share, for gross proceeds of $80.0 million and incurred $0.2 million of issuance costs. Adimab, a related party, participated in the Series B Preferred Stock financing by purchasing 44,076 shares of Series B Preferred Stock for an aggregate purchase price of $2.5 million. The issuance of the Series B Preferred Stock resulted in changes to certain terms of the Series A Preferred Stock. The Company concluded that such changes were not significant and resulted in a modification, rather than an extinguishment, of the Series A Preferred Stock. The changes to the terms of the Series A Preferred Stock did not result in incremental value to the stockholders. Therefore, there was no impact to the accounting for the Series A Preferred Stock.

In April 2021, the Company issued and sold 4,296,550 shares of its Series C Preferred Stock, at a price of $78.08578 per share, for aggregate gross proceeds of $335.5 million and incurred $0.3 million of issuance costs. Adimab, a related party, participated in the Series C Preferred Stock financing by purchasing 128,064 shares of Series C Preferred Stock for an aggregate purchase price of $10.0 million.

The terms of the Series C Preferred Stock were substantially the same as the terms of the Series A Preferred Stock and Series B Preferred Stock, except that the original issue price per share and the conversion price per share of the Series C Preferred Stock is $78.08578.

In July 2021, the Company filed an amended and restated certificate of incorporation, which increased the Company's authority to issue (i) 150,000,000 shares of common stock and (ii) 16,944,484 shares of Preferred Stock. In August 2021, in connection with the closing of the IPO, the Company filed an amended and restated certificate of incorporation to, among other things: (i) increase the number of authorized shares of common stock from 150,000,000 shares to 1,000,000,000 shares, (ii) eliminate all references to the previously existing series of convertible preferred stock and (iii) authorize 10,000,000 shares of undesignated preferred stock that may be issued from time to time by the Company's board of directors in one or more series.

Upon issuance of each series of Preferred Stock, the Company assessed the embedded conversion and liquidation features of the securities and determined that such features did not require the Company to separately account for these features. The Company also concluded that no beneficial conversion feature existed on the issuance date of each series of Preferred Stock.

Upon the closing of the Company's IPO in August 2021, all shares of the Company's convertible preferred stock then outstanding converted into 84,722,420 shares of common stock (see Note 11).

11. Common Stock

The voting, dividend and liquidation rights of the holders of shares of the Company's common stock were subject to and qualified by the rights, powers and preferences of the holders of the Preferred Stock set forth above and described in the Company's final prospectus related to the IPO filed with the SEC pursuant to Rule 424(b)(4) under the Securities Act of 1933, as amended (the "Securities Act") on August 6, 2021.

In June 2020, the Company issued and sold 21,250,000 shares of its common stock to Adimab upon formation of the Company for $0.00002 per share. In July 2020, such shares of common stock were repurchased by the Company from Adimab contemporaneous with the execution of the Adimab Assignment Agreement, pursuant to which the Company acquired certain intellectual property rights in exchange for the issuance of 5,000,000 shares of its Series A Preferred Stock. As of December 31, 2022 and 2021 the 21,250,000 shares of common stock repurchased from Adimab were retired and redesignated as authorized but unissued shares of the Company's common stock. The fair value of the repurchased common stock was $0.004 per share, or $85,000 in the aggregate, as determined based on a third-party valuation (see Note 7).

In April 2021, the Company increased the number of shares of common stock authorized for issuance from 19,000,000 to 23,251,555 shares and increased the number of shares of preferred stock authorized for issuance from 12,647,934 to 16,944,484 shares, of which 4,296,550 shares were designated as Series C Preferred Stock.

As described in Note 10 above, in July 2021, the Company filed an amended and restated certificate of incorporation, which increased the Company's authority to issue 150,000,000 shares of common stock. In August 2021, in connection with the closing of the IPO, the Company filed an amended and restated certificate of incorporation to, among other things, increase the number of authorized shares of common stock from 150,000,000 shares to 1,000,000,000 shares.

As of December 31, 2022, the Company had reserved 44,164,654 shares of common stock for the exercise of outstanding stock options and the issuance of awards available for grant under the Company's 2020 Equity Incentive Plan, 2021 Equity Incentive Plan and 2021 Employee Stock Purchase Plan (see Note 12).

Shelf Registration Statement

In September 2022, the Company filed a shelf registration statement on Form S-3 with the SEC (File No. 333-267643) and accompanying base prospectus, which was declared effective by the SEC on October 5, 2022, for the offer and sale of up to $400 million of the Company's securities.

