UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

FORM 10-Q

(Mark One)

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

For the quarterly period ended September 30, 2022

OR

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

For the transition period from _____ to _____

Commission File Number: 001-39871

SAB BIOTHERAPEUTICS, INC.
(Exact Name of Registrant as Specified in its Charter)

Delaware	**85-3899721**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
2100 East 54th Street North Sioux Falls, South Dakota	**57104**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (605) 679-6980

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, 0.0001 par value per share	SABS	The Nasdaq Stock Market LLC
Warrants, each exercisable for one share of Common Stock at an exercise price of $11.50 per share	SABSW	The Nasdaq Stock Market LLC

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒	Smaller reporting company	☒
		Emerging growth company	☒

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

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

Indicate by check mark whether the registrant has filed all documents and reports required to be filed by Sections 12, 13 or 15(d) of the Securities Exchange Act of 1934 subsequent to the distribution of securities under a plan confirmed by a court. Yes ☒ No ☐

As of November 3, 2022, the registrant had 43,030,885 shares of common stock, $0.0001 par value per share, outstanding.

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Item 1. Consolidated Financial Statements (Unaudited).

SAB Biotherapeutics, Inc. and Subsidiaries
Consolidated Balance Sheets

	September 30, 2022	December 31, 2021
	(Unaudited)	
Assets		
Current assets		
Cash and cash equivalents	$ 8,332,188	$ 33,206,712
Restricted cash	—	6,338,306
Accounts receivable, net	12,942,037	8,010,708
Prepaid expenses	907,865	864,513
Total current assets	22,182,090	48,420,239
Long-term prepaid insurance	501,388	—
Operating lease right-of-use assets	1,870,518	2,615,204
Financing lease right-of-use assets	3,921,589	4,019,322
Property, plant and equipment, net	24,031,908	24,314,455
Total assets	**$ 52,507,493**	**$ 79,369,220**
Liabilities and Stockholders' Equity		
Current liabilities		
Accounts payable	$ 5,484,276	$ 4,458,525
Forward share purchase liability	—	6,338,306
Notes payable	25,013	25,013
Operating lease liabilities, current portion	1,212,862	1,142,413
Finance lease liabilities, current portion	140,891	161,050
Due to related party	—	2,367
Deferred grant income	—	100,000
Accrued expenses and other current liabilities	10,238,212	12,455,888
Total current liabilities	17,101,254	24,683,562
Operating lease liabilities, noncurrent	762,775	1,653,185
Finance lease liabilities, noncurrent	3,662,541	3,762,430
Warrant liabilities	357,516	10,720,130
Total liabilities	21,884,086	40,819,307
Commitments and contingencies (Note 17)		
Stockholders' equity		
Preferred stock; $0.0001 par value; 10,000,000 shares authorized, 0 shares issued and outstanding at September 30, 2022 and December 31, 2021, respectively	—	—
Common stock; $0.0001 par value; 490,000,000 shares authorized at September 30, 2022 and December 31, 2021; 43,577,543 and 43,487,279 shares issued, respectively, and 43,030,885 and 43,487,279 outstanding at September 30, 2022 and December 31, 2021, respectively	4,358	4,349
Treasury stock, at cost; 546,658 and 0 shares held at September 30, 2022 and December 31, 2021, respectively	(5,521,246)	—
Additional paid-in capital	76,135,447	67,674,515
Accumulated deficit	(39,995,152)	(29,128,951)
Total stockholders' equity	30,623,407	38,549,913
Total liabilities and stockholders' equity	**$ 52,507,493**	**$ 79,369,220**

See accompanying notes to the consolidated financial statements

SAB Biotherapeutics, Inc. and Subsidiaries
Consolidated Statements of Operations
(Unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	**2021**	**2022**	**2021**
Revenue				
Grant revenue	$ 3,589,708	$ 14,680,589	$ 21,743,309	$ 49,817,825
Total revenue	3,589,708	14,680,589	21,743,309	49,817,825
Operating expenses				
Research and development	7,352,978	15,070,265	29,300,405	46,535,671
General and administrative	4,044,046	3,600,678	13,500,512	9,331,125
Total operating expenses	11,397,024	18,670,943	42,800,917	55,866,796
Loss from operations	(7,807,316)	(3,990,354)	(21,057,608)	(6,048,971)
Changes in fair value of warrant liabilities	782,962	—	10,362,614	—
Gain on debt extinguishment of Paycheck Protection Program SBA Loan	—	—	—	665,596
Other income	1,527	3,953	1,527	3,953
Interest expense	(70,626)	(78,558)	(213,885)	(228,184)
Interest income	17,385	3,769	41,143	14,571
Total other income (expense)	731,248	(70,836)	10,191,399	455,936
Loss before income taxes	(7,076,068)	(4,061,190)	(10,866,209)	(5,593,035)
Income tax expense (benefit)	—	—	—	—
Net loss	$ (7,076,068)	$ (4,061,190)	$ (10,866,209)	$ (5,593,035)
Loss per common share attributable to the Company's shareholders				
Basic and diluted loss per common share	$ (0.16)	$ (0.16)	$ (0.25)	$ (0.22)
Weighted-average common shares outstanding – basic and diluted	43,030,885	25,973,406	43,042,379	25,973,406

See accompanying notes to the consolidated financial statements.

SAB Biotherapeutics, Inc. and Subsidiaries
Consolidated Statements of Changes In Stockholders' Equity
(Unaudited)

	Common stock			Treasury Stock			
	Shares	Amount	Additional Paid-In Capital	Shares	Amount	Accumulated Deficit	Total Stockholders' Equity
Balance at December 31, 2021	**43,487,279**	**$ 4,349**	**$ 67,674,515**	**—**	**$ —**	**$ (29,128,951)**	**$ 38,549,913**
Issuance of common stock for exercise of stock options	14,500	1	7,829	—	—	—	7,830
Forward Share Purchase Agreement, final settlement	—	—	817,060	—	—	—	817,060
Repurchase of common stock pursuant to the Forward Share Purchase Agreement	—	—	5,521,246	(546,658)	(5,521,246)	—	—
Stock-based compensation	—	—	897,600	—	—	—	897,600
Net income	—	—	—	—	—	985,863	985,863
Balance at March 31, 2022	**43,501,779**	**$ 4,350**	**$ 74,918,250**	**(546,658)**	**$ (5,521,246)**	**$ (28,143,088)**	**$ 41,258,266**
Issuance of common stock for exercise of stock options	75,764	8	69,133	—	—	—	69,141
Stock-based compensation	—	—	569,861	—	—	—	569,861
Net loss	—	—	—	—	—	(4,775,996)	(4,775,996)
Balance at June 30, 2022	**43,577,543**	**$ 4,358**	**$ 75,557,244**	**(546,658)**	**$ (5,521,246)**	**$ (32,919,084)**	**$ 37,121,272**
Stock-based compensation	—	—	578,203	—	—	—	578,203
Net loss	—	—	—	—	—	(7,076,068)	(7,076,068)
Balance at September 30, 2022	**43,577,543**	**$ 4,358**	**$ 76,135,447**	**(546,658)**	**$ (5,521,246)**	**$ (39,995,152)**	**$ 30,623,407**

See accompanying notes to the consolidated financial statements.

SAB Biotherapeutics, Inc. and Subsidiaries
Consolidated Statements of Changes In Stockholders' Equity
(Unaudited)

	Common stock				
	Shares	Amount	Additional Paid-In Capital	Accumulated Deficit	Total Stockholders' Equity
Balance at December 31, 2020	**25,973,406**	**$ 2,598**	**$ 50,989,657**	**$ (11,984,420)**	**$ 39,007,835**
Stock-based compensation	—	—	349,115	—	349,115
Net income	—	—	—	1,409,834	1,409,834
Balance at March 31, 2021	**25,973,406**	**$ 2,598**	**$ 51,338,772**	**$ (10,574,586)**	**$ 40,766,784**
Stock-based compensation	—	—	433,431	—	433,431
Net loss	—	—	—	(2,941,679)	(2,941,679)
Balance at June 30, 2021	**25,973,406**	**$ 2,598**	**$ 51,772,203**	**$ (13,516,265)**	**$ 38,258,536**
Stock-based compensation	—	—	880,664	—	880,664
Net loss	—	—	—	(4,061,190)	(4,061,190)
Balance at September 30, 2021	**25,973,406**	**$ 2,598**	**$ 52,652,867**	**$ (17,577,455)**	**$ 35,078,010**

See accompanying notes to the consolidated financial statements.

SAB Biotherapeutics, Inc. and Subsidiaries
Consolidated Statements of Cash Flows
(Unaudited)

	Nine Months Ended September 30,	
	2022	**2021**
Cash flows from operating activities:		
Net loss	$ (10,866,209)	$ (5,593,035)
Adjustments to reconcile net loss to net cash (used in) provided by operating activities:		
Gain on debt extinguishment of Paycheck Protection Program SBA Loan	—	(665,596)
Depreciation and amortization	2,270,621	868,630
Amortization of right-of-use assets	97,733	123,777
Stock-based compensation expense	2,045,664	1,663,210
Gain on sale of equipment	(15,793)	(5,488)
Changes in fair value of warrant liabilities	(10,362,614)	—
Changes in operating assets and liabilities		
Accounts receivable	(4,931,330)	10,356,280
Prepaid expenses	(544,737)	331,559
Operating lease right-of-use assets	(75,276)	(45,964)
Accounts payable	1,025,751	(3,273,848)
Due to related party	(2,367)	(2,727)
Deferred grant income	(100,000)	—
Accrued expense and other current liabilities	(2,217,676)	3,108,244
Net cash (used in) provided by operating activities	**(23,676,233)**	**6,865,042**
Cash flows from investing activities:		
Proceeds from the sale of equipment	76,390	—
Purchases of equipment	(2,048,660)	(8,581,735)
Net cash used in investing activities	**(1,972,270)**	**(8,581,735)**
Cash flows from financing activities:		
Payments related to the Forward Share Purchase Agreement	(5,521,246)	—
Principal payments on finance leases	(120,053)	(142,928)
Proceeds from exercise of stock options	76,972	—
Net cash used in financing activities	**(5,564,327)**	**(142,928)**
Net decrease in cash, cash equivalents, and restricted cash	(31,212,830)	(1,859,621)
Cash, cash equivalents, and restricted cash		
Beginning of year	39,545,018	12,610,383
End of period	$ 8,332,188	$ 10,750,762
Supplemental disclosures:		
Cash paid for interest	$ 143,259	$ 228,184
Supplemental information on non-cash investing and finance activities:		
Right-of-use assets obtained in exchange for operating lease liabilities	$ 65,088	$ 260,682

See accompanying notes to the consolidated financial statements.

(1) Nature of Business

On October 22, 2021 (the "Closing Date"), we consummated the business combination contemplated by the agreement and plan of merger, dated as of June 21, 2021, as amended on August 12, 2021, made by and among Big Cypress Acquisition Corp., a Delaware corporation (“BCYP”), Big Cypress Merger Sub Inc., a Delaware corporation (“Merger Sub”), SAB Biotherapeutics, Inc., a Delaware corporation (“SAB” or the “Company”), and Shareholder Representative Services LLC, a Colorado limited liability company, solely in its capacity as the representative, agent and attorney-in-fact of the SAB Stockholders. Upon closing of the Business combination, Big Cypress Merger Sub merged with SAB Biotherapeutics, with SAB Biotherapeutics as the surviving company of the merger. Upon closing of the business combination, Big Cypress Acquisition Corp. changed its name to “SAB Biotherapeutics, Inc.”.

SAB Biotherapeutics, Inc. is a clinical-stage biopharmaceutical company focused on the development and commercialization of a portfolio of products from its proprietary immunotherapy platform to produce fully targeted human polyclonal antibodies, without using human plasma or serum. SAB’s novel DiversitAb platform enables the rapid production of large amounts of targeted human polyclonal antibodies, leveraging transchromosomic cattle (Tc Bovine™) that have been genetically designed to produce human antibodies (immunoglobulin G) rather than bovine in response to an antigen. Animal antibodies have been made in rabbits, sheep and horses. However, SAB's platform is the first to produce fully human antibodies in large animals.

The COVID-19 pandemic continues to evolve, and the extent to which it may impact the Company’s business will depend on future developments, which are highly uncertain and cannot be predicted with confidence, such as the ultimate geographic spread of the disease, the duration of the outbreak, travel restrictions and social distancing in the U.S. and other countries, business closures or business disruptions, and the effectiveness of actions taken in the U.S. and other countries to contain and treat the disease. The Company is following, and will continue to follow, recommendations from the U.S. Centers for Disease Control and Prevention, as well as federal, state, and local governments. To date, the Company has not experienced material business disruptions, but it cannot be certain of the future impact of the COVID-19 pandemic on its business and consolidated financial statements.

Going Concern

As of September 30, 2022, the Company has experienced net losses, negative cash flows from operations and had an accumulated deficit of $40 million. The Company anticipates to continue to generate losses for the foreseeable future, and expects the losses to increase as the Company continues the development of, and seek regulatory approvals for, product candidates, and begin commercialization of products. As a result, the Company will require additional capital to fund operations in order to support long-term plans, in particular, following the JPEO Rapid Response Contract Termination. These factors raise substantial doubt about the Company’s ability to continue as a going concern for the one-year period following the date that these financial statements were issued.

To continue as a going concern, the Company will need, among other things, to raise additional capital resources. The Company plans to seek additional funding through a combination of equity or debt financings, or other third-party financing, collaborative or other funding arrangements. Should the Company seek additional financing from outside sources, the Company may not be able to raise such financing on terms acceptable to the Company or at all. If the Company is unable to raise additional capital when required or on acceptable terms, the Company may be required to scale back or discontinue the advancement of product candidates, reduce headcount, liquidate our assets, file for bankruptcy, reorganize, merge with another entity, or cease operations.

The unaudited consolidated financial statements as of September 30, 2022, have been prepared on the basis that the Company will continue as a going concern, and do not include any adjustments to reflect the possible future effects on the recoverability and classification of assets or the amounts and classification of liabilities that may result from the possible inability for the Company to continue as a going concern.

(2) Summary of Significant Accounting Policies

A summary of the significant accounting policies applied in preparation of the accompanying consolidated financial statements is set forth below.

Basis of presentation

The financial statements have been prepared in conformity with U.S. Generally Accepted Accounting Principles ("GAAP") and include all adjustments necessary for the fair presentation of the Company’s financial position for the periods presented.

The Business Combination was accounted for as a reverse recapitalization in accordance with U.S. GAAP (the “Reverse Recapitalization”). Under this method of accounting, BCYP is treated as the “acquired” company and SAB Biotherapeutics is treated as the acquirer for financial reporting purposes. Accordingly, for accounting purposes, the Reverse Recapitalization was treated as the equivalent of SAB Biotherapeutics issuing stock for the net assets of BCYP, accompanied by a recapitalization. The net assets of BCYP are stated at historical cost, with no goodwill or other intangible assets recorded. SAB Biotherapeutics was determined to be the accounting acquirer based on the following predominant factors:

- SAB Biotherapeutics’ shareholders have the largest portion of voting rights in the Company;
- the Board and Management are primarily composed of individuals associated with SAB Biotherapeutics;
- the operations of SAB comprise the ongoing operations of the Company.

The consolidated assets, liabilities and results of operations prior to the Reverse Recapitalization are those of SAB Biotherapeutics. At the Closing Date, and subject to the terms and conditions of the Merger Agreement, each share of SAB Biotherapeutics common stock, par value $0.0001 per share, and each share of the SAB Biotherapeutics convertible preferred stock that was convertible into a share of SAB Biotherapeutics common stock at a one-to-one ratio, was converted into Common Stock equal to approximately 0.4653 (the "Exchange Ratio"). The shares and corresponding capital amounts and losses per share, prior to the Business Combination, have been retroactively restated based on shares reflecting the Exchange Ratio established in the Business Combination.

Emerging growth company status

The Company is an “emerging growth company,” as defined in Section 2(a) of the Securities Act, as modified by the Jumpstart our Business Startups Act of 2012, (the “JOBS Act”), and it may take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies including, but not limited to, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in its periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved.

Further, Section 102(b)(1) of the JOBS Act exempts emerging growth companies from being required to comply with new or revised financial accounting standards until private companies (that is, those that have not had a Securities Act registration statement declared effective or do not have a class of securities registered under the Securities Exchange Act of 1934, as amended (the “Exchange Act”) are required to comply with the new or revised financial accounting standards. The JOBS Act provides that a company can elect to opt out of the extended transition period and comply with the requirements that apply to non-emerging growth companies but any such election to opt out is irrevocable. The Company has elected not to opt out of such extended transition period which means that when a standard is issued or revised and it has different application dates for public or private companies, the Company, as an emerging growth company, can adopt the new or revised standard at the time private companies adopt the new or revised standard. This may make comparison of the Company’s financial statements with another public company which is neither an emerging growth company nor an emerging growth company which has opted out of using the extended transition period difficult or impossible because of the potential differences in accounting standards used.

Principles of consolidation

The accompanying consolidated financial statements include the results of the Company and its wholly owned subsidiaries, SAB Capra, LLC and Aurochs, LLC. Intercompany balances and transactions have been eliminated in consolidation.

Significant risks and uncertainties

The Company’s operations are subject to a number of factors that can affect its operating results and financial condition. Such factors include, but are not limited to, the results of research and development efforts, clinical trial activities of the Company’s product candidates, the Company’s ability to obtain regulatory approval to market its product candidates, competition from products manufactured and sold or being developed by other companies, and the Company’s ability to raise capital.