Treasury Stock

In April and May 2021, the Company retired an aggregate of 22,600,000 shares of common stock held in treasury. Upon retirement, the shares were redesignated as authorized but unissued shares of the Company's common stock.

In November 2021, the Company repurchased 468,751 shares of unvested restricted common stock at the original purchase price upon a termination of service during the vesting period. As of December 31, 2021, the shares of common stock repurchased were recorded as treasury stock in the accompanying consolidated balance sheets and consolidated statements of convertible preferred stock and stockholders' equity (deficit) as such shares were not retired. The fair value of the repurchased common stock was insignificant.

In February and June 2022, the Company repurchased 1,158,089 and 992,648 shares of unvested restricted common stock, respectively, at the original purchase price upon a termination of service during the vesting period. The shares of common stock repurchased were recorded as treasury stock in the accompanying condensed consolidated balance sheets and consolidated statements of convertible preferred stock and stockholders' equity (deficit) as such shares were not retired. The fair value of the repurchased common stock was insignificant.

In March and September 2022, the Company retired an aggregate of 1,626,840 and 992,648 shares of common stock, respectively, held in treasury. Upon retirement, the shares were redesignated as authorized but unissued shares of the Company's common stock.

In March 2023, the Company repurchased 206,802 shares of unvested restricted common stock at the original purchase price upon a termination of service during the vesting period.

Stock Split

In July 2021, the Company effected a five-for-one stock split of its issued and outstanding shares of common stock and a proportional adjustment to the existing conversion ratios of each series of the Company's preferred stock (see Note 10). Accordingly, all share and per share amounts for all periods presented in the accompanying condensed consolidated financial statements and notes thereto have been adjusted retroactively, where applicable, to reflect this stock split and adjustment of the Preferred Stock conversion ratios.

Initial Public Offering

In August 2021, the Company completed its IPO, pursuant to which it issued and sold 20,930,000 shares of its common stock at an initial public offering price of $17.00 per share, including 2,730,000 shares of its common stock pursuant to the full exercise of the underwriters' option to purchase additional shares. The aggregate net proceeds received by the Company from the IPO were approximately $327.5 million, after deducting underwriting discounts and commissions and offering expenses payable by the Company. Upon the closing of the IPO, all of the shares of the Company's convertible preferred stock then outstanding converted into 84,722,420 shares of common stock. Upon the conversion of the convertible preferred stock, the Company reclassified the carrying value of the convertible preferred stock to common stock (at par value) and additional paid-in capital.

12. Stock-Based Compensation

2020 Equity Incentive Plan

The Company's 2020 Equity Incentive Plan (the "2020 Plan") provides for the Company to grant incentive stock options, non-qualified stock options, restricted stock awards, restricted stock units and other stock-based awards to employees, members of the board of directors and consultants. The 2020 Plan is administered by the board of directors or, at the discretion of the board of directors, by a committee of the board of directors. The board of directors may also delegate to one or more officers of the Company the power to grant awards to employees and certain officers of the Company. The exercise prices, vesting and other restrictions are determined at the discretion of the board of directors, or its committee or any such officer if so delegated.

The exercise price for stock options granted may not be less than the fair market value of the Company's common stock on the date of grant, as determined by the board of directors, or at least 110% of the fair market value of the Company's common stock on the date of grant in the case of an incentive stock option granted to an employee who owns stock representing more than 10% of the voting power of all classes of stock as determined by the board of directors as of the date of grant. Prior to the IPO, the Company's board of directors determined the fair value of the Company's common stock, taking into consideration its most recently available valuation of common stock performed by third parties as well as additional factors which may have changed since the date of the most recent contemporaneous valuation through the date of grant. Stock options granted under the 2020 Plan expire after ten years and typically vest over a four-year period with the first 25% vesting upon the first anniversary of a specified vesting commencement date and the remainder vesting in 36 equal monthly installments over the succeeding three years, contingent on the recipient's continued employment or service. Certain awards of stock options permit the holders to exercise the option in whole or in part prior to the full vesting of the option in exchange for unvested shares of restricted common stock with respect to any unvested portion of the option so exercised.

As of December 31, 2022, there were 10,362,687 shares authorized to be issued upon the exercise of outstanding stock option grants and no shares reserved for future issuance under the 2020 Plan.

2021 Equity Incentive Plan

In July 2021, the Company's board of directors adopted, and its stockholders approved, the 2021 Equity Incentive Plan (the "2021 Plan"), which became effective immediately prior to and contingent upon the execution of the underwriting agreement related to the Company's IPO. The 2021 Plan provides for the grant of incentive stock options, non-statutory stock options, stock appreciation rights, restricted stock awards, restricted stock units and other stock-based awards. The number of shares reserved for issuance under the 2021 Plan was equal to 35,075,122, which is the sum of 11,413,572 new shares; plus the number of shares (not to exceed 23,661,550 shares), which represents (i) the number of shares that remained available for issuance under the 2020 Plan, at the time the 2021 Plan became effective, and (ii) any shares subject to outstanding stock options or other stock awards that were granted under the 2020 Plan that are forfeited, terminate, expire or are otherwise not issued. In addition, the number of shares of the Company's common stock reserved for issuance under the 2021 Plan will automatically increase on the first day of each calendar year, beginning on January 1, 2022 and continuing through January 1, 2031, in an amount equal to 5% of the shares of common stock outstanding on the last day of the calendar month before the date of each automatic increase, or a lesser number of shares determined by the board of directors. On January 1, 2022, 5,539,145 shares of common stock were automatically added to the shares authorized for issuance under the 2021 Plan. The number of shares to be issued under the 2021 Plan did not increase on January 1, 2023 as determined by the Company's board of directors. The shares of common stock underlying any awards that are forfeited, cancelled, held back upon exercise or settlement of an award to satisfy the exercise price or tax withholding, repurchased or are otherwise terminated by the Company under the 2021 Plan will be added back to the shares of common stock available for issuance under the 2021 Plan.

As of December 31, 2022, there were an aggregate of 42,935,402 shares authorized to be issued under the 2020 Plan and the 2021 Plan, which includes 10,362,687 and 12,876,704 shares authorized to be issued upon the exercise of outstanding stock option grants from the 2020 Plan and 2021 Plan, respectively, and 0 and 19,696,011 shares reserved for future issuance under the 2020 Plan and 2021 Plan, respectively.

Stock Option Valuation

The fair value of stock option grants is estimated using the Black-Scholes option-pricing model. Prior to its IPO in August 2021, the Company had been a private company. Due to the proximity to the IPO, the Company continues to lack sufficient company-specific historical and implied volatility information. Therefore, it estimates its expected stock volatility based on the historical volatility of a publicly traded set of peer companies and expects to continue to do so until such time as it has adequate historical data regarding the volatility of its own traded stock price. For options with service-based vesting conditions, the expected term of the Company's stock options has been determined utilizing the "simplified" method. The risk-free interest rate is determined by reference to the U.S. Treasury yield curve in effect at the time of grant of the award for time periods approximately equal to the expected term of the award. Expected dividend yield is based on the fact that the Company has never paid cash dividends and does not expect to pay any cash dividends in the foreseeable future.

The following table presents, on a weighted-average basis, the assumptions used in the Black-Scholes option-pricing model to determine the grant-date fair value of stock options granted:

	2022	2021
Expected term (in years)	6.0	6.0
Expected volatility	71.8%	73.3%
Risk-free interest rate	2.7%	1.0%
Expected dividend yield	—%	—%

Stock Option Activity

The following table summarizes the Company's stock option activity since December 31, 2021:

	Number of Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Outstanding at December 31, 2021	18,871,592	$ 10.15	9.3	$ 24,897
Granted	12,625,109	4.30		
Exercised	(298,353)	0.81		
Forfeited	(7,958,957)	10.41		
Outstanding at December 31, 2022	23,239,391	$ 7.01	7.9	$ 1,594
Vested and expected to vest at December 31, 2022	23,239,391	$ 7.01	7.9	$ 1,594
Options exercisable at December 31, 2022	6,845,330	$ 8.25	6.3	$ 1,001

The weighted-average grant date fair value of stock options granted during the year ended December 31, 2022 and 2021 was $2.79 and $7.56, respectively, per share.

The aggregate intrinsic value is calculated as the difference between the exercise price of the underlying options and the fair market value of the common stock for the options that had exercise prices lower than the estimated fair value of the Company's common stock at December 31, 2022 and December 31, 2021.

The total intrinsic value of stock options exercised was $1.0 million for the year ended December 31, 2022. There were no options exercised during the year ended December 31, 2021.