The Company currently has no commercially approved products and there can be no assurance that the Company’s research and development will be successfully commercialized. Developing and commercializing a product requires significant time and capital and is subject to regulatory review and approval as well as competition from other biotechnology and pharmaceutical companies. The Company operates in an environment of rapid change and is dependent upon the continued services of its employees and obtaining and protecting intellectual property.

Funding from government grants is not guaranteed to cover all costs, and additional funding may be needed to cover operational costs as the Company moves forward with our efforts to develop a commercially approved product. The company believes its existing cash

reserves and anticipated cash receipts will not be sufficient to fund operations for the twelve months following the date these financials are made available for issuance.

Use of estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue and expenses and the disclosure of contingent assets and liabilities in the financial statements. The Company has used significant estimates in its determination of stock-based compensation assumptions, determination of the fair value of the Company's common stock, determination of the fair value of the Private Placement Warrant liabilities, determination of the incremental borrowing rate ("IBR") used in the calculation of the Company's right of use assets and lease liabilities, and the valuation allowance on deferred tax assets. Actual amounts realized may differ from these estimates.

Cash, cash equivalents, and restricted cash

Cash equivalents include short-term, highly liquid instruments, consisting of money market accounts and short-term investments with original maturities at the date of purchase of 90 days or less.

Amounts held in escrow by the Company pursuant to the Forward Share Purchase Agreement were reported as restricted cash on the consolidated balance sheet as of December 31, 2021. There were no amounts held in escrow by the Company pursuant to the Forward Share Purchase Agreement as of September 30, 2022.

The reconciliation of cash, cash equivalents and restricted cash reported within the applicable balance sheet line items that sum to the total of the same such amount shown in the consolidated statements of cash flows is as follows:

	September 30, 2022	September 30, 2021
Cash and cash equivalents	$ 8,332,188	$ 10,750,762
Restricted cash	—	—
Total cash, cash equivalents, and restricted cash	$ 8,332,188	$ 10,750,762

Accounts receivable

Accounts receivable are carried at original invoice amount, less an allowance for doubtful accounts. The Company estimates an allowance for doubtful accounts for potential credit losses that are expected to be incurred, based on management's assessment of the collectability of specific accounts, the aging of the accounts receivable, historical information and other currently available evidence. Receivables are written off when deemed uncollectible. To date, no receivables have been written off. The Company had no allowance for doubtful accounts as of September 30, 2022 and December 31, 2021.

Concentration of credit risk

The Company maintains its cash and cash equivalent balances in the form of business checking accounts and money market accounts, the balances of which, at times, may exceed federally insured limits. Exposure to credit risk is reduced by placing such deposits in high credit quality federally insured financial institutions.

The Company received 100% of its total revenue through grants from government organizations during the three and nine months ended September 30, 2022 and 2021.

Lease liabilities and right-of-use assets

The Company is party to certain contractual arrangements for equipment, lab space, and an animal facility, which meet the definition of leases under Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") Topic 842, *Leases* ("ASC 842"). In accordance with ASC 842, the Company recorded right-of-use assets and related lease liabilities for the present value of the lease payments over the lease terms. The Company's IBR was used in the calculation of its right-of-use assets and lease liabilities.

The Company elected not to apply the recognition requirements of ASC 842 to short-term leases, which are deemed to be leases with a lease term of twelve months or less. Instead, the Company recognized lease payments in the Consolidated Statements of Operations on a straight-line basis over the lease term and variable payments in the period in which the obligation for these payments was incurred. The Company elected this policy for all classes of underlying assets.

Research and development expenses

Expenses incurred in connection with research and development activities are expensed as incurred. These include licensing fees to use certain technology in the Company's research and development projects, fees paid to consultants and various entities that perform certain research and testing on behalf of the Company, and expenses related to salaries, benefits, and stock-based compensation granted to employees in research and development functions.

During the three and nine months ended September 30, 2022 and 2021, the Company had contracts with multiple contract research organizations ("CRO") to complete studies as part of research grant agreements. In the case of SAB-185, the CRO has been contracted and paid by the US government—as of September 30, 2022 there is no active CRO engaged by the Company in work on SAB-185. For SAB-176, PPD Development, LP acting as the CRO oversaw the Phase 1 safety study. The terms of that agreement are subject to confidentiality, and the status of the agreement is that it is current, in good standing and approximately 90% of the contract has been paid as of September 30, 2022. SAB has also contracted with hVIVO Services Limited to conduct the Phase 2a influenza study on SAB-176. The terms of that agreement are subject to confidentiality, and the status of the agreement is that it is current, in good standing and approximately 90% of the contract has been paid as of September 30, 2022.

Equipment

The Company records equipment at cost less depreciation. Depreciation is calculated using straight-line methods over the following estimated useful lives:

Animal facility equipment	7 years
Laboratory equipment	7 years
Leasehold improvements	Shorter of asset life or lease term
Office furniture & equipment	5 years
Vehicles	5 years

Repairs and maintenance expenses are expensed as incurred.

Impairment of long-lived assets

The Company reviews the recoverability of long-lived assets, including the related useful lives, whenever events or changes in circumstances indicate that the carrying amount of a long-lived asset may not be recoverable. If necessary, the Company compares the estimated undiscounted future net cash flows to the related asset's carrying value to determine whether there has been an impairment. If an asset is considered impaired, the asset is written down to fair value, which is based either on discounted cash flows or appraised values in the period the impairment becomes known. The Company believes that long-lived assets are recoverable, and no impairment was deemed necessary, during the three and nine months ended September 30, 2022 and 2021.

Stock-based compensation

FASB ASC Topic 718, *Compensation – Stock Compensation*, prescribes accounting and reporting standards for all share-based payment transactions in which employee and non-employee services are acquired. The Company recognizes compensation cost relating to stock-based payment transactions using a fair-value measurement method, which requires all stock-based payments to employees, directors, and non-employee consultants, including grants of stock options, to be recognized in operating results as compensation expense based on fair value over the requisite service period of the awards. Prior to the Business Combination, the grant date fair value of the Company's common stock was typically determined by the Company's board of directors with the assistance of management and a third-party valuation specialist.

Subsequent to the Business Combination, the board of directors elected to determine the fair value of our post-merger common stock based on the closing market price at closing on the date of grant. In determining the fair value of stock-based awards, the Company utilizes the Black-Scholes option-pricing model, which uses both historical and current market data to estimate fair value. The Black-Scholes option-pricing model incorporates various assumptions, such as the value of the underlying common stock, the risk-free interest rate, expected volatility, expected dividend yield, and expected life of the options. For awards with performance-based vesting criteria, the Company estimates the probability of achievement of the performance criteria and recognizes compensation expense related to those awards expected to vest. No awards may have a term in excess of ten years. Forfeitures are recorded when they occur. Stock-based compensation expense is classified in the consolidated statements of operations based on the function to which the related services are provided. The company recognizes stock-based compensation expense over the expected term.

Income taxes

Deferred income taxes reflect future tax effects of temporary differences between the tax and financial reporting basis of the Company's assets and liabilities measured using enacted tax laws and statutory tax rates applicable to the periods when the temporary differences will affect taxable income. When necessary, deferred tax assets are reduced by a valuation allowance, to reflect realizable value, and all deferred tax balances are reported as long-term on the consolidated balance sheet. Accruals are maintained for uncertain tax positions, as necessary.

Income tax expense includes the current tax liability from operations and the change in deferred income taxes during the year. Current tax liabilities or receivables are recognized for estimated income tax payable and/or refundable for the current year.

The Company uses a recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken, or expected to be taken, in a tax return. The Company has elected to treat interest and penalties related to income taxes, to the extent they arise, as a component of income taxes.

Revenue recognition

The Company's revenue is primarily generated through grants from government and other (non-government) organizations.

Grant revenue is recognized during the period that the research and development services occur, as qualifying expenses are incurred or conditions of the grants are met. The Company concluded that payments received under these grants represent conditional, nonreciprocal contributions, as described in ASC 958, *Not-for-Profit Entities*, and that the grants are not within the scope of ASC 606, *Revenue from Contracts with Customers*, as the organizations providing the grants do not meet the definition of a customer. Expenses for grants are tracked by using a project code specific to the grant, and the employees also track hours worked by using the project code.

Comprehensive income (loss)

The Company had no items of comprehensive income (loss) other than its net income (loss).

Litigation

From time to time, the Company is involved in legal proceedings, investigations and claims generally incidental to its normal business activities. In accordance with U.S. GAAP, the Company accrues for loss contingencies when it is probable that a liability has been incurred and the amount of the loss can be reasonably estimated. Legal costs in connection with loss contingencies are expensed as incurred.

Earnings per share

In accordance with ASC 260, *Earnings per Share* ("ASC 260"), basic net income (loss) per share attributable to common stockholders is computed by dividing net income (loss) attributable to common stockholders by the weighted-average number of common stock outstanding during the period. 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 stock outstanding for the period including potential dilutive common shares such as stock options.

Segment reporting

In accordance with ASC 280, *Segment Reporting*, the Company's business activities are organized into one reportable segment, as only the Company's operating results in their entirety are regularly reviewed by the Company's chief operating decision maker to make decisions about resources to be allocated and to assess performance.

Common stock valuations

Prior to the Business Combination, the Company was required to periodically estimate the fair value of its common stock with the assistance of an independent third-party valuation firm, as discussed above, when issuing stock options and computing estimated stock-based compensation expense. The assumptions underlying these valuations represented the Company's best estimates, which involved inherent uncertainties and the application of significant levels of judgment. In order to determine the fair value of its common stock, the Company considered, among other items, previous transactions involving the sale of our securities, our business, financial condition and results of operations, economic and industry trends, the market performance of comparable publicly traded companies, and the lack of marketability of our common stock.

Subsequent to the Business Combination, the Company now determines the fair value of common stock based on the closing market price at closing on the date of grant.

Compensation expense related to stock-based transactions is measured and recognized in the financial statements at fair value of the post-merger common stock based on the closing market price at closing on the date of grant. Stock-based compensation expense is measured at the grant date based on the fair value of the equity award and is recognized as expense over the requisite service period, which is generally the vesting period, on the straight-line method. The Company estimates the fair value of each stock option award on the date of grant using the Black-Scholes option-pricing model. Determining the fair value of stock option awards at the grant date requires judgment, including estimating the expected volatility, expected term, risk-free interest rate, and expected dividends.

(3) New accounting standards

Recently-adopted standards

In May 2021, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2021-04, *Earnings Per Share (Topic 260), Debt—Modifications and Extinguishments (Subtopic 470-50), Compensation—Stock Compensation (Topic 718), and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40): Issuer's Accounting for Certain Modifications or Exchanges of Freestanding Equity-Classified Written Call Options*. The amendments in ASU 2021-04 provide guidance to clarify and reduce diversity in an issuer's accounting for modifications or exchanges of freestanding equity-classified written call options (for example, warrants) that remain equity classified after modification or exchange. The amendments in this ASU 2021-04 are effective for all entities for fiscal years beginning after December 15, 2021, and interim periods within those fiscal years, with early adoption permitted, including interim periods within those fiscal years. The Company adopted ASU 2021-04 at January 1, 2022, and the adoption did not have a material impact on its consolidated financial statements.

In July 2021, the FASB issued ASU 2021-05, *Leases (Topic 842) Lessors - Certain Leases with Variable Lease Payments*, to increase transparency and comparability among organizations by recognizing lease assets and lease liabilities as well as disclosing key information about leasing transactions. This guidance is effective for all entities for fiscal years beginning after December 15, 2021, and interim periods within those fiscal years for public business entities. The Company adopted ASU 2021-05 at January 1, 2022, and the adoption did not have a material impact on its consolidated financial statements.

In November 2021, the FASB issued ASU 2021-10, *Government Assistance (Topic 832): Disclosures by Business Entities about Government Assistance*. This ASU increases the transparency of government assistance to include the disclosure of (1) the types of assistance, (2) an entity's accounting for the assistance, and (3) the effect of the assistance on an entity's financial statements. The guidance in ASU 2021-10 is effective for financial statements of all entities, including private companies, for annual periods beginning after December 15, 2021, with early application permitted. Entities are required to provide the new disclosures prospectively for all transactions with a government entity that are accounted for under either a grant or a contribution accounting model and are reflected in the financial statements at the date of initially applying the new amendments, and to new transactions entered into after that date. The Company adopted ASU 2021-10 at January 1, 2022, and the adoption did not have a material impact on its consolidated financial statements.

Recently-issued standards

In July 2016, the FASB issued ASU No. 2016-13, *Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments* ("ASU 2016-13"), which requires the measurement of all expected credit losses of financial assets held at the reporting date based on historical experience, current conditions, and reasonable and supportable forecasts. Financial institutions and other organizations will now use forward-looking information to better inform their credit loss estimates. In addition, the ASU amends the accounting for credit losses on available-for-sale debt securities and purchased financial assets with credit deterioration. ASU 2016-13 is effective for periods beginning after December 15, 2022, and interim periods within those fiscal years. The Company is currently evaluating the impact this ASU may have on its consolidated financial statements but does not expect it to have a material impact.

In October 2021, the FASB issued ASU 2021-08, *Accounting for Contract Assets and Contract Liabilities from Contracts with Customers* ("ASU 2021-08"). This ASU requires that an acquirer entity in a business combination recognize and measure contract assets and liabilities acquired in a business combination at the acquisition date in accordance with Topic 606 as if the acquirer entity had originated the contracts. This ASU is effective for fiscal years beginning after December 15, 2022, and interim periods within those years. Early application of the amendments is permitted but should be applied to all acquisitions occurring in the annual period of adoption. The amendment should be applied prospectively to business combinations occurring on or after the effective date of the amendments. The Company is currently evaluating the impact this ASU may have on its consolidated financial statements but does not expect it to have a material impact.

In March 2022, the FASB issued ASU 2022-01, *Derivatives and Hedging (Topic 815)* (“ASU 2022-01”), which clarifies the guidance on fair value hedge accounting of interest rate risk for portfolios of financial assets. The standard is effective for public entities in fiscal years beginning after December 15, 2022, including interim periods within those fiscal years. Early adoption is permitted on any date on or after the issuance of ASU 2017-12. The Company is currently evaluating the impact this ASU may have on its consolidated financial statements but does not expect it to have a material impact.

In March 2022, the FASB issued ASU 2022-02, *Financial Instruments - Credit Losses (Topic 326), Troubled Debt Restructurings and Vintage Disclosures* (“ASU 2022-02”). ASU 2022-02 eliminates the current guidance on troubled debt restructurings ("TDRs"), enhances current and introduces new disclosure requirements related to loan modifications. ASU 2022-02 is effective for the Company for fiscal years beginning after December 15, 2022. The Company is currently evaluating the impact this ASU may have on its consolidated financial statements but does not expect it to have a material impact.

In June 2022, the FASB issued ASU 2022-03, *Fair Value Measurement (Topic 820): Fair Value Measurement of Equity Securities Subject to Contractual Sale Restrictions* (“ASU 2022-03”). ASU 2022-03 clarifies the guidance on the fair value measurement of an equity security that is subject to a contractual sale restriction and requires specific disclosures related to such an equity security. ASU 2022-03 is effective for fiscal years beginning after December 15, 2023, and interim periods within those fiscal years. Early adoption is permitted. The Company is currently evaluating the impact this ASU may have on its consolidated financial statements but does not expect it to have a material impact.

In September 2022, the FASB issued ASU 2022-04, *Liabilities—Supplier Finance Programs (Subtopic 405-50): Disclosure of Supplier Finance Program Obligations* (“ASU 2022-04”). ASU 2022-04 makes a number of changes meant to add certain disclosure requirements for a buyer in a supplier finance program. The amendments require a buyer that uses supplier finance programs to make annual disclosures about the program’s key terms, the balance sheet presentation of related amounts, the confirmed amount outstanding at the end of the period and associated rollforward information. Only the amount outstanding at the end of the period must be disclosed in interim periods. The amendments are effective for all entities for fiscal years beginning after December 15, 2022, on a retrospective basis, including interim periods within those fiscal years, except for the requirement to disclose rollforward information, which is effective prospectively for fiscal years beginning after December 15, 2023. Early adoption is permitted. The Company is currently evaluating the impact this ASU may have on its consolidated financial statements but does not expect it to have a material impact.

(4) Reverse Recapitalization and Business Combination

On the Closing Date, BCYP closed the Business Combination with SAB Biotherapeutics, as a result of which SAB Biotherapeutics became a wholly owned subsidiary of BCYP. While BCYP was the legal acquirer of SAB Biotherapeutics in the Business Combination, for accounting purposes, the Business Combination is treated as a Reverse Recapitalization. SAB Biotherapeutics is treated as the accounting acquirer with historical financial statements of SAB Biotherapeutics becoming the historic financial statements of BCYP (renamed SAB Biotherapeutics, Inc.) upon consummation of the Business Combination. Under this method of accounting, BCYP is treated as the "acquired" company and SAB Biotherapeutics is treated as the acquirer for financial reporting purposes. For accounting reporting purposes, the Business Combination was treated as the equivalent of SAB Biotherapeutics issuing stock for the net assets of BCYP, accompanied by a recapitalization. The net assets of BCYP were stated at historical cost, with no goodwill or other intangible assets recorded.

Pursuant to the Business Combination Agreement, the aggregate consideration payable to stockholders of SAB Biotherapeutics at the Closing Date consisted of 36,465,343 shares of New SAB Biotherapeutics common stock, par value $0.0001 per share ("Common Stock"). Each option of SAB Biotherapeutics that was outstanding and unexercised immediately prior to the Effective Time (whether vested or unvested) was assumed by BCYP and converted into an option to acquire an adjusted number of shares of Common Stock at an adjusted exercise price per share, in each case, pursuant to the terms of the Business Combination Agreement (the "Rollover Options").

Additionally, the Business Combination Agreement included an earnout provision whereby the shareholders of SAB Biotherapeutics shall be entitled to receive additional consideration (“Earnout Shares”) if the Company meets certain Volume Weighted Average Price (“VWAP") thresholds, or a change in control with a per share price exceeding the VWAP thresholds within a five-year period immediately following the Closing.

The Earnout Shares shall be released in four equal increments as follows:

(i) 25% of the Earnout Shares shall be released if, at any time during the five (5)-year period immediately following the Closing Date, the VWAP of the Company's publicly traded common stock is greater than or equal to $15.00 for any twenty (20) trading days within a period of thirty (30) consecutive trading days (the “First Earnout”).

(ii) 25% of the Earnout Shares shall be released if, at any time during the five (5)-year period immediately following the Closing Date, the VWAP of the Company's publicly traded common stock is greater than or equal to $20.00 for any twenty (20) trading days within a period of thirty (30) consecutive trading days (the “Second Earnout”).

(iii) 25% of the Earnout Shares shall be released if, at any time during the five (5)-year period immediately following the Closing Date, the VWAP of the Company's publicly traded common stock is greater than or equal to $25.00 for any twenty (20) trading days within a period of thirty (30) consecutive trading days (the “Third Earnout”).

(iv) 25% of the Earnout Shares shall be released if, at any time during the five (5)-year period immediately following the Closing Date, the VWAP of the Company's publicly traded common stock is greater than or equal to $30.00 for any twenty (20) trading days within a period of thirty (30) consecutive trading days (the “Fourth Earnout” and together with the First Earnout, the Second Earnout and the Third Earnout, the “Earnouts”).

At the Effective Time, each outstanding share of SAB Biotherapeutics common stock, including shares of SAB Biotherapeutics common stock resulting from the conversion of outstanding shares of SAB Biotherapeutics preferred stock (as calculated pursuant to the SAB Biotherapeutics certificate of incorporation), immediately prior to the Effective Time, was converted into the right to receive a pro rata portion of the total consideration and the contingent right to receive a pro rata portion of the Earnout Shares.

Pursuant to the terms of the Business Combination Agreement, SAB Biotherapeutics’ securityholders (including vested option holders) who own SAB Biotherapeutics securities immediately prior to the Closing Date will have the contingent right to receive their pro rata portion of (i) an aggregate of 12,000,000 shares of Common Stock (“Earnout Shares”), of which 1,508,063 are contingently issuable based upon future satisfaction of the aforementioned VWAP thresholds. The remaining 10,491,937 are legally issued and outstanding, if the Company does not meet the above VWAP thresholds, or a change in control with a per share price below the VWAP thresholds occurs within a five-year period immediately following the Closing Date, the shares will be returned to the Company.

The Earnout Shares are indexed to our equity and meet the criteria for equity classification. On the Closing Date, the fair value of the 12,000,000 Earnout Shares was $101.3 million. We reflected the Earnout Shares in the consolidated balance sheet at December 31, 2021 as a stock dividend by reducing additional paid-in capital, which was offset by the increase in additional paid-in capital associated with the Business Combination.

Preceding the Business Combination, on October 12, 2021, BCYP entered into a Forward Share Purchase Agreement (the “Forward Share Purchase Agreement”) with Radcliffe SPAC Master Fund, L.P., a Cayman Islands exempted limited partnership (“Radcliffe”). Under the Forward Share Purchase Agreement, Radcliffe shall sell and transfer to BCYP, and BCYP shall purchase from Radcliffe, up to 1,390,000 shares of common stock owned by Radcliffe at the closing of the Business Combination at a per Share price (the “Purchase Price”) equal to $10.10 per share (the "Market Sales Price"). Further, BCYP shall purchase the remaining shares held by Radcliffe not sold in the open market in excess of the Market Sales Price at the later of (a) the 90th day after the closing of the Business Combination, or (b) the first business day following the 95th day after the closing of the Business Combination if BCYP directs Radcliffe to sell shares at a mutually agreed upon price other than the Market Sales Price.

Pursuant to the treatment of the Business Combination as a reverse recapitalization, SAB Biotherapeutics assumed the liability position as it existed as of the Effective Time. The net assets of the acquired entity were adjusted to include a forward share purchase liability of $13,098,599. In connection with the Business Combination, an amount matching the assumed forward share purchase liability was transferred into escrow, pending final settlement of the Forward Share Purchase Agreement in January 2022. Given the short-term nature of the Forward Share Purchase Agreement, the Company did not present value the forward share purchase liability. Subsequent settlements whereby Radcliffe sold shares in the open market in excess of the Market Sales Price were treated as a reduction in the assumed forward share purchase liability, with an offsetting increase in equity of the Company. Prior to December 31, 2021, a portion of the forward share purchase liability was settled. As of December 31, 2021, the forward share purchase liability balance was $6,338,306 on the consolidated balance sheet. The forward share purchase liability was settled in full during the first quarter of 2022. As of December 31, 2021, the Company held $6.3 million in escrow pending the final settlement of the Forward Share Purchase Agreement; upon final settlement of the Forward Share Purchase Agreement, $817,060 in cash was released to the Company and the remaining $5.5 million was delivered to Radcliffe for the repurchase of 546,658 shares of the Company's common stock—these shares are accounted for as treasury stock at cost within the consolidated statements of changes in stockholders’ equity.

(5) Revenue

During the three and nine months ended September 30, 2022 and 2021, the Company worked on the following grants:

Government grants

The total revenue for government grants was approximately $3.6 million and $14.6 million, respectively, the three months ended September 30, 2022 and 2021, and $21.7 million and $49.8 million, respectively, for the nine months ended September 30, 2022 and 2021.

National Institute of Health – National Institute of Allergy and Infectious Disease (“NIH-NIAID”) (Federal Award #1R44AI117976-01A1) – this grant was for $1.4 million and started in September 2019 through August 2021. Grant income recognized was approximately $0 and $306,000, respectively, for the three months ended September 30, 2022 and 2021, and $30,000 and $457,000, respectively, for the nine months ended September 30, 2022 and 2021. The Company applied for an extension on the grant funding, and the extension is pending approval—the Company has not historically experienced challenges renewing grant funding. If approved, there is approximately $184,000 in funding remaining for this grant as of September 30, 2022.

NIH-NIAID (Federal Award #1R41AI131823-02) – this grant was for approximately $1.5 million and started in April 2019 through March 2021. The grant was subsequently amended to extend the date through March 2022. Grant income recognized was approximately $150,000 and $13,000, respectively, for the three months ended September 30, 2022 and 2021, and $281,000 and $41,000, respectively, for the nine months ended September 30, 2022 and 2021. There is approximately $533,000 in funding remaining for this grant as of September 30, 2022.

NIH-NIAID through Geneva Foundation (Federal Award #1R01AI132313-01, Subaward #S-10511-01) – this grant was for approximately $2.7 million and started in August 2017 through July 2021. The grant was subsequently amended to extend the date through July 2023. Grant income recognized was approximately $39,000 and $24,000, respectively, for the three months ended September 30, 2022 and 2021, and $88,000 and $72,000, respectively, for the nine months ended September 30, 2022 and 2021. There is approximately $1.4 million in funding remaining for this grant as of September 30, 2022.

Department of Defense, Joint Program Executive Office for Chemical, Biological, Radiological and Nuclear Defense Enabling Biotechnologies (“JPEO”) through Advanced Technology International – this grant was for a potential of $25 million, awarded in stages starting in August 2019 and with potential stages running through February 2023. Additional contract modifications were added to this contract in 2020 and 2021 for work on a COVID therapeutic, bringing the contract total to $204 million. Grant income recognized was approximately $3.4 million and $14.3 million, respectively, for the three months ended September 30, 2022 and 2021, and $21.3 million and $49.2 million, respectively, for the nine months ended September 30, 2022 and 2021.

The grants for the JPEO Rapid Response contract are cost reimbursement agreements, with reimbursement of our direct research and development expense (labor and consumables) with an overhead charge (based on actual, reviewed quarterly) and a fixed fee (9%).

On August 3, 2022, the Company received notice from the US Department of Defense (“DoD”) to terminate the Department of Defense, Joint Program Executive Office for Chemical, Biological, Radiological and Nuclear Defense Enabling Biotechnologies (“JPEO”) Rapid Response contract, dated as of August 7, 2019 by and between the Company and the DoD most recently amended as of September 14, 2021, relating to a prototype research and development of a Rapid Response Antibody Program and advanced clinical development through licensure and commercial manufacturing for SAB-185 (the "JPEO Rapid Response Contract Termination"). No termination penalties have been or will be incurred by the Company in connection therewith. The Company anticipates entry into a termination settlement or similar arrangement with the DoD whereby, among other things, the Company expects to be compensated for costs incurred in winding down activity surrounding the JPEO Rapid Response contract.

Approximately $12.7 million of the Company’s $12.9 million in accounts receivable as of September 30, 2022 relates to the JPEO Rapid Response Contract. The Company considered all conditions and barriers associated with the JPEO Rapid Response Contract and associated termination agreement and determined the grant is conditional and revenue will be recognized upon achieving certain milestones and incurring internal costs specifically covered by the grant and termination agreement. Consistent with the Company’s *Summary of Significant Accounting Policies* in Note 2, under ASC 958-605 revenues will be recognized as the Company incurs related expenses. The Company has determined the barriers to recognition to have been met and collection of these receivables to be probable; however, final approval and payment by the DoD is contingent upon further negotiations, and final execution of the termination settlement documents.

(6) Earnings per share

The following is a reconciliation of the numerator and denominator used to calculate basic earnings per share and diluted earnings per share for the three and nine months ended September 30, 2022 and 2021:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Calculation of basic and diluted loss per share attributable to the Company's shareholders				
Net loss attributable to the Company's shareholders	$ (7,076,068)	$ (4,061,190)	$ (10,866,209)	$ (5,593,035)
Weighted-average common shares outstanding – basic and diluted	43,030,885	25,973,406	43,042,379	25,973,406
Net loss per share, basic and diluted	$ (0.16)	$ (0.16)	$ (0.25)	$ (0.22)

The Company's potentially dilutive securities, which include stock options, restricted stock awards, common stock warrants, earnout shares, and contingently issuable earnout shares 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:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Stock options and awards	1,004,845	2,570,978	2,181,361	2,077,499
Common stock warrants	5,958,600	—	5,958,600	—
Earnout Shares [(1)]	10,491,937	—	10,491,937	—
Contingently issuable Earnout Shares from unexercised Rollover Options	1,508,063	—	1,508,063	—
Total	18,963,445	2,570,978	20,139,961	2,077,499

(1) As the Earnout shares are subject to certain vesting requirements not satisfied as of the three and nine months ended September 30, 2022, the Earnout Shares held in escrow are excluded from calculating both basic and diluted earnings per share.

(7) Equipment

As of September 30, 2022 and December 31, 2021, the Company's equipment was as follows:

	September 30, 2022	December 31, 2021
Laboratory equipment	$ 8,801,250	$ 7,431,988
Animal facility	8,357,667	8,357,667
Animal facility equipment	1,141,213	1,253,879
Construction-in-progress	404,976	4,608,778
Leasehold improvements	9,280,795	5,700,364
Vehicles	192,683	135,593
Office furniture and equipment	1,233,038	46,202
Total Property, plant and equipment, gross	29,411,622	27,534,471
Less: accumulated depreciation and amortization	(5,379,714)	(3,220,016)
Property, plant and equipment, net	$ 24,031,908	$ 24,314,455

Depreciation and amortization expense was $885,195 and $369,366, respectively, for the three months ended September 30, 2022 and 2021, and $2,270,621 and $868,630, respectively, for the nine months ended September 30, 2022 and 2021.

All tangible personal property with a useful life of at least three years and a unit acquisition cost of $5,000 or more will be capitalized and depreciated over its useful life using the straight-line method of depreciation. The Company will expense the full acquisition cost of tangible personal property below these thresholds in the year of purchase. The basis of accounting for depreciable fixed assets is

acquisition cost and any additional expenditures required to make the asset ready for use. The carrying amount at the balance sheet date of long-lived assets under construction-in-progress includes assets purchased, constructed, or being developed internally that are not yet in service. Depreciation commences when the assets are placed in service.

The Company has several ongoing construction projects related to the expansion of its operating capacity. As of September 30, 2022 and December 31, 2021, the Company's construction-in-progress was as follows:

	September 30, 2022	December 31, 2021
New office space at Headquarters	$ 14,859	$ 11,183
Laboratory space at Headquarters	—	2,506,482
Laboratory equipment at Headquarters	171,781	246,801
IT equipment at Headquarters	80,525	212,209
Software	137,811	137,811
Bioreactors	—	1,280,728
Other	—	213,564
Total construction-in-progress	$ 404,976	$ 4,608,778

(8) Leases

The Company has an operating lease for lab space from Sanford Health (a former related party), under a lease that started in June 2014 and ran through June 2019, at which time the lease was amended to run through August 2024. This lease can be terminated with one year advance written notice. The lease is for $66,993 per month. The operating lease does not include an option to extend beyond the life of the current term. The lease does not provide an implicit rate, and, therefore, the Company used an IBR of 4.54% as the discount rate when measuring the operating lease liability. The Company estimated the incremental borrowing rate based upon comparing interest rates available in the market for similar borrowings and the credit quality of the Company.

The Company entered into a lease for office, laboratory, and warehouse space in November 2020, the lease was amended in July 2022 to add additional administrative and lab space. This amended lease has a 3-year term, with options to extend for three additional periods of three years each. The options were not included in the right of use calculation as it is unclear as to whether or not the location will meet the Company's future requirements. The lease cost is $38,872 per month. The Company used an IBR of 4.83% as the discount rate when measuring the operating lease liability. The Company estimated the incremental borrowing rate based upon comparing interest rates available in the market for similar borrowings and the credit quality of the Company.

The Company entered into a lease for barn space for the housing of goats in April 2020. This lease has a 2-year original term, with automatic renewals for a one-year period after the initial term expires until either party terminates. The options were not included in the right of use calculation, as the goat project is mostly funded by government grants, and those grants do not currently extend beyond the initial lease term. The lease cost is $665 per month for the first year, then $678 per month for the second year. The Company used an IBR of 4.08% as the discount rate when measuring the operating lease liability. The Company estimated the incremental borrowing rate based upon comparing interest rates available in the market for similar borrowings and the credit quality of the Company. This lease was automatically renewed as an annual short-term operating lease in April of 2022.

The Company has the following finance leases:

- In December 2018, the Company entered into a finance lease with Dakota Ag Properties for a new animal facility which includes the surrounding land. The facility and the land have been accounted for as separate lease components. The lease is based upon payback of $4,000,000 in construction costs, with a 20-year term at an interest rate of 8%. The monthly payment for this lease is $33,458. The Company has the option to purchase the asset at any time during the term of the lease for the balance of the unamortized lease payments.
- In December 2018, the Company entered into an equipment lease for a 12,000-gallon propane tank that is located on the Company's animal facility. The lease is for five years, with an annual payment of $8,199. The Company has the option to purchase the asset at any time during the term of the lease for the balance of the unamortized lease payments.
- In July 2018, the Company entered into a lease agreement with a bank, for a Ruby Cell Analyzer. The lease agreement is for a five-year term. The monthly payment for this lease is $807. The Company has the option to purchase the asset at the end of the lease for $1.
- In March 2019, the Company entered into two lease agreements for laboratory equipment. The leases are each for a 3-year term and a combined monthly payment of $5,956. Both leases have a $1 purchase option at the end of the lease term. These leases ended in the second quarter of 2022 with the Company exercising its option to purchase the leased assets.

The lease agreements do not require material variable lease payments, residual value guarantees or restrictive covenants.

The amortizable lives of the operating lease assets are limited by their expected lease terms. The amortizable lives of the finance lease assets are limited by their expected lives, as the Company intends to exercise the purchase options at the end of the leases. The following is the estimated useful lives of the finance lease assets:

Animal Facility	40 years
Equipment	3 –7 years
Land	Indefinite

The Company’s weighted-average remaining lease term and weighted-average discount rate for operating and finance leases as of September 30, 2022 are:

	Operating	Finance
Weighted-average remaining lease term	1.69 years	16.13 years
Weighted-average discount rate	4.78 %	7.72 %

The table below reconciles the undiscounted future minimum lease payments under non-cancelable leases with terms of more than one year to the total lease liabilities recognized on the consolidated balance sheet as of September 30, 2022:

	Operating	Finance
2022 - remaining	$ 315,726	$ 110,994
2023	1,197,025	406,339
2024	535,944	401,496
2025	—	401,496
2026	—	401,496
Thereafter	—	4,784,494
Undiscounted future minimum lease payments	2,048,695	6,506,315
Less: Amount representing interest payments	(73,058)	(2,702,883)
Total lease liabilities	1,975,637	3,803,432
Less current portion	(1,212,862)	(140,891)
Noncurrent lease liabilities	$ 762,775	$ 3,662,541

Operating lease expense was approximately $304,000 and $268,000, respectively, for the three months ended September 30, 2022 and 2021, and $889,000 and $789,000, respectively, for the nine months ended September 30, 2022 and 2021. Operating lease costs are included within research and development expenses on the consolidated statements of operations.