In July 2022, David Hering, M.B.A. was appointed as the Company's Chief Executive Officer. In conjunction with this appointment, Mr. Hering was granted a stock option to purchase 2,000,000 shares of common stock, which vest monthly in equal installments over 48 months.

Mr. Hering was also eligible to receive an additional stock option to purchase up to 1,000,000 shares of common stock (the "Additional Option Grant") if certain goals approved by the Company's board of directors, on the recommendation of the Compensation Committee, were achieved on or prior to December 31, 2022, with such achievement to be determined by the Company's board of directors, upon the recommendation of the Compensation Committee. If such performance goals were partially achieved on or prior to December 31, 2022, then Mr. Hering was entitled to receive a partial amount of the Additional Option Grant, with such partial amount to be determined by the Company's board of directors, in its sole and absolute discretion. In December 2022, Mr. Hering received a partial amount of the Additional Option Grant and was granted a stock option to purchase 700,000 shares of common stock, which vests in monthly equal installments over a 48-month period commencing on the grant date.

Early Exercise of Stock Options into Restricted Stock

The Company's restricted stock activity during the year ended December 31, 2022 was solely due to shares of restricted common stock issued pursuant to the permitted early exercise of stock options as permitted under the 2020 Plan prior to amendments. The 2021 Plan does not permit early exercise of stock options. Shares of common stock issued upon exercise of unvested stock options are restricted and continue to vest in accordance with the original vesting schedule applicable to the associated stock option award. The Company has the right to repurchase any unvested shares of restricted common stock, at the original purchase price, upon any voluntary or involuntary termination of the service relationship during the vesting period.

	Number of Shares
Unvested restricted stock at December 31, 2021	3,082,175
Issued	—
Vested	(571,105)
Repurchased	(2,150,737)
Unvested restricted stock at December 31, 2022	360,333

Proceeds from the early exercise of stock options are recorded as an early-exercise liability on the consolidated balance sheets. The liability for unvested common stock subject to repurchase is then reclassified to common stock and additional paid-in capital as the Company's repurchase right lapses. Shares issued pursuant to the early exercise of stock options are not considered to be outstanding for accounting purposes until the shares vest. As of each of December 31, 2022 and 2021, the liability related to the payments for unvested shares from early-exercised options was less than $0.1 million.

Stock-Based Compensation Expense

The Company recorded stock-based compensation expense in the following expense categories of its consolidated statements of operations and comprehensive loss (in thousands):

	2022	2021
Research and development	$ 12,800	$ 6,591
Selling, general and administrative	8,848	11,173
	$ 21,648	$ 17,764

In February 2022, Tillman U. Gerngross, Ph.D., resigned as Chief Executive Officer and President and as a member of the Company's board of directors. In accordance with his resignation, Dr. Gerngross's outstanding stock options were forfeited, resulting in a reversal of selling, general and administrative related stock-based compensation expense of approximately $4.6 million.

As of December 31, 2022, total unrecognized stock-based compensation cost related to unvested awards was $62.0 million and the weighted-average period over which such expense is expected to be recognized was 2.8 years.

2021 Employee Stock Purchase Plan

In July 2021, the Company's board of directors adopted, and its stockholders approved, the 2021 Employee Stock Purchase Plan (the "2021 ESPP"), which became effective immediately prior to and contingent upon the execution of the underwriting agreement related to the Company's IPO. A total of 1,342,773 shares of common stock were initially reserved for issuance under the 2021 ESPP. There were 113,521 shares issued under the 2021 ESPP as of December 31, 2022. The number of shares of common stock that may be issued under the 2021 ESPP will automatically increase on the first day of each calendar year, beginning on January 1, 2022 and continuing through January 1, 2031, by an amount equal to the lesser of (i) 1% of the shares of common stock outstanding on the last day of the calendar month before the date of each automatic increase, (ii) 2,685,546 shares and (iii) an amount determined by the Company's board of directors. The number of shares to be issued under the 2021 ESPP did not increase on January 1, 2023 as determined by the Company's board of directors. The first offering under the 2021 ESPP was June 6, 2022. As of December 31, 2022, 1,229,252 shares remained available for issuance under the 2021 ESPP. During the year ended December 31, 2022, the Company recognized $0.1 million in related stock-based compensation expense.

Warrant Expense

In November 2022, the Company entered into the PHP MSA, the PHP Work Order and a warrant agreement with respect to the PHP Warrant. To compensate for the services and deliverables provided by PHP, the Company issued 6,824,712 equity-classified warrants to PHP. Each warrant shall give the right to acquire common stock of the Company at a purchase price of $3.48 per share. Per the agreement, the PHP Warrant is exercisable upon either the achievement of corresponding market capitalization targets or a consummation of a fundamental transaction (as defined in the PHP Warrant); as such, there are no other requirements, including any continuous service requirements, in order for PHP to be entitled to the PHP Warrant, if and when any portion of it vests.

The following table sets forth the activity relating to the PHP Warrant outstanding for the year ended December 31, 2022 (aggregate value in thousands):

	Number of Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Outstanding at December 31, 2021	—	$ —	—	$ —
Granted	6,824,712	3.48		
Outstanding at December 31, 2022	6,824,712	$ 3.48	9.88	$ —
Warrants exercisable at December 31, 2022	—	$ —	—	$ —

Assumptions used to determine the fair value of PHP Warrant using the simulation model based on Geometric Brownian Motion in a risk-neutral framework are as follows:

	Year Ended December 31, 2022
Weighted-average grant date fair value per warrant	$ 2.55
Expected term (in years)	10.0
Expected volatility	70.0%
Risk-free interest rate	3.8%
Expected dividend yield	—%
Common shares outstanding	108,982,401

The aggregate grant date fair value of the PHP Warrant was $17.4 million which was recognized as warrant expense on the grant date.

13. Income Taxes

During the years ended December 31, 2022 and 2021, the Company did not record income tax benefits for the net operating losses ("NOLs") incurred or for the research and development tax credits generated in each period, due to its uncertainty of realizing a benefit from those items. All of the Company's operating losses since inception have been generated in the U.S.

A reconciliation of the U.S. federal statutory income tax rate to the Company's effective income tax rate is as follows:

	2022	2021
Federal statutory income tax rate	) (21.0%	) (21.0%
State income taxes, net of federal benefit	(3.5)	(2.9)
Federal research and development tax credits	(4.1)	(1.4)
Stock-based compensation	0.3	—
Change in deferred tax asset valuation allowance	28.3	25.3
Effective income tax rate	—%	—%

The Company's net deferred tax assets consisted of the following (in thousands):

	Year Ended December 31,	
	2022	2021
Deferred tax assets:		
Net operating loss carryforwards	$ 61,653	$ 51,635
Capitalized research and development	36,550	—
Research and development tax credit carryforwards	16,901	4,350
Stock-based compensation expense	8,308	4,116
Warrant expense	4,066	—
Intangibles	2,602	1,707
Operating lease liability	871	—
Other	1,269	1,160
Total gross deferred tax assets	132,220	62,968
Valuation allowance	(131,325)	(62,968)
Total deferred tax assets	$ 895	$ —
Deferred tax liabilities:		
Operating lease right-of-use assets	$ (884)	$ —
Depreciation expense	(11)	—
Total deferred tax liabilities	(895)	—
Total net deferred tax assets	$ —	$ —

As of December 31, 2022 and 2021, the Company had U.S. federal NOL carryforwards of $263.7 million and $221.9 million, respectively, which may be available to reduce future taxable income. All of the U.S. federal NOL carryforwards have an indefinite carryforward period but are limited in their usage to 80% of annual taxable income. In addition, as of December 31, 2022, the Company had state NOL carryforwards of $103.3 million, which may be available to reduce future taxable income, of which $7.0 million have an indefinite carryforward period while the remaining $96.3 million begin to expire in 2032. As of December 31, 2022, the Company also had U.S. federal and state research and development tax credit carryforwards of $13.2 million and $3.6 million, respectively, which may be available to reduce future tax liabilities and expire at various dates beginning in 2041 and 2036, respectively.

Utilization of the U.S. federal and state NOL carryforwards and research and development tax credit carryforwards may be subject to a substantial annual limitation under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, and corresponding provisions of state law, due to ownership changes that have occurred previously or that could occur in the future. These ownership changes may limit the amount of carryforwards that can be utilized annually to offset future taxable income or tax liabilities. In general, an ownership change, as defined by Section 382, results from transactions increasing the ownership of certain stockholders or public groups in the stock of a corporation by more than 50% over a three-year period. The Company has not conducted a study to assess whether a change of control has occurred or whether there have been multiple changes of control since inception due to the significant complexity and cost associated with such a study. If the Company has experienced a change of control, as defined by Section 382, at any time since inception, utilization of the NOL carryforwards or research and development tax credit carryforwards would be subject to an annual limitation under Section 382, which is determined by first multiplying the value of the Company's stock at the time of the ownership change by the applicable long-term tax-exempt rate, and then could be subject to additional adjustments, as required. If a change in ownership were to have occurred during that period and resulted in the restriction of NOL or credit carryforwards, the reduction in the related deferred tax asset would be offset with a corresponding reduction in the valuation allowance.