Finance lease costs for the three months ended September 30, 2022 and 2021 included approximately $25,000 and $41,000, respectively, in right-of-use asset amortization and approximately $71,000 and $78,000, respectively, of interest expense. Finance lease costs for the nine months ended September 30, 2022 and 2021 included approximately $98,000 and $124,000, respectively, in right-of-use asset amortization and approximately $214,000 and $228,000, respectively, of interest expense. Finance lease costs are included within research and development expenses on the consolidated statements of operations.

Cash payments under operating and finance leases were approximately $309,000 and $103,000, respectively, for the three months ended September 30, 2022. Cash payments under operating and finance leases were approximately $930,000 and $334,000, respectively, for the nine months ended September 30, 2022. Cash payments under operating and finance leases were approximately $285,000 and $131,000, respectively, for the three months ended September 30, 2021. Cash payments under operating and finance leases were approximately $836,000 and $372,000, respectively, for the nine months ended September 30, 2021.

Short-term lease expense recognized in the three and nine months ended September 30, 2022 and 2021, was not material.

(9) Accrued Expenses and Other Current Liabilities

As of September 30, 2022 and December 31, 2021, accrued expenses and other current liabilities consisted of the following:

	September 30, 2022	December 31, 2021
Accrued vacation	$ 563,726	$ 552,629
Accrued payroll	211,563	674,858
Accrued construction-in-progress	14,859	548,988
Accrued supplies	391,906	709,027
Accrued consulting	67,497	179,082
Accrued clinical trial expense	343,766	423,634
Accrued outside laboratory services	675,064	128,752
Accrued bonus & severance	1,793,676	1,804,288
Accrued contract manufacturing	—	1,000,824
Accrued legal	720,154	833,646
Accrued financing fees payable	5,123,500	5,100,000
Accrued franchise tax payable	82,501	216,251
Other accrued expenses	250,000	283,909
	$ 10,238,212	$ 12,455,888

(10) Notes Payable

In December 2017, the Company entered into a loan agreement for the purchase of a tractor for $116,661 at a 3.6% interest rate. The loan included annual payments of $25,913 for the next five years starting in December 2018. The tractor loan balance as of September 30, 2022 and December 31, 2021 was $25,013. The total amount of the remaining loan balance is due in full in the fourth quarter of 2022.

On March 27, 2020, President Trump signed into law the “Coronavirus Aid, Relief and Economic Security Act (“CARES Act”). In April 2020, the Company entered into a loan agreement (the “PPP Loan”) with First Premier Bank under the Paycheck Protection Program (the “PPP”), which is part of the CARES Act administered by the United States Small Business Administration (“SBA”). As part of the application for these funds, the Company, in good faith, certified that the current economic uncertainty made the loan request necessary to support the ongoing operations of the Company. The certification further requires the Company to take into account its current business activity and its ability to access other sources of liquidity sufficient to support ongoing operations in a manner that is not significantly detrimental to the business. Under the PPP, the Company received proceeds of approximately $661,612. In accordance with the requirements of the PPP, the Company utilized the proceeds from the PPP Loan primarily for payroll costs. The PPP Loan has a 1.00% interest rate per annum, matures in April 2022 and is subject to the terms and conditions applicable to loans administered by the SBA under the PPP. Under the terms of PPP, all or certain amounts of the PPP Loan may be forgiven if they are used for qualifying expenses, as described in the CARES Act. The Company recorded the entire amount of the PPP Loan as debt. In February 2021, the Company submitted a forgiveness application related to its PPP Loan. In March 2021, the SBA approved the forgiveness of the PPP Loan, plus accrued interest. We recorded a gain on extinguishment of PPP Loan of $665,596 for the forgiveness of the PPP Loan and accrued interest within gain on debt extinguishment of Paycheck Protection Program SBA Loan on the consolidated statement of operations for the nine months ended September 30, 2021.

(11) Preferred Stock

On the Closing Date, pursuant to the Business Combination (as described in Note 4), 17,750,882 outstanding shares of Preferred Stock were automatically converted into 8,259,505 shares of common stock pursuant to the Exchange Ratio.

In addition, upon the closing of the Business Combination, pursuant to the terms of the Second Amended and Restated Certificate of Incorporation, the Company authorized 10,000,000 shares of preferred stock with a par value $0.0001.

Prior to the Business Combination, in August 2019, the Company’s Certificate of Incorporation was amended to authorize the Company to issue 50,000,000 shares of preferred stock, of which 6,615,000 shares were designated as Series A preferred stock, 2,525,800 shares were designated as series A-1 preferred stock, 4,039,963 shares were designated as series A-2 preferred stock, 3,333,333 shares were designated as series A-2A preferred stock, and 8,571,429 shares were designated as series B preferred stock. The carrying value of Series A preferred stock was $1 per share, Series A-1 $1.88 per share, Series A-2 & A-2A $3.00 per share, and Series B $3.50 per share.

The preferred stock was entitled to receive noncumulative dividends in preference to any dividend on the common stock when, as, and if declared by the Company's board of directors. The holders of the preferred stock also were entitled to participate pro rata in any dividends paid on the common stock on an as-if-converted basis.

Each holder of preferred stock was entitled to the number of votes equal to the number of shares of common stock that it could be converted into. As long as there were 8,000,000 shares of preferred stock outstanding, the vote or written consent of the holder of the majority of the outstanding preferred stock (all series voting as a single class) was required to approve any amendment of the certificate of incorporation that changes voting, preferences or privileges or restrictions of the preferred stock.

In the event of liquidation or winding up of the Company, the preferred stockholders also were entitled to receive in preference to the holders of the common stock the greater of: a) a per share amount equal to their respective original purchase price plus any declared but unpaid dividends (the "Liquidation Preference"); or b) the amount to be paid on the common stock on an as-if-converted basis. The remaining assets would be distributed to the common stockholders.

The holders of preferred stock had the right to convert the preferred stock into common stock, at any time, utilizing the then- effective conversion rate. The effective conversion rate as of December 31, 2020 was 1:1. All preferred shares were automatically converted into common shares utilizing the then effective preferred conversion rate upon: a) the closing of the Company's sale of its common stock in a firm commitment underwritten public offering pursuant to a registration statement under the Securities Act of 1933, as amended covering the sale of the Company's common stock if gross proceeds are at least $20,000,000 and the Company's shares have been listed on a stock exchange, as defined; or b) the election of the holders of a majority of the outstanding shares of preferred stock.

With any change of control of the Company or financing, the preferred stockholders were to approve through majority vote any such change in control or financing event approved by the board of directors or the majority of the common stockholders. The preferred stock contained certain anti-dilution provisions, as defined.

In addition to the rights described above, series A-2A preferred stock was redeemable at a price equal to $5 per preferred share at the option of the investor at any time during the redemption period, which was scheduled to commence in August 2022 and end in August 2023. As a result of the redemption feature, the Company classified the series A-2A preferred stock as mezzanine equity as of January 1, 2020. However, the redemption feature was terminated during the year ended December 31, 2020, and the series A-2A preferred stock was reclassified from mezzanine equity to permanent equity.

(12) Stock Option Plans

On August 5, 2014, the Company approved a stock option grant plan (the "2014 Equity Incentive Plan") for employees, directors, and non-employee consultants, which provides for the issuance of options to purchase common stock. The total shares authorized under the plan was originally 8,000,000; however, during 2019, the Plan was amended to increase the total shares authorized under the plan to 16,000,000. As a result of the Business Combination, the 2014 Equity Incentive Plan was amended to reduce the shares authorized to 7,444,800 based upon the impact of the Exchange Ratio.

As a result of the Business Combination, the Company adopted the 2021 Omnibus Equity Incentive Plan (hereinafter collectively with the 2014 Equity Incentive Plan referred to as the "Equity Compensation Plans"), representing 11,000,000 shares of common stock reserved for issuance under the 2021 Omnibus Equity Incentive Plan. As of the beginning of the 2022 calendar year, the shares reserved for future issuance increased by, 869,746, or two percent (2%) of the total number of shares of Common Stock issued and outstanding, to a total of 11,869,746 shares of common stock reserved for issuance under the 2021 Omnibus Equity Incentive Plan.

The expected term of the stock options was estimated using the "simplified" method, as defined by the SEC's Staff Accounting Bulletin No. 107, *Share-Based Payment*. The volatility assumption was determined by examining the historical volatilities for industry peer companies, as the Company does not have sufficient trading history for its common stock. The risk-free interest rate assumption is based on the U.S. Treasury instruments whose term was consistent with the expected term of the options. The dividend assumption is based on the Company's history and expectation of dividend payouts. The Company has never paid dividends on its common stock and does not anticipate paying dividends on its common stock in the foreseeable future. Therefore, the Company has assumed no dividend yield for purposes of estimating the fair value of the options.

Stock Options

Stock option activity for employees and non-employees under the Equity Compensation Plans for the nine months ended September 30, 2022 was as follows:

	Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (years)	Aggregate Intrinsic Value
Outstanding options, December 31, 2021	5,107,672	$ 2.44	5.78	$ 28,948,535
Granted	2,934,051	$ 1.54		
Forfeited	(503,274)	$ 4.51		
Exercised	(90,264)	$ 0.85		
Expired	(990)	$ 4.97		
Outstanding options, September 30, 2022	7,447,195	$ 1.97	6.27	$ 353,850
Options vested and exercisable, September 30, 2022	4,057,684	$ 1.47	3.47	$ 353,850

Total unrecognized compensation cost related to non-vested stock options as of September 30, 2022 was approximately $5.1 million and is expected to be recognized within future operating results over a weighted-average period of 3.35 years.

The weighted average grant date fair value of options granted during the three months ended September 30, 2022 was $0.57 per share; no options were granted during the three months ended September 30, 2021. During the three months ended September 30, 2022 and 2021, 108,611 shares with a fair value totaling $478 thousand, and 120,626 shares with a fair value totaling $395 thousand, respectively, vested.

The weighted average grant date fair value of options granted during the nine months ended September 30, 2022 and 2021, was $0.78 per share and $5.21 per share, respectively. During the nine months ended September 30, 2022 and 2021, 314,380 shares with a fair value totaling $1.3 million, and 351,974 shares with a fair value totaling $1.3 million, respectively, vested.

The estimated fair value of stock options granted to employees and consultants during the three and nine months ended September 30, 2022 and 2021, were calculated using the Black-Scholes option-pricing model using the following assumptions:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Expected volatility	97.4 %	*	78.0 - 97.4 %	75.9 - 104.3 %
Weighted-average volatility	97.4 %	*	94.1 %	98.1 %
Expected dividends	— %	*	— %	— %
Expected term (in years)	5.77 - 6.08	*	5.50 - 6.08	6.25
Risk-free rate	3.55 - 3.56 %	*	1.38 - 3.56 %	0.14 - 0.59 %

* No options were granted during the three months ended September 30, 2021.

Restricted Stock

Stock award activity for employees and non-employees under the Equity Compensation Plans for the nine months ended September 30, 2022 was as follows:

	Number of shares	Weighted Average Grant Date Fair Value
Unvested as of December 31, 2021	—	$ —
Granted	350,000	$ 1.72
Vested	—	$ —
Forfeited	—	$ —
Unvested as of September 30, 2022	350,000	$ 1.72

Total unrecognized compensation cost related to non-vested stock awards as of September 30, 2022 was approximately $0.6 million and is expected to be recognized within future operating results over a weighted-average period of 3.71 years.

Stock-based compensation expense

Stock-based compensation expense for the three and nine months ended September 30, 2022 and 2021 was as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Research and development	$ 165,607	$ 211,841	$ 683,646	$ 726,245
General and administrative	412,596	668,823	1,362,018	936,965
Total	$ 578,203	$ 880,664	$ 2,045,664	$ 1,663,210

(13) Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. The following fair value hierarchy classifies the inputs to valuation techniques that would be used to measure fair value into one of three levels:

Level 1: Unadjusted quoted prices in active markets for identical assets or liabilities.

Level 2: Inputs other than quoted prices that are observable for the asset or liability, either directly or indirectly. These include quoted prices for similar assets or liabilities in active markets and quoted prices for identical or similar assets or liabilities in markets that are not active.

Level 3: Unobservable inputs that reflect the reporting entity’s own assumptions.

The following tables present information about the Company's assets and liabilities that are measured at fair value on a recurring basis and indicate the fair value hierarchy of the valuation inputs the Company utilized to determine such fair value:

	As of September 30, 2022			
	Total	Quoted Prices In Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Other Unobservable Inputs (Level 3)
Liabilities:				
Public Warrant liability	$ 345,000	$ 345,000	$ —	$ —
Private Placement Warrant liability	12,516	—	—	12,516
Total	$ 357,516	$ 345,000	$ —	$ 12,516

	As of December 31, 2021			
	Total	Quoted Prices In Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Other Unobservable Inputs (Level 3)
Liabilities:				
Public Warrant liability	$ 10,292,500	$ 10,292,500	$ —	$ —
Private Placement Warrant liability	427,630	—	—	427,630
Total	$ 10,720,130	$ 10,292,500	$ —	$ 427,630

Public Warrants

Each whole Public Warrant entitles the holder to purchase one share of the Company's common stock at a price of $11.50 per share, subject to adjustment as discussed herein. The Public Warrants became exercisable 30 days after the Closing Date of the Business Combination and will expire five years after the Closing Date of the Business Combination, at 5:00 p.m., New York City time, or earlier upon redemption or liquidation.

Once the warrants become exercisable, the Company may call the warrants for redemption:

- in whole and not in part;
- at a price of $0.01 per warrant;
- upon not less than 30 days' prior written notice of redemption (the "30-day redemption period") to each warrant holder; and
- if, and only if, the reported last sale price of the common stock equals or exceeds $18.00 per share (as adjusted for stock splits, stock dividends, reorganizations, recapitalizations and the like) for any 20 trading days within a 30-trading day period ending three business days before the Company send the notice of redemption to the warrant holders.

If the Company calls the warrants for redemption as described above, the management will have the option to require any holder that wishes to exercise its warrant to do so on a "cashless basis." If the management takes advantage of this option, all holders of warrants would pay the exercise price by surrendering their warrants for that number of shares of common stock equal to the quotient obtained by dividing (x) the product of the number of shares of common stock underlying the warrants, multiplied by the excess of the "fair market value" (defined below) over the exercise price of the warrants by (y) the fair market value. The "fair market value" shall mean the average reported last sale price of the common stock for the 10 trading days ending on the third trading day prior to the date on which the notice of redemption is sent to the holders of warrants.

As of September 30, 2022, an aggregate of 5,750,000 Public Warrants were outstanding.

Private Placement Warrants

The Private Placement Warrants and the common stock issuable upon the exercise of the Private Placement Warrants were not transferable, assignable or saleable until after the completion of the Company's Business Combination. Additionally, the Private Placement Warrants will be exercisable on a cashless basis and be non-redeemable so long as they are held by the initial purchasers or their permitted transferees. If the Private Placement Warrants are held by someone other than the initial purchasers or their permitted transferees, the Private Placement Warrants will be redeemable by the Company and exercisable by such holders on the same basis as the Public Warrants.

As of September 30, 2022, an aggregate of 208,600 Private Placement Warrants were outstanding.

Presentation and Valuation of the Warrants

The Warrants (both the Public Warrants and Private Placement Warrants) are accounted for as liabilities in accordance with ASC 815-40, *Derivatives and Hedging—Contracts in Entity's Own Equity* and were presented within warrant liabilities on the consolidated balance sheet as of September 30, 2022 and December 31, 2021. The initial fair value of the warrant liabilities was measured at fair value at the Closing Date, and changes in the fair value of the warrant liabilities were presented within changes in fair value of warrant liabilities in the consolidated statements of operations for the three and nine months ended September 30, 2022.

On the Closing Date, the Company established the fair value of the Private Placement Warrants utilizing both the Black-Scholes Merton formula and a Monte Carlo Simulation ("MCS") analysis. Specifically, the Company considered an MCS to derive the implied volatility in the publicly listed price of the Public Warrants. The Company then considered this implied volatility in selecting the volatility for the application of a Black-Scholes Merton model for the Private Placement Warrants. The Company determined the fair value of the Public Warrants by reference to the quoted market price.

The Public Warrants were classified as a Level 1 fair value measurement, due to the use of the quoted market price, and the Private Placement Warrants held privately by Big Cypress Holdings LLC, a Delaware limited liability company which acted as the Company's sponsor in connection with the IPO (the "Sponsor"), were classified as a Level 3 fair value measurement, due to the use of unobservable inputs.

The following table provides a summary of the changes in our Level 3 fair value measurements:

	September 30, 2022
Balance, December 31, 2021	$ 427,630
Change in fair value of Private Placement Warrant liability	(317,072)
Balance, March 31, 2022	$ 110,558
Change in fair value of Private Placement Warrant liability	(62,580)
Balance, June 30, 2022	$ 47,978
Change in fair value of Private Placement Warrant liability	$ (35,462)
Balance, September 30, 2022	$ 12,516

The initial measurement on the Closing Date for the Public Warrant liability was approximately $6.3 million and the fair value of the Public Warrant liability increased by approximately $4.0 million during the year ended December 31, 2021. The fair value of the Public Warrant liability decreased by approximately $0.8 million and $9.9 million, respectively, for the three and nine months ended September 30, 2022.

The key inputs into the valuations as of September 30, 2022 and December 31, 2021 were as follows:

	September 30, 2022	December 31, 2021
Risk-free interest rate	4.15%	1.24%
Expected term remaining (years)	4.06	4.81
Implied volatility	76.5%	43.0%
Closing common stock price on the measurement date	$ 0.70	$ 7.81

As of September 30, 2022 and December 31, 2021, the Company did not have any other assets or liabilities that are recorded at fair value on a recurring basis.

The Company believes that the carrying amounts of its cash and cash equivalents, accounts receivable, and notes payable approximate their fair values due to their near-term maturities.

(14) Income Taxes

The effective income tax rate for the nine months ended September 30, 2022 is 0%, compared with an effective tax rate of 0% for the year ended December 31, 2021. The calculation of the annual effective tax rate did not produce a reliable estimate, so the actual effective tax rate for the year-to-date period is used as the best estimate of the annual effective tax rate.

Starting in 2022, Tax Cuts and Jobs Act amendments to Internal Revenue Code Section 174 will no longer permit an immediate deduction for research and development expenditures in the tax year that such costs are incurred. The 2022 first quarter effective income tax rate was impacted by the Section 174 capitalization requirement combined with the restriction on net operating losses to only reduce taxable income by 80%.

The Company continues to record a valuation allowance on its net deferred tax assets. The valuation allowance increased by approximately $4.5 million during the nine months ended September 30, 2022. The Company has not recognized any reserves for uncertain tax positions.

(15) Related Party Transactions

For the three and nine months ended September 30, 2022, under the Related Party Transaction Policy the Company adopted in the fourth quarter of 2021, there were no related party transactions with beneficial owners of 5% or more of any class of the Company’s voting securities, immediate family members of any of the foregoing persons, and any entities in which any of the foregoing is an executive officer or is an owner of 5% or more ownership interest.

For the three and nine months ended September 30, 2021, preceding the Company's Merger and adoption of the aforementioned Related Party Transaction Policy, the Company had related party transactions as follows:

- The Company paid consulting fees to a board member, Christine Hamilton, who is also a shareholder, of $0 and $25,000, respectively, during the three and nine months ended September 30, 2021.
- The Company made lease and insurance payments to Dakota Ag Properties of approximately $67,000 and $301,000, respectively, during the three and nine months ended September 30, 2021. Dakota Ag Investments (part of Dakota Ag Properties) is a shareholder of the Company.
- The Company made lab supply payments to Sanford Health (which is a shareholder of the Company) totaling approximately $15,000 and $93,000, respectively, during the three and nine months ended September 30, 2021.

(16) Employee Benefit Plan

The Company sponsors a defined contribution retirement plan. All the Company's employees are eligible to be enrolled in the employer-sponsored contributory retirement savings plan, which include features under Section 401(k) of the Internal Revenue Code of 1986, as amended, and provides for Company matching contributions. The Company's contributions to the plan are determined by its Board of Directors, subject to certain minimum requirements specified in the plan. The Company has historically made matching contributions of 100% on 3% of the employee contributions, with an additional 50% match on the next 2% of employee contributions. The Company made contributions of approximately $91,000 and $67,000, respectively, during the three months ended September 30, 2022 and 2021 and approximately $350,000 and $245,000, respectively, during the nine months ended September 30, 2022 and 2021.

(17) Commitments and Contingencies

The Company is not a party to any litigation, and, to its best knowledge, no action, suit, or proceeding has been threatened against the Company which are expected to have a material adverse effect on its financial condition, results of operations or liquidity.

(18) Joint Development Agreement

In June 2019, the Company entered into a joint development agreement with the University of South Dakota Research Park, Inc. ("USDRP") for the construction of a multi-tenant office building and a manufacturing building. Pursuant to the agreement, the Company also entered into a lease agreement for 41,195 square feet of leasable area located in the building. The lease will commence upon completion of the building for an initial term of 12 years at a monthly payment of approximately $118,000. Aurochs, LLC, a wholly owned subsidiary, was founded to manage the construction funds for this project. All pre-construction costs up to a budgeted $2.7 million were paid directly by the Company and reimbursed by USDRP. As of September 30, 2022 or December 31, 2021, USDRP has spent approximately $2.12 million in design costs for this facility, with approximately $580,000 of the $2.7 million budget remaining. There were no receivables or payables for this project as of September 30, 2022 or December 31, 2021. USDRP and the Company intend to secure outside funding for all expenses incurred after the pre-construction phase. If funding cannot be secured to finance the construction of this facility, the Company will not be required to refund any of the design costs incurred to date. This project is on hold as the Company works to develop existing production capabilities at its current facilities sufficient to support its ongoing research and development plans.

(19) Subsequent Events

Manufacturing Option Agreement with Emergent BioSolutions Canada, Inc

On October 26, 2022, the Company entered into a Manufacturing Option Agreement (the "Manufacturing Agreement") and Right of First Refusal Agreement (the "RoFR Agreement," and together with the Manufacturing Agreement, the "Emergent Agreements") with Emergent BioSolutions Canada, Inc., a wholly-owned subsidiary of Emergent BioSolutions Inc. ("Emergent"). The Emergent Agreements contemplate that the Company and Emergent will enter into one or more binding Master Manufacturing Services Agreements, whereby Emergent will provide contract development and manufacturing services to produce the Company's fully-human polyclonal antibody products (a "MSA"). Under the terms of an MSA, Emergent will provide end-to-end Good Manufacturing Practice manufacturing services to the Company, including process development and manufacturing clinical investigational drug product to support the Company's clinical programs, and commercial manufacturing services upon regulatory approval of the Company's therapeutics. Any MSA will also provide the opportunity for Emergent to utilize the Company's novel DiversitAb™ platform for future development of undisclosed programs. Emergent may terminate the Emergent Agreements at its discretion until a definitive MSA is entered into between the parties.

Under the Manufacturing Agreement, the Company grants Emergent an exclusive option for the exclusive commercial manufacture of commercial stage product utilizing the Company's humanized polyclonal antibodies, developed by the Company. The Company will notify Emergent at least 24 months in advance of its first commercial manufacturing needs for such product and at least 12 months in advance for each additional product (subject to certain customary exceptions). Emergent may then exercise the exclusive manufacturing option with respect to such product identified by the Company, and when Emergent determines it has the ability and capacity to manufacture such product, Emergent shall notify the Company within 60 days of its intent to exercise the option for such

product. The parties will execute a definitive MSA, in substantially the form attached as Exhibit A to the Manufacturing Agreement, for each such customer product.

Under the RoFR Agreement, the Company grants Emergent an exclusive right of first refusal to license and develop the Company's products, developed using humanized polyclonal antibodies based on the Company's platform to treat (i) botulism anti-toxin, (ii) pandemic influenza, or (iii) anti-fungal diseases.

Amendment to Lease Agreement with Sanford Health

On October 11, 2022, the Company entered into a Fourth Amendment (the "Fourth Amendment") to the Amended and Restated Lease Agreement (as amended by the Fourth Amendment, the "Sanford Lease Agreement") with Sanford Health, a South Dakota non-profit corporation (the "Sanford Health"). The Fourth Amendment, among other things, reduces the Company's leased area under the Sanford Lease Agreement to 21,014 square feet. The Fourth Amendment reduces the rent due under the Sanford Lease Agreement to $531,024 (the "Annual Rent"), payable in monthly installments of $44,252.

Additionally, pursuant to the Fourth Amendment, the Company and Sanford Health agreed that for the period of October 1, 2022 to September 30, 2023, the Company's obligation to pay the Annual Rent shall be abated and not required to be paid when normally due (the "Abated Rent"). In exchange for the Abated Rent, effective as of October 1, 2022, the Company issued to Sanford Health an 8% unsecured, convertible promissory note (the "October Note").

Pursuant to the October Note, the Company shall pay the sum of $541,644 (the "Principal") plus accrued and unpaid interest thereon on September 31, 2024 (the "Maturity Date"). Simple interest shall accrue on the outstanding Principal from and after the date of the October Note, and shall be payable on the Maturity Date. Sanford Health shall have the right, but not the obligation, to convert all or any part of the outstanding Principal of the October Note, together with any accrued and unpaid interest thereon to the date of such conversion, into such number of fully paid and non-assessable shares of the Company's common stock, at any time and from time to time, prior to the later of the Maturity Date and the date on which the October Note is paid in full, subject to certain restrictions, at a conversion price per share of Common Stock equal to greater of (x) $1.50 and (y) the price at which the Company sells shares of common stock in any bona fide private or public equity financing prior to the Maturity Date.

Nasdaq Notice Letter

On October 5, 2022, the Company received the Notice Letter from Nasdaq indicating that the Company was not in compliance with Nasdaq Listing Rule 5450(a)(1), as the closing bid price for our common stock was below the $1.00 per share requirement for the last 30 consecutive business days. The Notice Letter stated that the Company has until the end of the Initial Compliance to regain compliance with the minimum bid price requirement, which Initial Compliance period is 180 calendar days, or until April 3, 2023. If the Company does not regain compliance by the end of the Initial Compliance Period, the Company may apply for an additional compliance period as provided for in the Notice Letter.

Nasdaq's determination of whether the Company qualifies for an additional compliance period will depend on whether the Company will meet the continued listing requirement for market value of publicly held shares and all other applicable requirements for initial listing on the Nasdaq Capital Market, with the exception of the minimum bid price requirement, and a written notice of our intention to cure the deficiency during the additional compliance period by effecting a reverse stock split, if necessary.

The Notice Letter has no immediate effect on the listing of our common stock on The Nasdaq Global Market. In accordance with Nasdaq Listing Rule 5810(c)(3)(A), the Company can regain compliance if the closing bid price of our common stock is at least $1.00 for a minimum of 10 consecutive business days. In the event that the Company does not regain compliance with Listing Rule 5450(a)(1) prior to the expiration of the Initial Compliance Period (or additional compliance period, if applicable), the Company will receive written notification that our securities are subject to delisting.

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

You should read the following discussion and analysis of our financial condition and results of operations together with our consolidated financial statements and the accompanying notes included in Part I, Item 1 of this Form 10-Q. Some of the information contained in this discussion and analysis contains forward-looking statements that involve risks, uncertainties, and assumptions. As a result of many factors, including those factors set forth in the section titled "Risk Factors," our actual results could differ materially from those discussed in or implied by these forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those discussed in the section titled "Risk Factors." Please also refer to the section titled "Special Note Regarding Forward Looking Statements."

Special Note Regarding Forward-Looking Statements

This Quarterly Report on Form 10-Q (this "Quarterly Report" or "Form 10-Q") includes "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act") and Section 21E of the Exchange Act, as amended, that are not historical facts and involve risks and uncertainties that could cause actual results to differ materially from those expected and projected. All statements, other than statements of historical fact included in this Form 10-Q including, without limitation, statements in this "Management's Discussion and Analysis of Financial Condition and Results of Operations" regarding our financial position, business strategy and the plans and objectives of management for future operations, are forward-looking statements. Words such as "expect," "believe," "anticipate," "intend," "estimate," "seek" and variations and similar words and expressions are intended to identify such forward-looking statements. Such forward-looking statements involved known and unknown risks, including risks with regard to our ability to continue as a going concern, relate to future events or future performance, but reflect management's current beliefs, based on information currently available. A number of factors could cause actual events, performance or results to differ materially from the events, performance and results discussed in the forward-looking statements. In addition, historic results, including but not limited to those related to discovery data of SAB-195 and SAB-142; Phase 1 & Phase 2a results of SAB-176; and Phase 1, 1b, and 2 results for SAB-185 do not guarantee that future research or trials will suggest the same conclusions, nor that historic results referred to herein will be interpreted in the same manner due to future preclinical and clinical trial results or otherwise. For information identifying important factors that could cause actual results to differ materially from those anticipated in the forward-looking statements, please refer to the sections entitled "Risk Factors" in this Quarterly Report, our most recent Annual Report on Form 10-K, subsequent Quarterly Reports on Form 10-Q, and other periodic reports filed with the Securities and Exchange Commission and available at https://www.sec.gov/. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date hereof. Except as expressly required by applicable law, we disclaim any intention or obligation to update or revise any forward-looking statements whether as a result of new information, future events or otherwise. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance, or achievements.

Overview

We are a clinical-stage, biopharmaceutical company focused on the development of powerful and proprietary immunotherapeutic polyclonal human antibodies to treat and prevent infectious diseases and immune and autoimmune disorders, including infectious diseases resulting from outbreaks and pandemics as well as immunology, gastroenterology, and respiratory diseases that have significant mortality and health impacts on immunocompromised patients. We have applied advanced genetic engineering and antibody science to develop transchromosomic (Tc) Bovine™. Our versatile DiversitAb™ platform is applicable to a wide range of serious unmet needs in human diseases. It produces natural, specifically targeted, high-potency, fully-human polyclonal immunotherapies without the need for human donors. We currently have multiple drug development programs underway and collaborations with the US government and global pharmaceutical companies.

The platform has been expanded and validated through funding awarded from U.S. government emerging disease and medical countermeasures programs with cumulative grant award totals of approximately $203.6 million. We are advancing clinical programs in two indications, and preclinical development in three indications. In addition, we are executing on two research collaborations with global pharmaceutical companies, including CSL Behring and an undisclosed collaboration.

We generated total revenue of $3.6 million and $14.7 million for the three months ended September 30, 2022 and 2021, respectively, and $21.7 million and $49.8 million, respectively, for the nine months ended September 30, 2022 and 2021. Our revenue to date has been primarily derived from government grants. As of September 30, 2022, $0.5 million in funding remains for our current government grants, with an additional $1.6 million remaining for our current government grants pending approval of extensions on the funding for two of the grants.

We plan to focus a substantial portion of our resources on continued research and development efforts towards deepening our technology and expertise with our platform and as well as indications in infectious disease and autoimmune indications. As a result, we expect to continue to make significant investments in these areas for the foreseeable future. We incurred research and development expenses of $7.4 million and $15.1 million, respectively, for the three months ended September 30, 2022 and 2021, and $29.3 million and $46.5 million, respectively, for the nine months ended September 30, 2022 and 2021. We incurred general and administrative expenses of $4.0 million and $3.6 million for the three months ended September 30, 2022 and 2021, respectively, and $13.5 million and $9.3 million for the nine months ended September 30, 2022 and 2021. We expect to continue to incur significant expenses, and we expect such expenses to increase substantially in connection with our ongoing activities, including as we:

- invest in research and development activities to optimize and expand our DiversitAb platform;
- develop new and advance preclinical and clinical progress of pipeline programs;
- market to and secure partners to commercialize our products;
- expand and enhance operations to deliver products, including investments in manufacturing;
- acquire businesses or technologies to support the growth of our business;
- continue to establish, protect and defend our intellectual property and patent portfolio;
- operate as a public company.

To date, we have primarily financed our operations from government agreements and the issuance and sale of common stock.

We generated a net loss of $7.1 million and $4.1 million, respectively, for the three months ended September 30, 2022 and 2021, and a net loss of $10.9 million and $5.6 million for the nine months ended September 30, 2022 and 2021. As of September 30, 2022, we had an accumulated deficit of $40.0 million with cash and cash equivalents totaling $8.3 million.

Recent Developments

Termination of Contract with US Department of Defense

On August 3, 2022, we received notice from the US Department of Defense (“DoD”) to terminate the Department of Defense, Joint Program Executive Office for Chemical, Biological, Radiological and Nuclear Defense Enabling Biotechnologies (“JPEO”) Rapid Response contract, dated as of August 7, 2019 with the DoD most recently amended as of September 14, 2021, relating to a prototype research and development of a Rapid Response Antibody Program and advanced clinical development through licensure and commercial manufacturing for SAB-185 (the "JPEO Rapid Response Contract Termination"). No termination penalties have been or will be incurred by us in connection therewith. We anticipate entry into a termination settlement or similar arrangement with the DoD whereby, among other things, we expect to be compensated for costs incurred in winding down activity surrounding the JPEO Rapid Response contract.

Key Factors Affecting Our Results of Operations and Future Performance

We believe that our financial performance has been, and in the foreseeable future will continue to be, primarily driven by multiple factors as described below, each of which presents growth opportunities for our business. These factors also pose important challenges that we must successfully address in order to sustain our growth and improve our results of operations. Our ability to successfully address these challenges is subject to various risks and uncertainties, including those described in the section captioned “Part I, Item 1A, Risk Factors” in our Annual Report on Form 10-K for the fiscal year ended December 31, 2021, and supplemented with the following revised or additional risk factors in “Part II, Item 1A, Risk Factors.”

Components of Results of Operations

Revenue

Our revenue has historically been generated through grants from government and other (non-government) organizations. We currently have no commercially approved products.

Grant revenue is recognized for the period that the research and development services occur, as qualifying expenses are incurred or conditions of the grants are met. We concluded that payments received under these grants represent conditional, nonreciprocal contributions, as described in Accounting Standards Codification ("ASC") 958, *Not-for-Profit Entities*, and that the grants are not within the scope of ASC 606, *Revenue from Contracts with Customers*, as the organizations providing the grants do not meet the

definition of a customer. Expenses for grants are tracked by using a project code specific to the grant, and the employees also track hours worked by using the project code.