The Company has evaluated the positive and negative evidence bearing upon its ability to realize the deferred tax assets. Management has considered the Company's history of cumulative losses since inception, expectation of future losses and lack of other positive evidence and has concluded that it is more likely than not that the Company will not realize the benefits of the deferred tax assets. Accordingly, a full valuation allowance has been established against the net deferred tax assets as of December 31, 2022 and 2021. Management reevaluates the positive and negative evidence at each reporting period. During the years ended December 31, 2022 and 2021, the Company increased its valuation allowance by $68.3 million and $57.3 million, respectively, with such increase recognized as income tax expense, in order to maintain a full valuation allowance against its deferred tax assets, and there were no changes recorded to the allowance during the period.

The Company assesses uncertain tax positions in accordance with the guidance for accounting for uncertain tax positions. This pronouncement prescribes a recognition threshold and measurement methodology for recording within the consolidated financial statements uncertain tax positions taken, or expected to be taken, in the Company's income tax returns. To the extent the uncertain tax positions do not meet the "more likely than not" threshold, the Company derecognizes such positions. For

tax positions meeting the “more likely than not" threshold, the Company measures and records the highest probable benefit, and establishes appropriate reserves for benefits that exceed the amount likely to be sustained upon examination. As of December 31, 2022 and 2021, the Company has not recorded any uncertain tax positions or related interest and penalties.

The Company files income tax returns in the U.S. federal and various state jurisdictions and is not currently under examination by any taxing authority for any open tax year. Due to NOL carryforwards, all years remain open for income tax examination. To the extent the Company has tax attribute carryforwards, the tax years in which the attribute was generated may still be adjusted upon examination by the federal or state tax authorities to the extent utilized in a future period. No federal or state tax audits are currently in process.

14. Defined Contribution Plan

The Company maintains a 401(k) Plan (the “401(k) Plan”) for the benefit of eligible employees. The 401(k) Plan is a defined contribution plan under Section 401(k) of the Internal Revenue Code of 1986, as amended, that covers all employees who meet defined minimum age and service requirements and allows participants to defer a portion of their annual compensation on a pre-tax basis. Pursuant to the terms of the 401(k) Plan, the Company is required to make non-elective contributions of 3% of eligible participants’ compensation. For the years ended December 31, 2022 and 2021, the Company contributed $0.8 million and $0.6 million, respectively, to the 401(k) Plan.

15. Net Loss per Share

Basic and diluted net loss per share attributable to common stockholders was calculated as follows (in thousands, except share and per share amounts):

	2022	2021
Numerator:		
Net loss attributable to common stockholders	$ (241,317)	$ (226,790)
Denominator:		
Weighted-average common shares outstanding, basic and diluted	108,268,289	42,621,265
Net loss per share attributable to common stockholders, basic and diluted	$ (2.23)	$ (5.32)

Shares of unvested restricted common stock are not considered outstanding for accounting purposes until vested and were excluded from the calculations of basic net loss per share attributable to common stockholders for all periods presented.

The Company’s potential dilutive securities have been excluded from the computation of diluted net loss per share as the effect would be to reduce the net loss per share. Therefore, the weighted-average number of common shares outstanding used to calculate both basic and diluted net loss per share attributable to common stockholders is the same. The Company excluded the following potential common shares, presented based on amounts outstanding at each period end, from the computation of diluted net loss per share attributable to common stockholders for the periods indicated, because including them would have had an anti-dilutive effect:

	2022	2021
Stock options to purchase common stock	23,239,391	18,871,592
Unvested restricted common stock	360,333	3,082,175
Warrants to purchase common stock	6,824,712	—
	30,424,436	21,953,767

16. Related Party Transactions

Adimab participated in the Series B Preferred Stock financing and the Series C Preferred Stock financing by purchasing 44,076 and 128,064 shares of Series B Preferred Stock and Series C Preferred Stock, respectively, for an aggregate purchase price of $2.5 million and $10.0 million, respectively (see Note 10).