The total revenue for government grants was approximately $3.6 million and $14.6 million, respectively, the three months ended September 30, 2022 and 2021, and $21.7 million and $49.8 million, respectively, for the nine months ended September 30, 2022 and 2021.

For the three and nine months ended September 30, 2021, we worked on the following grants:

National Institute of Health – National Institute of Allergy and Infectious Disease ("NIH-NIAID") (Federal Award #1R44AI117976-01A1) – this grant was for $1.4 million and started in September 2019 through August 2021. Grant income recognized was approximately $0 and $306,000, respectively, for the three months ended September 30, 2022 and 2021, and $30,000 and $457,000, respectively, for the nine months ended September 30, 2022 and 2021. We applied for an extension on the grant funding, and the extension is pending approval—we have not historically experienced challenges renewing grant funding. If approved, there is approximately $184,000 in funding remaining for this grant as of September 30, 2022.

NIH-NIAID (Federal Award #1R41AI131823-02) – this grant was for approximately $1.5 million and started in April 2019 through March 2021. The grant was subsequently amended to extend the date through March 2022. Grant income recognized was approximately $150,000 and $13,000, respectively, for the three months ended September 30, 2022 and 2021, and $281,000 and $41,000, respectively, for the nine months ended September 30, 2022 and 2021. There is approximately $533,000 in funding remaining for this grant as of September 30, 2022.

NIH-NIAID through Geneva Foundation (Federal Award #1R01AI132313-01, Subaward #S-10511-01) – this grant was for approximately $2.7 million and started in August 2017 through July 2021. Grant income recognized was approximately $39,000 and $24,000, respectively, for the three months ended September 30, 2022 and 2021, and $88,000 and $72,000, respectively, for the nine months ended September 30, 2022 and 2021. We applied for an extension on the grant funding, and the extension is pending approval—we have not historically experienced challenges renewing grant funding. If approved, there is approximately $1.4 million in funding remaining for this grant as of September 30, 2022.

Department of Defense, Joint Program Executive Office for Chemical, Biological, Radiological and Nuclear Defense Enabling Biotechnologies ("JPEO") through Advanced Technology International – this grant was for a potential of $25 million, awarded in stages starting in August 2019 and with potential stages running through February 2023. Additional contract modifications were added to this contract in 2020 and 2021 for work on a COVID therapeutic, bringing the contract total to $204 million. Grant income recognized was approximately $3.4 million and $14.3 million, respectively, for the three months ended September 30, 2022 and 2021, and $21.3 million and $49.2 million, respectively, for the nine months ended September 30, 2022 and 2021. There is approximately $0.0 million in funding remaining for this grant as of September 30, 2022.

The grants for the JPEO Rapid Response contract are cost reimbursement agreements, with reimbursement of our direct research and development expense (labor and consumables) with an overhead charge (based on actual, reviewed quarterly) and a fixed fee (9%).

On August 3, 2022, we received notice from the DoD to terminate the JPEO Rapid Response contract, dated as of August 7, 2019 with the DoD most recently amended as of September 14, 2021, relating to a prototype research and development of a Rapid Response Antibody Program and advanced clinical development through licensure and commercial manufacturing for SAB-185. No termination penalties have been or will be incurred by us in connection therewith. We anticipate entry into a termination settlement or similar arrangement with the DoD whereby, among other things, we expect to be compensated for costs incurred in winding down activity surrounding the JPEO Rapid Response contract.

Approximately $12.7 million of our $12.9 million in accounts receivable as of September 30, 2022 relates to the JPEO Rapid Response Contract. We considered all conditions and barriers associated with the JPEO Rapid Response Contract and associated termination agreement and determined the grant is conditional and revenue will be recognized upon achieving certain milestones and incurring internal costs specifically covered by the grant and termination agreement. Consistent with our Summary of Significant Accounting Policies in Note 2, under ASC 958-605 revenues will be recognized as we incur related expenses. We have determined the barriers to recognition to have been met and collection of these receivables to be probable; however, final approval and payment by the DoD is contingent upon further negotiations, and final execution of the termination settlement documents.

Research and Development Expenses

Research and development expenses primarily consist of salaries, benefits, incentive compensation, stock-based compensation, laboratory supplies and materials for employees and contractors engaged in research and product development, licensing fees to use certain technology in our research and development projects, fees paid to consultants and various entities that perform certain research and testing on our behalf. Research and development expenses are tracked by target/project code. Indirect general and administrative costs are allocated based upon a percentage of direct costs. We expense all research and development costs in the period in which they are incurred.

Research and development activities consist of discovery research for our platform development and the various indications we are working on. We have not historically tracked our research and development expenses on a product candidate-by-product candidate basis.

For the three and nine months ended September 30, 2022 and 2021, we had contracts with multiple contract research organizations ("CRO") to conduct and complete clinical studies. In the case of SAB-185, the CRO has been contracted and paid by the US government. For SAB-176, PPD Development, LP, acting as CRO oversaw the Phase 1 safety study. The terms of that agreement are subject to confidentiality, and the status of the agreement is that it is current, in good standing and approximately 90% of the contract has been paid through December 31, 2021. SAB has also contracted with hVIVO Services Limited to conduct the Phase 2a influenza study on SAB-176. The terms of that agreement are subject to confidentiality, and the status of the agreement is that it is current, in good standing and approximately 90% of the contract has been paid as of September 30, 2022.

We expect to continue to incur substantial research and development expenses as we conduct discovery research to enhance our platform and work on our indications. We expect to hire additional employees and continue research and development and manufacturing activities. As a result, we expect that our research and development expenses will continue to increase in future periods and vary from period to period as a percentage of revenue.

Major components within our research and development expenses are salaries and benefits (laboratory & farm), laboratory supplies, animal care, contract manufacturing, clinical trial expense, outside laboratory services, project consulting, and facility expense. Our platform allows us to work on multiple projects with the same resources, as the research and development process of each product is very similar (with minimal differences in the manufacturing process).

Research and development expenses by component for the three months ended September 30, 2022 and 2021:

	Three Months Ended September 30,	
	2022	2021
Salaries & benefits	$ 2,761,918	$ 2,700,016
Laboratory supplies	1,686,573	4,126,792
Animal care	183,756	1,331,092
Contract manufacturing	447,657	2,954,253
Clinical trial expense	—	1,592,554
Outside laboratory services	757,560	1,120,422
Project consulting	97,506	368,042
Facility expense	1,391,031	850,956
Other expenses	26,977	26,138
Total research and development expenses	$ 7,352,978	$ 15,070,265

Research and development expenses by component for the nine months ended September 30, 2022 and 2021:

	Nine Months Ended September 30,	
	2022	2021
Salaries & benefits	$ 9,686,354	$ 7,148,648
Laboratory supplies	5,520,683	11,716,471
Animal care	1,257,314	3,324,915
Contract manufacturing	5,231,389	12,556,134
Clinical trial expense	235,118	4,826,311
Outside laboratory services	2,644,950	3,355,537
Project consulting	650,684	1,214,375
Facility expense	3,951,024	2,248,547
Other expenses	122,889	144,733
Total research and development expenses	$ 29,300,405	$ 46,535,671

General and Administrative Expenses

General and administrative expenses primarily consist of salaries, benefits, and stock-based compensation costs for employees in our executive, accounting and finance, project management, corporate development, office administration, legal and human resources functions as well as professional services fees, such as consulting, audit, tax and legal fees, general corporate costs and allocated overhead expenses. General and administrative expenses also include rent and facilities expenses allocated based upon total direct costs. We expect that our general and administrative expenses will continue to increase in future periods, primarily due to increased headcount to support anticipated growth in the business and due to incremental costs associated with operating as a public company,

including costs to comply with the rules and regulations applicable to companies listed on a securities exchange and costs related to compliance and reporting obligations pursuant to the rules and regulations of the SEC and stock exchange listing standards, public relations, insurance and professional services. We expect these expenses to vary from period to period in absolute terms and as a percentage of revenue.

Nonoperating (Expense) Income

Gain on change in fair value of warrant liabilities

Gain on change in fair value of warrant liabilities consists of the changes in the fair value of the warrant liabilities.

Gain on debt extinguishment of Paycheck Protection Program SBA Loan

Gain on extinguishment of debt consists of the forgiveness of the PPP Loan, plus accrued interest.

Interest income

Interest income consists of interest earned on cash balances in our bank accounts.

Interest expense

Interest expense consists primarily of interest related to borrowings under notes payable for equipment.

Income Tax Expense (Benefit)

Income tax expense (benefit) consists primarily of domestic federal and state income taxes.

Results of Operations

The following tables set forth our results of operations for the three months ended September 30, 2022 and 2021:

	Three Months Ended September 30,	
	2022	2021
Revenue		
Grant revenue	$ 3,589,708	$ 14,680,589
Total revenue	3,589,708	14,680,589
Operating expenses		
Research and development	7,352,978	15,070,265
General and administrative	4,044,046	3,600,678
Total operating expenses	11,397,024	18,670,943
Loss from operations	(7,807,316)	(3,990,354)
Changes in fair value of warrant liabilities	782,962	—
Other income	1,527	3,953
Interest expense	(70,626)	(78,558)
Interest income	17,385	3,769
Total other income (expense)	731,248	(70,836)
Loss before income taxes	(7,076,068)	(4,061,190)
Income tax benefit	—	—
Net loss	$ (7,076,068)	$ (4,061,190)

The following tables set forth our results of operations for the nine months ended September 30, 2022 and 2021:

	Nine Months Ended September 30,	
	2022	2021
Revenue		
Grant revenue	$ 21,743,309	$ 49,817,825
Total revenue	21,743,309	49,817,825
Operating expenses		
Research and development	29,300,405	46,535,671
General and administrative	13,500,512	9,331,125
Total operating expenses	42,800,917	55,866,796
Loss from operations	(21,057,608)	(6,048,971)
Changes in fair value of warrant liabilities	10,362,614	—
Gain on debt extinguishment of Paycheck Protection Program SBA Loan	—	665,596
Other income	1,527	3,953
Interest expense	(213,885)	(228,184)
Interest income	41,143	14,571
Total other income	10,191,399	455,936
Loss before income taxes	(10,866,209)	(5,593,035)
Income tax expense	—	—
Net loss	$ (10,866,209)	$ (5,593,035)

Comparison of the three and nine months ended September 30, 2022 and 2021

Revenue

	Three Months Ended September 30,			
	2022	2021	Change	% Change
Revenue	$ 3,589,708	$ 14,680,589	$ (11,090,881)	(75.5)%
Total revenue	$ 3,589,708	$ 14,680,589		

Revenue decreased by $11.1 million, or 75.5%, in the three months ended September 30, 2022 as compared to the three months ended September 30, 2021 primarily due to the JPEO Rapid Response Contract Termination. Included in revenues for the three months ended September 30, 2022 are closeout activities and charges of $2.5 million for supplies and $0.6 million for labor, as compared to $7.8 million for supplies, $4.6 million for contract manufacturing, and $1.9 million for labor for the three months ended September 30, 2021.

	Nine Months Ended September 30,			
	2022	2021	Change	% Change
Revenue	$ 21,743,309	$ 49,817,825	$ (28,074,516)	(56.4)%
Total revenue	$ 21,743,309	$ 49,817,825		

Revenue decreased by $28.1 million, or 56.4%, for the nine months ended September 30, 2022 as compared to the nine months ended September 30, 2021 primarily due to the JPEO Rapid Response Contract Termination. Included in revenues for the nine months ended September 30, 2022 are $5.7 million for contract manufacturing, $6.7 million for labor, and $7.0 million for supplies as compared to $13.7 million for contract manufacturing, $4.0 million for fixed asset reimbursement, $6.4 million for labor, and $21.0 million for supplies for the nine months ended September 30, 2021.

We anticipate future revenues will be substantially derived from current period directly reimbursable expenses such as laboratory supplies, labor costs, and consulting fees plus, when applicable, an overhead charge and a flat-rate fixed fee. As a result of the JPEO Rapid Response Contract Termination, we expect future revenues to be lower as our primary pipeline development targets of Clostridioides difficile Infection, influenza, and immune system disorders remain independently financed as the we explore potential partnerships, co-development opportunities, and licensing arrangements.

Research and Development

	Three Months Ended September 30,			
	2022	2021	Change	% Change
Research and development	$ 7,352,978	$ 15,070,265	$ (7,717,287)	(51.2)%
Total research and development expenses	$ 7,352,978	$ 15,070,265		

Research and development expenses decreased by $7.7 million, or 51.2%, for the three months ended September 30, 2022 as compared to the three months ended September 30, 2021, primarily due to decreases in laboratory supplies, contract manufacturing costs, clinical trial expense, and outside lab services due to the JPEO Rapid Response Contract Termination. Please refer to the research and development expenses by component for the three months ended September 30, 2022 and 2021 table above for additional information.

	Nine Months Ended September 30,			
	2022	2021	Change	% Change
Research and development	$ 29,300,405	$ 46,535,671	$ (17,235,266)	(37.0)%
Total research and development expenses	$ 29,300,405	$ 46,535,671		

Research and development expenses decreased by $17.2 million, or 37.0%, for the nine months ended September 30, 2022 as compared to the nine months ended September 30, 2021, primarily due to decreases in laboratory supplies, contract manufacturing costs, clinical trial expense, and outside lab services due to the JPEO Rapid Response Contract Termination. Please refer to the research and development expenses by component for the nine months ended September 30, 2022 and 2021 table above for additional information.

As a result of the JPEO Rapid Response Contract Termination and in tandem with our focus on our primary pipeline development targets, future period research and development expenses will decrease as we no longer expect to incur costs of contract manufacturing, outside laboratory services, project consulting, and facilities costs related to the production of SAB-185.

General and Administrative

	Three Months Ended September 30,			
	2022	2021	Change	% Change
General and administrative	$ 4,044,046	$ 3,600,678	$ 443,368	12.3%
Total general and administrative expenses	$ 4,044,046	$ 3,600,678		

General and administrative expenses increased by $0.4 million, or 12.3%, in the three months ended September 30, 2022 as compared to the three months ended September 30, 2021, primarily due to increased insurance costs associated with being a public company ($0.7 million) which was offset by a decrease in compensation ($0.2 million).

	Nine Months Ended September 30,			
	2022	2021	Change	% Change
General and administrative	$ 13,500,512	$ 9,331,125	$ 4,169,387	44.7%
Total general and administrative expenses	$ 13,500,512	$ 9,331,125		

General and administrative expenses increased by $4.2 million, or 44.7%, in the nine months ended September 30, 2022 as compared to the nine months ended September 30, 2021, primarily due to increases in accounting services, and legal fees ($0.9 million); insurance costs associated with being a public company ($2.2 million); and increased compensation costs ($0.7 million).

Non-operating Income

	Three Months Ended September 30,			
	2022	2021	Change	% Change
Changes in fair value of warrant liabilities	$ 782,962	$ —	$ 782,962	N/M
Gain on debt extinguishment of Paycheck Protection Program SBA Loan	—	—	—	N/M
Other income	1,527	3,953	(2,426)	N/M
Total non-operating income	$ 784,489	$ 3,953		

Total non-operating income increased by $0.8 million in the three months ended September 30, 2022 as compared to the three months ended September 30, 2021 due to the change in fair value of warrant liabilities which were issued as a result of the Business Combination in the fourth quarter of 2021.

	Nine Months Ended September 30,			
	2022	2021	Change	% Change
Changes in fair value of warrant liabilities	$ 10,362,614	$ —	$ 10,362,614	N/M
Gain on debt extinguishment of Paycheck Protection Program SBA Loan	—	665,596	(665,596)	N/M
Other income	1,527	3,953	(2,426)	N/M
Total non-operating income	$ 10,364,141	$ 669,549		

Total non-operating income increased by $9.7 million in the nine months ended September 30, 2022 as compared to the nine months ended September 30, 2021 primarily due to changes in the fair value of the warrant liabilities, partially offset by the forgiveness of the PPP Loan, plus accrued interest, in the first quarter of 2021.

Interest Expense

	Three Months Ended September 30,			
	2022	2021	Change	% Change
Interest expense	$ 70,626	$ 78,558	$ (7,932)	(10.1)%
Total interest expense	$ 70,626	$ 78,558		

Interest expense remained largely unchanged in the three months ended September 30, 2022 as compared to the three months ended September 30, 2021, driven by adding no new Finance Leases or other interest-bearing debt.

	Nine Months Ended September 30,			
	2022	2021	Change	% Change
Interest expense	$ 213,885	$ 228,184	$ (14,299)	(6.3)%
Total interest expense	$ 213,885	$ 228,184		

Interest expense remained largely unchanged in the nine months ended September 30, 2022 as compared to the nine months ended September 30, 2021, driven by adding no new Finance Leases or other interest-bearing debt.

Interest Income

	Three Months Ended September 30,			
	2022	2021	Change	% Change
Interest income	$ 17,385	$ 3,769	$ 13,616	361.3%
Total interest income	$ 17,385	$ 3,769		

Interest income increased during the three months ended September 30, 2022 as compared to the three months ended September 30, 2021, due to higher interest earning cash balances.

	Nine Months Ended September 30,			
	2022	2021	Change	% Change
Interest income	$ 41,143	$ 14,571	$ 26,572	182.4%
Total interest income	$ 41,143	$ 14,571		

Interest income increased during the nine months ended September 30, 2022 as compared to the nine months ended September 30, 2021, due to higher interest earning cash balances.

Liquidity and Capital Resources

As of September 30, 2022 and December 31, 2021, we had $8.3 million and $33.2 million, respectively, of cash and cash equivalents. Additionally, as of December 31, 2021 we had $6.3 million in restricted cash held in escrow pending the final settlement of the Forward Share Purchase Agreement. Upon final settlement of the Forward Share Purchase Agreement during the first quarter of 2022, $817,060 in cash was released to us and the remaining $5.5 million was delivered to Radcliffe for the repurchase of 546,658 shares of

our common stock. To date, we have primarily relied on grant revenue in the form of government grants and the sale of common stock.

Our standard repayment terms for accounts receivable are thirty days from the invoice date. As a majority of our accounts receivable is from work performed under government grants, we have not had an uncollectible accounts receivable amount in over 5 years.

We intend to continue to invest in our business and, as a result, may incur operating losses in future periods. We expect to continue to invest in research and development efforts towards expanding our capabilities and expertise along our platform and the primary pipeline development targets we are working on, as well as building our business development team and marketing our solutions to partners in support of the growth of the business.

We anticipate that we will continue to generate losses for the foreseeable future, and we expect the losses to increase as we continue the development of, and seek regulatory approvals for, our product candidates, and begin commercialization of our products. As a result, we will require additional capital to fund our operations in order to support our long-term plans, in particular, following the JPEO Rapid Response Contract Termination.

We have incurred operating losses for the past several years. While we intend to continue to keep operating expenses at a reduced level there can be no assurance that our current level of operating expenses will not increase or that other uses of cash will not be necessary. Based on our current level of operating expenses, existing cash and cash equivalents may not be sufficient to cover operating cash needs through the twelve months following the date these financials are made available for issuance. We intend to seek additional capital through equity and/or debt financings, collaborative or other funding arrangements. Should we seek additional financing from outside sources, we may not be able to raise such financing on terms acceptable to us or at all. If we are unable to raise additional capital when required or on acceptable terms, we may be required to scale back or discontinue the advancement of product candidates, reduce headcount, liquidate our assets, file for bankruptcy, reorganize, merge with another entity, or cease operations.

Sources of Liquidity

Since our inception, we have financed our operations primarily from revenue in the form of government grants and from equity financings.

Equity Financings and Option Exercises

As of September 30, 2022, we have raised approximately $82.5 million since our inception from the issuance and sale of convertible preferred shares, net of issuance costs associated with such financings, the Business Combination with BCYP, and exercises of employee stock options.

We are not currently eligible to file a shelf registration statement; however, we believe that shelf registration statements can contribute, when used, to greater financing flexibility. To that end, we plan to file a shelf registration statement on Form S-3 with the SEC once we are eligible to do so. Until such time, if ever, we can generate substantial product revenue to support our cost structure, we expect to finance our cash needs through a combination of government or non-profit grants, equity offerings, debt financings, collaborations, and other similar arrangements.

Notes payable

In December 2017, we entered into a loan agreement for the purchase of a tractor for $116,661 at a 3.6% interest rate. The loan included annual payments of $25,913 for the next five years starting in December 2018. The tractor loan balance as of September 30, 2022 and December 31, 2021 was $25,013. The total amount of the remaining loan balance is due in full in the fourth quarter of 2022.

On March 27, 2020, President Trump signed into law the “Coronavirus Aid, Relief and Economic Security Act (“CARES Act”). In April 2020, we entered into a loan agreement (the “PPP Loan”) with First Premier Bank under the Paycheck Protection Program (the “PPP”), which is part of the CARES Act administered by the United States Small Business Administration (“SBA”). As part of the application for these funds, we, in good faith, certified that the current economic uncertainty made the loan request necessary to support the ongoing operations. The certification further requires us to take into account its current business activity and its ability to access other sources of liquidity sufficient to support ongoing operations in a manner that is not significantly detrimental to the business. Under the PPP, we received proceeds of approximately $661,612. In accordance with the requirements of the PPP, we utilized the proceeds from the PPP Loan primarily for payroll costs. The PPP Loan has a 1.00% interest rate per annum, matures in April 2022 and is subject to the terms and conditions applicable to loans administered by the SBA under the PPP. Under the terms of PPP, all or certain amounts of the PPP Loan may be forgiven if they are used for qualifying expenses, as described in the CARES Act. We recorded the entire amount of the PPP Loan as debt. In February 2021, we submitted a forgiveness application related to its PPP Loan. In March 2021, the SBA approved the forgiveness of the PPP Loan, plus accrued interest. We recorded a gain on extinguishment of PPP Loan of $665,596 for the forgiveness of the PPP Loan and accrued interest within gain on debt extinguishment

of Paycheck Protection Program SBA Loan on the consolidated statement of operations for the nine months ended September 30, 2021.

Please refer to Note 10 to the our consolidated financial statements, *Notes Payable*, for additional information on our debt.

Cash Flows

The following table summarizes our cash flows for the nine months ended September 30, 2022 and 2021:

	Nine Months Ended September 30,	
	2022	2021
Net cash (used in) provided by operating activities	$ (23,676,233)	$ 6,865,042
Net cash used in investing activities	(1,972,270)	(8,581,735)
Net cash used in financing activities	(5,564,327)	(142,928)
Net decrease in cash, cash equivalents, and restricted cash	$ (31,212,830)	$ (1,859,621)

Operating Activities

Net cash from operating activities decreased by $30.5 million in the nine months ended September 30, 2022 as compared to the nine months ended September 30, 2021, primarily due to a $28.1 million decrease in revenue, offset by a $13.1 million decrease in operating expenses. Additionally, we experienced an increase of non-cash working capital of $6.8 million during the nine months ended September 30, 2022 as compared to a $10.5 million decrease of non-cash working capital during the nine months ended September 30, 2021.

Investing Activities

Net cash from investing activities increased by $6.6 million in the nine months ended September 30, 2022 as compared to the nine months ended September 30, 2021, primarily due to a decrease in purchases of equipment and substantial completion of the HQ expansion.

Financing Activities

Net cash from financing activities decreased by $5.4 million in the nine months ended September 30, 2022 as compared to the nine months ended September 30, 2021, primarily due to the final settlement of the Forward Share Purchase Agreement whereby $5.5 million of restricted cash was utilized for a repurchase of 546,658 shares of our common stock.

Contractual Obligations and Commitments

The following table summarizes our contractual obligations and commitments as of September 30, 2022:

	Payments Due by Period				
	Total	Less than 1 year	1-3 years	3-5 years	Over 5 years
Notes payable (1)	$ 25,013	$ 25,013	$ —	$ —	$ —
Operating lease liabilities (2)	2,048,695	315,726	1,732,969	—	—
Finance lease liabilities (2)	6,506,315	110,994	807,835	802,992	4,784,494
Total	$ 8,580,023	$ 451,733	$ 2,540,804	$ 802,992	$ 4,784,494

(1) One remaining annual payment on the purchase of a tractor.

(2) We are party to certain contractual arrangements for equipment, lab space, and an animal facility, which meet the definition of leases under FASB ASC Topic 842, *Leases* (“ASC 842”).

We enter into contracts in the normal course of business with third parties, including CROs. These payments are not included in the table above, as the amount and timing of such payments are not known.

As of September 30, 2022, there were no material changes outside of the ordinary course of business to our commitments and contractual obligations.

Income Taxes

We had approximately $23.5 million of federal net operating loss carryforwards as of September 30, 2022. Our carryforwards are subject to review and possible adjustment by the appropriate taxing authorities. Our effective tax rate will vary depending on the relative use of tax credits, changes in the valuation of our deferred tax assets and liabilities, applicability of any valuation allowances, limitation of application for our NOL carryforwards, and changes in tax laws in jurisdictions in which we operate.

These carryforwards may generally be utilized in any future period but may be subject to limitations based upon changes in the ownership of our shares in a prior or future period. We have not quantified the amount of such limitations, if any.

Beginning in 2022, the U.S. Tax Cuts and Jobs Act of 2017 ("TCJA") eliminated the existing option to deduct research and development expenditures and requires taxpayers to amortize them over five years pursuant to IRC Section 174. The new amortization period begins with the midpoint of any taxable year that IRC Section 174 costs are first incurred, regardless of whether the expenditures were made prior to or after July 1, and runs until the midpoint of year five for activities conducted in the United States or year 15 in the case of development conducted on foreign soil.

We continue to record a valuation allowance on its net deferred tax assets. The valuation allowance increased by approximately $4.5 million during the nine months ended September 30, 2022. We have not recognized any reserves for uncertain tax positions.

Going Concern

A fundamental principle of the preparation of financial statements in accordance with GAAP is the assumption that we will continue in existence as a going concern, which contemplates continuity of operations and the realization of assets and settlement of liabilities occurring in the ordinary course of business.

As of September 30, 2022, we have experienced net losses, negative cash flows from operations and had an accumulated deficit of $40 million. We anticipate to continue to generate losses for the foreseeable future, and expects the losses to increase as we continue the development of, and seek regulatory approvals for, product candidates, and begin commercialization of products. As a result, we will require additional capital to fund operations in order to support long-term plans, in particular, following the JPEO Rapid Response Contract Termination. These factors raise substantial doubt about the our ability to continue as a going concern for the one-year period following the date that these financial statements were issued.

To continue as a going concern, we will need, among other things, to raise additional capital resources. We plan to seek additional funding through a combination of equity or debt financings, or other third-party financing, collaborative or other funding arrangements. Should we seek additional financing from outside sources, we may not be able to raise such financing on terms acceptable to us or at all. If we are unable to raise additional capital when required or on acceptable terms, we may be required to scale back or discontinue the advancement of product candidates, reduce headcount, liquidate our assets, file for bankruptcy, reorganize, merge with another entity, or cease operations.

The unaudited consolidated financial statements for September 30, 2022, have been prepared on the basis that we will continue as a going concern, and does not include any adjustments to reflect the possible future effects on the recoverability and classification of assets or the amounts and classification of liabilities that may result from the possible inability for us to continue as a going concern.

Off-Balance Sheet Arrangements

We did not have, for the periods presented, and we do not currently have, any off-balance sheet financing arrangements or any relationships with unconsolidated entities or financial partnerships, including entities sometimes referred to as structured finance or special purpose entities, that were established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes.

Critical Accounting Policies and Estimates

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

While our significant accounting policies are described in more detail in Note 2 to the our consolidated financial statements, *Summary of Significant Accounting Policies*, we believe the following accounting policies to be critical to the judgments and estimates used in the preparation of our consolidated financial statements.

Revenue Recognition

Our revenue is primarily generated through grants from government and other (non-government) organizations.

Grant revenue is recognized for the period that the research and development services occur, as qualifying expenses are incurred, or conditions of the grants are met. We concluded that payments received under these grants represent conditional, nonreciprocal contributions, as described in ASC 958, *Not-for-Profit Entities*, and that the grants are not within the scope of ASC 606, *Revenue from Contracts with Customers*, as the organizations providing the grants do not meet the definition of a customer. Expenses for grants are tracked by using a project code specific to the grant, and the employees also track hours worked by using the project code.

Stock-Based Compensation

We recognize compensation cost relating to stock-based payment transactions using a fair-value measurement method, which requires all stock-based payments to employees, directors, and non-employee consultants, including grants of stock options, to be recognized in operating results as compensation expense based on fair value over the requisite service period of the awards. Prior to the Business Combination, the grant date fair value of our common stock was typically determined by our board of directors with the assistance of management and a third-party valuation specialist. Subsequent to the Business Combination, the board of directors elected to determine the fair value of our post-merger common stock based on the closing market price at closing on the date of grant. In determining the fair value of our stock-based awards, we utilize the Black-Scholes option-pricing model, which uses both historical and current market data to estimate fair value. The Black-Scholes option-pricing model incorporates various assumptions, such as the value of the underlying common stock, the risk-free interest rate, expected volatility, expected dividend yield, and expected life of the options. For awards with performance-based vesting criteria, we estimate the probability of achievement of the performance criteria and recognize compensation expense related to those awards expected to vest. No awards may have a term in excess of ten years. Forfeitures are recorded when they occur. Stock-based compensation expense is classified in our consolidated statements of operations based on the function to which the related services are provided. We recognize stock-based compensation expense over the expected term.

In addition to considering the results of the independent third-party valuations, our board of directors considered various objective and subjective factors to determine the fair value of our common shares as of each grant date, which may be a date other than the most recent independent third-party valuation date, including:

- the prices at which we most-recently sold preferred shares and the superior rights and preferences of the preferred shares relative to our common shares at the time of each grant;
- the lack of liquidity of our equity as a private company;
- our stage of development and business strategy and the material risks related to our business and industry;
- our financial condition and operating results, including our levels of available capital resources and forecasted results;
- developments in our business, including the achievement of milestones such as entering into partnering agreements;
- the valuation of publicly traded companies in the life sciences, biopharmaceutical and healthcare technology sectors, as well as recently completed mergers and acquisitions of peer companies;
- any external market conditions affecting our industry, and trends within our industry;
- the likelihood of achieving a liquidity event for the holders of our preferred shares and holders of our common shares, such as an initial public offering, or IPO, or a sale of our company, given prevailing market conditions; and
- the analysis of IPOs and the market performance of similar companies in our industry.

The assumptions underlying these valuations represented management's best estimates, which involved inherent uncertainties and the application of management's judgment. As a result, if factors or expected outcomes change and we use significantly different assumptions or estimates, the fair value of our common shares and our stock-based compensation expense could be materially different.

See Note 12 to the our consolidated financial statements, *Stock Option Plan*, for information concerning certain specific assumptions we used in applying the Black-Scholes option pricing model to determine the estimated fair value of our stock options granted for the three and nine months ended September 30, 2022 and 2021.

Stock-based compensation expense was $0.6 million and $0.9 million, respectively, for the three months ended September 30, 2022 and 2021, and $2.0 million and $1.7 million, respectively, for the nine months ended September 30, 2022 and 2021.

As of September 30, 2022, we had $5.1 million of total unrecognized stock-based compensation cost related to non-vested options, which we expect to recognize in future operating results over a weighted-average period of 3.35 years. Total unrecognized compensation cost related to non-vested stock awards as of September 30, 2022 was approximately $0.6 million and is expected to be recognized within future operating results over a weighted-average period of 3.71 years.

Warrant Liabilities Valuations

We are required to periodically estimate the fair value of our Private Placement Warrant liabilities with the assistance of an independent third-party valuation firm. The assumptions underlying these valuations represented our best estimates, which involved inherent uncertainties and the application of significant levels of our judgment. The fair value of our Public Warrant liabilities are determined by reference to the quoted market price.

The warrants are accounted for as liabilities in accordance with ASC 815-40, *Derivatives and Hedging—Contracts in Entity's Own Equity*, and were presented within warrant liabilities on the consolidated balance sheet as of September 30, 2022 and December 31, 2021. The initial fair value of the warrant liabilities were measured at fair value on the Closing Date, and changes in the fair value of the warrant liabilities were presented within changes in fair value of warrant liabilities in the consolidated statement of operations for the three months ended September 30, 2022.

On the Closing Date, we established the fair value of the Private Placement Warrants utilizing both the Black-Scholes Merton formula and a Monte Carlo Simulation ("MCS") analysis. Specifically, we considered a MCS to derive the implied volatility in the publicly listed price of the Public Warrants. We then considered this implied volatility in selecting the volatility for the application of a Black-Scholes Merton model for the Private Placement Warrants. We determined the fair value of the Public Warrants by reference to the quoted market price.

The Public Warrants were classified as a Level 1 fair value measurement, due to the use of the quoted market price, and the Private Placement Warrants held privately by Big Cypress Holdings LLC, a Delaware limited liability company which acted as our sponsor in connection with the IPO (the "Sponsor"), were classified as a Level 3 fair value measurement, due to the use of unobservable inputs.

The initial measurement on the Closing Date for the Public Warrant liability was approximately $6.3 million and the fair value of the Public Warrant liability increased by approximately $4.0 million during the year ended December 31, 2021. The fair value of the Public Warrant liability decreased by approximately $0.8 million and $9.9 million, respectively, for the three and nine months ended September 30, 2022.

The key inputs into the valuations as of the September 30, 2022 and December 31, 2021 were as follows:

	September 30, 2022	December 31, 2021
Risk-free interest rate	4.15%	1.24%
Expected term remaining (years)	4.06	4.81
Implied volatility	76.5%	43.0%
Closing common stock price on the measurement date	$ 0.70	$ 7.81

See Note 13 to our consolidated financial statements, *Fair Value Measurements,* for information concerning certain specific assumptions we used in applying the Black-Scholes Merton formula and MCS to determine the estimated fair value of the Private Placement Warrants outstanding as of September 30, 2022.

Common Stock Valuations

Prior to becoming a public company, we were required to periodically estimate the fair value of our common stock with the assistance of an independent third-party valuation firm, as discussed above, when issuing stock options and computing our estimated stock-based compensation expense. The assumptions underlying these valuations represented our best estimates, which involved inherent uncertainties and the application of significant levels of our judgment. In order to determine the fair value of our common stock, we considered, among other items, previous transactions involving the sale of our securities, our business, financial condition and results of operations, economic and industry trends, the market performance of comparable publicly traded companies, and the lack of marketability of our common stock.

Subsequent to the Business Combination, we now determine the fair value of our common stock based on the closing market price at closing on the date of grant.