Adimab Assignment Agreement

Under the Adimab Assignment Agreement, Adimab, a principal stockholder of the Company, received upfront consideration in the form of Series A Preferred Stock, is entitled to receive milestone and royalty payments upon specified conditions, and receives payments from the Company for providing ongoing services under the agreement (see Note 7).

The Company did not recognize any IPR&D expense in connection with milestones payable during the year ended December 31, 2022. During the year ended December 31, 2021, the Company recognized $7.5 million as IPR&D expense in connection with milestones payable.

During the years ended December 31, 2022 and 2021, the Company recognized $0.6 million and $1.3 million, respectively, of research and development expense with respect to services performed by Adimab on the Company's behalf.

Adimab Collaboration Agreement

Under the Adimab Collaboration Agreement, the Company is obligated to pay Adimab for certain fees, milestone and royalty payments (see Note 7).

During the years ended December 31, 2022 and 2021, the Company recognized $5.2 million and $2.6 million, respectively, of research and development expense related to the quarterly fee.

During the years ended December 31, 2022 and 2021, the Company recognized $1.7 million and $0.3 million, respectively, of research and development expense with respect to services performed by Adimab on the Company's behalf.

During the year ended December 31, 2022, the Company recognized $1.0 million of IPR&D expense related to an option exercise fee. The Company did not recognize any IPR&D expense related to an option exercise fee during the year ended December 31, 2021.

During the year ended December 31, 2022, the Company recognized $0.4 million of IPR&D expense related to drug delivery fees. The Company did not recognize any IPR&D expense related to drug delivery fees during the year ended December 31, 2021.

Adimab Platform Transfer Agreement

Under the Adimab Platform Transfer Agreement, the Company is obligated to pay Adimab for certain fees, milestone and royalty payments (see Note 7).

During the year ended December 31, 2022, the Company recognized $3.0 million of IPR&D expense in connection with the upfront consideration payable for the rights assigned pursuant to the Adimab Platform Transfer Agreement. The Adimab Platform Transfer Agreement was not in effect during the year ended December 31, 2021.

As of December 31, 2022 and 2021, $0.3 million and $0.6 million, respectively, was due to Adimab under the Adimab Assignment Agreement, the Adimab Collaboration Agreement and the Adimab Platform Transfer Agreement by the Company. As of December 31, 2022 and 2021, no amounts were due from Adimab under the Adimab Assignment Agreement, the Adimab Collaboration Agreement or the Adimab Platform Transfer Agreement to the Company.

Mithril Group

In March 2022, a group of stockholders, including, among others, Adimab; Mithril II LP; M28 Capital Management LP; Polaris Venture Partners V, L.P.; and Population Health Equity Partners III, L.P., which are collectively referred to as the Mithril Group, submitted a notice of intent to nominate three directors to the Company's board of directors at the 2022 annual meeting of stockholders. In April 2022, the Mithril Group filed definitive proxy materials with the SEC seeking election of three directors to the Company's board of directors and adoption of a non-binding resolution for director declassification.

Subsequently, during the year ended December 31, 2022, Mithril II LP requested that the Company reimburse it for costs associated with legal expenses, corporate governance matters and stockholder proposals incurred as a result of the aforementioned matters in connection with the Company's 2022 annual meeting of stockholders. The Company made such reimbursement payment to Mithril II LP in the amount of $1.4 million, which the Company recognized as a selling, general and administrative expense.

As of December 31, 2022, no amounts were due to any member of the Mithril Group by the Company, and no amounts were due from any member of the Mithril Group to the Company.

Population Health Partners, L.P.

Under the PHP MSA and PHP Work Order, the Company is obligated to pay cash compensation for services and deliverables (see Note 8). Clive Meanwell, M.D. and Tamsin Berry, members of the Company's board of directors, are Managing Partner and Partner of PHP, respectively.

During the year ended December 31, 2022, the Company recognized $0.8 million of research and development expense related to services performed by PHP in connection with the PHP Work Order.

During the year ended December 31, 2022, the Company recognized $17.4 million of warrant expense related to warrants issued to PHP in connection with the PHP Warrant.

As of December 31, 2022, $0.8 million was due to PHP by the Company, and no amounts were due from PHP to the Company.

The agreements with PHP were not in effect during the year ended December 31, 2021.