Compensation expense related to stock-based transactions is measured and recognized in the financial statements at fair value of our post-merger common stock based on the closing market price at closing on the date of grant. Stock-based compensation expense is measured at the grant date based on the fair value of the equity award and is recognized as expense over the requisite service period, which is generally the vesting period, on the straight-line method. We estimate the fair value of each stock option award on the date of grant using the Black-Scholes option-pricing model. Determining the fair value of stock option awards at the grant date requires judgment, including estimating the expected volatility, expected term, risk-free interest rate, and expected dividends.

Lease Liabilities and Right-of-Use Assets

We are party to certain contractual arrangements for equipment, lab space, and an animal facility, which meet the definition of leases under ASC 842. In accordance with ASC 842, we, as of January 1, 2018 (the date of adoption), recorded right-of-use assets and related lease liabilities for the present value of the lease payments over the lease terms. We utilized the practical expedient regarding lease and non-lease components and have combined such items into a single combined component. Our incremental borrowing rate was used in the calculation of our right-of-use assets and lease liabilities.

Recently Issued Accounting Pronouncements

A description of recently issued accounting pronouncements that may potentially impact our financial position and results of operations is disclosed in Note 3 to our consolidated financial statements, *New Accounting Standards.*

Impact of the COVID-19 Pandemic

In March 2020, the World Health Organization declared the outbreak of a novel coronavirus, or COVID-19, as a pandemic, which continues to spread throughout the U.S. and worldwide. As with many companies around the world, our day-to-day operations were disrupted with the imposition of work from home policies and requirements for physical distancing for any personnel present in our offices and laboratories. The pandemic has also disrupted our activities as shelter-in-place orders, quarantines, supply chain disruptions, travel restrictions and other public health safety measures have impacted our ability to interact with our existing and potential partners for our activities. However, the COVID-19 pandemic did not materially impact our business, operating results, or financial condition. There is significant uncertainty as to the trajectory of the pandemic and its impacts on our business in the future. We could be materially and adversely affected by the risks, or the public perception of the risks, related to the COVID-19 pandemic or similar public health crises. Such crises could adversely impact our ability to conduct on-site laboratory activities, expand our laboratory facilities, secure critical supplies such as reagents, laboratory tools or immunized animals required for discovery research activities, and hire and retain key personnel. The ultimate extent of the impact of any epidemic, pandemic, outbreak, or other public health crisis on our business, financial condition and results of operations will depend on future developments, which are highly uncertain and cannot be predicted, including new information that may emerge concerning the severity of such epidemic, pandemic, outbreak, or other public health crisis and actions taken to contain or prevent the further spread, among others. Accordingly, we cannot predict the extent to which our business, financial condition and results of operations will be affected. We remain focused on maintaining our operations, liquidity and financial flexibility and continue to monitor developments as we deal with the disruptions and uncertainties from the COVID-19 pandemic.

JOBS Act Accounting Election

We qualify as an “emerging growth company” as defined in the JOBS Act. An emerging growth company may take advantage of reduced reporting requirements that are not otherwise applicable to public companies. These provisions include, but are not limited to:

- being permitted to present only two years of audited financial statements and only two years of related Management’s Discussion and Analysis of Financial Condition and Results of Operations in this Form 10-Q;
- not being required to comply with the auditor attestation requirements on the effectiveness of our internal controls over financial reporting;
- not being required to comply with any requirement that may be adopted by the PCAOB regarding mandatory audit firm rotation or a supplement to the auditor’s report providing additional information about the audit and the financial statements (auditor discussion and analysis);
- reduced disclosure obligations regarding executive compensation arrangements; and
- exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved.

We may use these provisions until the last day of our fiscal year in which the fifth anniversary of the completion of our initial public offering occurred. However, if certain events occur prior to the end of such five-year period, including if we become a “large accelerated filer,” our annual gross revenue exceeds $1.07 billion, or we issue more than $1.0 billion of non-convertible debt in any three-year period, we will cease to be an emerging growth company prior to the end of such five-year period.

We have elected to take advantage of certain of the reduced disclosure obligations in this Form 10-Q and may elect to take advantage of other reduced reporting requirements in future filings. As a result, the information that we provide to our shareholders may be different than the information you receive from other public companies in which you hold stock.

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, until those standards apply to private companies. We have elected to take advantage of the

benefits of this extended transition period and, therefore, we will not be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies. Our financial statements may therefore not be comparable to those of companies that comply with such new or revised accounting standards. Until the date that we are no longer an emerging growth company or affirmatively and irrevocably opt out of the exemption provided by Section 7(a)(2)(B) of the Securities Act upon issuance of a new or revised accounting standard that applies to our financial statements and that has a different effective date for public and private companies, we will disclose the date on which we will adopt the recently issued accounting standard.

Item 3. Quantitative and Qualitative Disclosures About Market Risk.

Concentration of Credit Risk

We received 100% and of our total revenue through grants from government organizations for the three and nine months ended September 30, 2022 and 2021, respectively. To date, no receivables have been written off. We do not believe the JPEO Rapid Response Contract Termination will have an impact on our outstanding receivables as of September 30, 2022.

Interest Rate Risk

As of September 30, 2022 and December 31, 2021, we had a cash and cash equivalents of $8.3 million and $33.2 million, respectively, all of which was maintained in bank accounts and money market funds in the U.S. Our primary exposure to market risk is to interest income volatility, which is affected by changes in the general level of interest rates. A 10% change in the market interest rates would not have a material effect on our business, financial condition, or results of operations. Additionally, as of December 31, 2021, we had $6.3 million in restricted cash.

Foreign Currency Risk

We conduct our business in U.S. dollars and, thus, are not exposed to financial risks from exchange rate fluctuations between the U.S. dollar and other currencies.

Item 4. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer has evaluated the effectiveness of our disclosure controls and procedures. The term “disclosure controls and procedures,” as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC’s rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the Company’s management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure.

Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost benefit relationship of possible controls and procedures. Based on that evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that the Company’s disclosure controls and procedures were effective as of the end of the fiscal quarter covered by this Quarterly Report on Form 10-Q.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting that occurred during the three months ended September 30, 2022, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II—OTHER INFORMATION

Item 1. Legal Proceedings.

We are not currently a party to any material litigation, nor are we aware of any pending or threatened litigation against us that we believe would materially affect our business, operating results, financial condition, or cash flows. Participants in our industry face frequent claims and litigation, including securities litigation, claims regarding patent and other intellectual property rights, and other liability claims. As a result, we may be involved in various legal proceedings from time to time in the future.

Item 1A. Risk Factors.

The risk factors described in the section captioned "Part I, Item 1A, Risk Factors" in our Annual Report on Form 10-K for the fiscal year ended December 31, 2021, are incorporated herein, and supplemented with the following revised or additional risk factors

We are a clinical-stage biopharmaceutical company and have incurred significant losses since our inception. We realized net loss in the fiscal year ended December 31, 2021 and the interim period through September 30, 2022, we may incur losses for the foreseeable future and may not be able to generate sufficient revenue to maintain profitability.

We are a clinical-stage biopharmaceutical company. We expect to experience variability in revenue and expenses which makes it difficult to evaluate our business and prospects. As such, we have incurred and anticipate that we will continue to incur significant operating losses in the foreseeable future. Our historical losses resulted principally from costs incurred in research and development, preclinical testing, clinical development of product candidates as well as costs incurred for research programs and from general and administrative costs associated with these operations. In the future, we intend to continue to conduct research and development, preclinical testing, clinical trials, and regulatory compliance activities that, together with anticipated general and administrative expenses, will result in incurring further significant losses for the next several years. We expect that our operating expenses will continue to increase significantly, including as we:

- continue the research and development of our clinical- and preclinical-stage product candidates and discovery stage programs, including the clinical trials of SAB-176;
- advance our preclinical-stage product candidates into clinical development;
- invest in our technology and platform;
- seek to identify, acquire and develop additional product candidates, including through business development efforts to invest in or in-license other technologies or product candidates;
- seek regulatory approvals for any product candidates that successfully complete clinical trials;
- market and sell our solutions to existing and new partners;
- hire additional clinical, quality control, medical, scientific and other technical personnel to support our operations;
- maintain, expand, enforce, protect, and defend our intellectual property portfolio;
- create additional infrastructure to support operations;
- add operational, financial, and management information systems and personnel to support operations as a public company; and
- undertake any pre-commercialization activities to establish sales, marketing and distribution capabilities for any product candidates for which we may receive regulatory approval in regions where we choose to commercialize our products on our own or jointly with third parties; and
- experience any delays or encounter issues with any of the above.

Biopharmaceutical product development entails substantial upfront capital expenditures and significant risk that any potential product candidate will fail to demonstrate adequate efficacy or an acceptable safety profile, gain regulatory approval, secure market access and reimbursement and become commercially viable, and therefore any investment in us is highly speculative. Accordingly, before making an investment in us, you should consider our prospects, factoring in the costs, uncertainties, delays, and difficulties frequently encountered by companies in clinical development, especially clinical-stage biopharmaceutical companies such as ours. Any predictions you make about our future success or viability may not be as accurate as they would otherwise be if we had a longer operating history or a history of successfully developing and commercializing pharmaceutical products. We may encounter unforeseen expenses, difficulties, complications, delays and other known or unknown factors in achieving our business objectives.

Our expenses could increase beyond expectations for a variety of reasons, including as a result of our growth strategy and the increase in the scope and complexity of our operations. In executing our strategy and plans to invest in enhancing and scaling our business, we will need to generate significant additional revenue to achieve and maintain future profitability. We may not be able to generate

sufficient revenue to achieve profitability and our recent and historical growth should not be considered indicative of future performance.

We have historically relied on awards from, and contracts with, the U.S. Government to fund our business and operations, and will need to find new and alternative sources of funding following the discontinuance of certain such arrangements.

We have historically relied on awards from, and contracts with, the U.S. Government to fund our business and operations, but we have recently mutually agreed with the U.S. federal Government (USG) to discontinue Project Agreement No. 01; MCDC1902-007, an award agreement which represented a substantial majority of our revenues. We therefore need to secure new and alternative sources of funding for our projects. There is no guarantee that we will find such other sources of funding on favorable terms or at all, which could have a direct adverse effect on our financial condition and ability to operate.

Unstable market and economic conditions may have serious adverse consequences on our business, financial condition and stock price.

The global credit and financial markets have experienced extreme volatility and disruptions in the past, most recently as a result of the COVID-19 pandemic. These disruptions can result in severely diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, increases in unemployment rates and uncertainty about economic stability. There can be no assurance that further deterioration in credit and financial markets and confidence in economic conditions will not occur. Our general business strategy may be adversely affected by any such economic downturn, volatile business environment or continued unpredictable and unstable market conditions. If the current equity and credit markets deteriorate, it may make any necessary debt or equity financing more difficult, more costly, and more dilutive. Failure to secure any necessary financing in a timely manner and on favorable terms could have a material adverse effect on our operations, growth strategy, financial performance and stock price and could require it to delay or abandon clinical development plans. In addition, there is a risk that one or more of our current service providers may not survive an economic downturn, which could directly affect our ability to attain our operating goals on schedule and on budget.

Changes in tax laws and regulations or exposure to additional tax liabilities could adversely affect our financial results.

Beginning in 2022, the Tax Cuts and Jobs Act of 2017 eliminates the option to deduct research and development expenditures and requires taxpayers to amortize them over five years pursuant to IRC Section 174. Although Congress is considering legislation that would defer the amortization requirement to later years, we have no assurance that the provision will be repealed or otherwise modified. If the requirement is not modified or deferred, it may materially reduce our cash flows beginning in 2022. Please refer to Note 14, *Income Taxes*, for additional information

The market price of our securities may be volatile, which could cause the value of any investment in our securities to decline.

The price of our securities may fluctuate significantly due to general market and economic conditions. An active trading market for our securities may not develop or, if developed, it may not be sustained. In addition, fluctuations in the price of our securities could contribute to the loss of all or part of your investment. Even if an active market for our securities develops and continues, the trading price of our securities could be volatile and subject to wide fluctuations in response to various factors, some of which are beyond our control. Any of the factors listed below could have a material adverse effect on an investment in our securities and our securities may trade at prices significantly below the price paid for them. In such circumstances, the trading price of our securities may not recover and may experience a further decline. Factors affecting the trading price of our securities may include, but are not solely limited to, the risk factors identified herein.

The stock market in general, and Nasdaq and biopharmaceutical companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. Broad market and industry factors may negatively affect the market price of our common stock, regardless of our actual operating performance. In the past, securities class action litigation has often been instituted against companies following periods of volatility in the market price of a company's securities. This type of litigation, if instituted, could result in substantial costs and a diversion of management's attention and resources, which would harm our business, operating results, or financial condition. In addition, our Business Combination resulted in our merging with a special purpose acquisition company, which can cause additional volatility in the price of our common stock and warrants. There has also been increased focus by government agencies on transactions such as our Business Combination in the last year, and we expect that increased focus to continue, and we may be subject to increased scrutiny by the SEC, other government agencies and holders of our securities, as a result. These market and industry factors may materially reduce the market price of our common stock and warrants regardless of our operating performance.

Our failure to meet the continuing listing requirements of Nasdaq could result in a de-listing of our securities.

On October 5, 2022, we received a written notification (the "Notice Letter") from Nasdaq indicating that we were not in compliance with Nasdaq Listing Rule 5450(a)(1), as the closing bid price for our common stock was below the $1.00 per share requirement for the last 30 consecutive business days. The Notice Letter stated that we have 180 calendar days, or until April 3, 2023 (the "Initial Compliance Period"), to regain compliance with the minimum bid price requirement. In the event that we do not regain compliance with Listing Rule 5450(a)(1) prior to the expiration of the Initial Compliance Period (or additional compliance period, if applicable), we will receive written notification that our securities are subject to delisting.

If we fail to satisfy the continuing listing requirements of Nasdaq, such as minimum closing bid price requirements, as discussed above, the corporate governance, or stockholders' equity or minimum closing bid price requirements, Nasdaq may take steps to delist our common stock. Such a delisting would likely have a negative effect on the price of our common stock and would impair our stockholders' ability to sell or purchase our common stock. In the event of a delisting, we would likely take actions to restore our compliance with Nasdaq's listing requirements, but we can provide no assurance that any such action taken by us would allow our common stock to become listed again, stabilize the market price or improve the liquidity of our securities, prevent our common stock from dropping below the Nasdaq minimum bid price requirement or prevent future non-compliance with Nasdaq's listing requirements.

Our ability to continue to operate as a going concern depends on our ability to obtain adequate financing in the future.

The ability of the Company to continue as a going concern is dependent, among other things, on the Company's ability to raise additional capital resources. The Company plans to seek additional funding through a combination of equity or debt financings, or other third-party financing, collaborative or other funding arrangements. Should the Company seek additional financing from outside sources, the Company may not be able to raise such financing on terms acceptable to the Company or at all. If the Company is unable to raise additional capital when required or on acceptable terms, the Company may be required to scale back or discontinue the advancement of product candidates, reduce headcount, liquidate our assets, file for bankruptcy, reorganize, merge with another entity, or cease operations.

Management believes there is substantial doubt about the Company's ability to continue as a going concern for the one-year period following the date that the unaudited consolidated financial statements for September 30, 2022 were issued. The unaudited consolidated financial statements for September 30, 2022 have been prepared on the basis that the Company will continue as a going concern, and does not include any adjustments to reflect the possible future effects on the recoverability and classification of assets or the amounts and classification of liabilities that may result from the possible inability for the Company to continue as a going concern.

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

None.

Item 3. Defaults Upon Senior Securities.

None.

Item 4. Mine Safety Disclosures.

Not Applicable.

Item 5. Other Information.

Not Applicable.

Item 6. Exhibits.

Exhibit Number	Description	Schedule/ Form	File No.	Exhibit	Filing Date
31.1*	Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.				
31.2*	Certification of Principal Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.				
32.1*	Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.				
32.2*	Certification of Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.				
101.INS	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because XBRL tags are embedded within the Inline XBRL document.				
101.SCH	Inline XBRL Taxonomy Extension Schema Document				
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document				
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document				
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document				
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document				
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)				

* Filed herewith.

¥ Denotes management contract or any compensatory plan, contract or arrangement.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) 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, thereunto duly authorized**.**

SAB BIOTHERAPEUTICS, INC.

Date: November 14, 2022

By: */s/ Eddie J. Sullivan*
Eddie J. Sullivan
Chief Executive Officer
(Principal Executive Officer)

By: */s/ Russell Beyer*
Russell Beyer
Chief Financial Officer
(Principal Financial Officer and Principal Accounting Officer)

Exhibit 31.1

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

I, Eddie J. Sullivan, certify that:

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

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

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

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

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

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

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

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

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

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

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

Date: November 14, 2022

By: /s/ Eddie J. Sullivan

Eddie J. Sullivan

Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

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

I, Russell Beyer, certify that:

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

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

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

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

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

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

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

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

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

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

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

Date: November 14, 2022

By: /s/ Russell Beyer

Russell Beyer
Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 32.1

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

In connection with the Quarterly Report of SAB Biotherapeutics, Inc. (the "Company") on Form 10-Q for the period ending September 30, 2022 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

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

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

Date: November 14, 2022

By: /s/ Eddie J. Sullivan

Eddie J. Sullivan

Chief Executive Officer
(Principal Executive Officer)

Exhibit 32.2

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

In connection with the Quarterly Report of SAB Biotherapeutics, Inc. (the "Company") on Form 10-Q for the period ending September 30, 2022 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

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

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

Date: November 14, 2022

By: /s/ Russell Beyer

Russell Beyer

Chief Financial Officer
(Principal Financial and Accounting Officer)