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DELTA REPORT

10-Q

GINKGO BIOWORKS HOLDINGS,

10-Q - JUNE 30, 2024 COMPARED TO 10-Q - MARCH 31, 2024

The following comparison report has been automatically generated

TOTAL DELTAS	899
CHANGES	194
DELETIONS	401
ADDITIONS	304

REFINITIV

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

FORM 10-Q

(Mark One)

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

For the quarterly period ended March 31, 2024 June 30, 2024

OR

o **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: 001-40097

GINKGO BIOWORKS HOLDINGS, INC.

(Exact Name of Registrant as Specified in its Charter)

Delaware	**87-2652913**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
27 Drydock Avenue **8th Floor** **Boston, MA**	**02210**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (877) 422-5362

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Class A common stock, par value $0.0001 per share	DNA	NYSE
Warrants to purchase one share of Class A common stock, each at an exercise price of $11.50 per share	DNA.WS	NYSE

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 x No o

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 x No o

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	x	Accelerated filer	o
Non-accelerated filer	o	Smaller reporting company	o
	o	Emerging growth company	o

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. o

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

As of May 2, 2024 August 1, 2024, the registrant had 1,709,063,953 1,724,120,468 shares of Class A common stock, 382,214,015 378,894,930 shares of Class B common stock and 120,000,000 shares of non-voting Class C common stock outstanding.

Cautionary Note Regarding Forward Looking Statements

This report includes forward-looking statements regarding, among other things, the plans, strategies and prospects, both business and financial, of Ginkgo Bioworks Holdings, Inc. ("Ginkgo"). These statements are based on the beliefs and assumptions of the management of Ginkgo. Although Ginkgo believes that its plans, intentions and expectations reflected in or suggested by these forward-looking statements are reasonable, Ginkgo cannot assure you that it will achieve or realize these plans, intentions or expectations. Forward-looking statements are inherently subject to risks, uncertainties and assumptions. Generally, statements that are not historical facts, including statements concerning possible or assumed future actions, business strategies, events or results of operations, are forward-looking statements. These statements may be preceded by, followed by or include the words "believes", "estimates", "expects", "projects", "forecasts", "may", "will", "should", "seeks", "plans", "scheduled", "anticipates" or "intends" or similar expressions. Forward-looking statements contained in this Quarterly Report on Form 10-Q include, but are not limited to, statements about:

- Ginkgo's ability to raise financing in the future and to comply with restrictive covenants related to long-term indebtedness;
- Ginkgo's ongoing remediation efforts with respect to its identified material weakness in internal control over financial reporting;
- factors relating to the business, operations and financial performance of Ginkgo, including:
    - the performance and output of Ginkgo's cell engineering and biosecurity platforms;
    - Ginkgo's ability to effectively manage its growth, including its anticipated approach to inorganic growth and related impacts on Ginkgo's financial performance;
    - Ginkgo's ability to realize and sustain near-term and long-term cost savings associated with our its workforce reduction and site consolidation plans, including the Ginkgo's ability to terminate leases or find sub-lease tenants for unused facilities; facilities, and to do so within the expected timeframe;
    - Ginkgo's exposure to the volatility and liquidity risks inherent in holding equity interests in certain of its customers;
    - rapidly changing technology, including in relation to artificial intelligence ("AI"), and extensive competition in the synthetic biology industry that could make the products and processes Ginkgo is developing obsolete or non-competitive unless it continues to collaborate on the development of new and improved products and processes and pursue new market opportunities;
    - Ginkgo's expected stabilization decrease in operational overhead costs in 2024;
    - Ginkgo's ability to attract new customers and generate additional demand for its services, Ginkgo's reliance on its customers to develop, produce and manufacture products using the engineered cells and/or biomanufacturing processes that Ginkgo develops and Ginkgo's ability to accurately predict customer demand, including with respect to the data we access and hold;
    - the anticipated growth of Ginkgo's biomonitoring and bioinformatic support services, its expanding epidemiology capabilities and potential impact on the ability to predict pathogen emergence and evolution, its international expansion and the relative value of the services on Ginkgo's future Biosecurity revenue;
    - Ginkgo's ability to comply with laws and regulations applicable to its business; and
    - market conditions and global and economic factors beyond Ginkgo's control, including initiatives undertaken by the U.S. government in the biotechnology sector, the frequency and scale of biological risks and threats, and the future potential and commercial applications of AI and the biotechnology sector. threats.

Each forward-looking statement is subject to risks and uncertainties that could cause actual results to differ materially from those expressed or implied by such forward-looking statements. Applicable risks and uncertainties include, among others:

- intense competition and competitive pressures from other companies worldwide in the industries in which Ginkgo operates;
- litigation, including securities or shareholder litigation, and the ability to adequately protect Ginkgo's intellectual property rights;
- the success of Ginkgo's programs, the growth of Ginkgo's biomonitoring and bioinformatic support services and their potential to contribute revenue, and the relative contribution of Ginkgo's programs to its future revenue, including the potential for future revenue related to downstream value to be in the form of potential future milestone

payments, royalties, and/or equity consideration; consideration, and the anticipated reduction in operational expenditures through implementation of Ginkgo's restructuring plan; and

- other factors in this Quarterly Report on Form 10-Q and the Company's 2023 Annual Report on Form 10-K

These and other factors that could cause actual results to differ from those implied by the forward-looking statements in this Quarterly Report on Form 10-Q are more fully described under the heading "Risk Factors" in this Quarterly Report on Form 10-Q and the Company's 2023 Annual Report on Form 10-K and elsewhere in this report. which are not exhaustive. Other sections of this Quarterly Report on Form 10-Q describe additional factors that could adversely affect the business, financial condition or results of Ginkgo. New risk factors emerge from time to time and it is not possible to predict all such risk factors, nor can Ginkgo assess the impact of all such risk factors on the business of Ginkgo, or the extent to which any factor or combination of factors may cause actual results to differ materially from those contained in any forward-looking statements. Forward-looking statements are not guarantees of performance. You should not put undue reliance on these statements, which speak only as of the date hereof. All forward-looking statements attributable to Ginkgo or persons acting on its behalf are expressly qualified in their entirety by the foregoing cautionary statements. Ginkgo undertakes no obligation to update or revise publicly any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

Table of Contents

PART I—FINANCIAL INFORMATION

Item 1. Financial Statements.

Ginkgo Bioworks Holdings, Inc.
Condensed Consolidated Balance Sheets
(unaudited)
(in thousands, except per share data)

	As of March 31, 2024	As of December 31, 2023	As of June 30, 2024	As of December 31, 2023
Assets				
Current assets:				
Current assets:				
Current assets:				
Cash and cash equivalents				
Cash and cash equivalents				
Cash and cash equivalents				
Accounts receivable, net				
Accounts receivable - related parties				
Prepaid expenses and other current assets				
Total current assets				
Property, plant, and equipment, net				
Operating lease right-of-use assets				
Investments				
Intangible assets, net				
Goodwill				
Other non-current assets				
Total assets				
Liabilities and Stockholders' Equity				
Current liabilities:				
Current liabilities:				
Current liabilities:				
Accounts payable				
Accounts payable				
Accounts payable				
Deferred revenue (includes $707 and $5,426 from related parties)				
Deferred revenue (includes $2,152 and $5,426 from related parties)				
Accrued expenses and other current liabilities				
Total current liabilities				
Non-current liabilities:				
Deferred revenue, net of current portion (includes $123,549 and $119,053 from related parties)				
Deferred revenue, net of current portion (includes $123,549 and $119,053 from related parties)				
Deferred revenue, net of current portion (includes $123,549 and $119,053 from related parties)				
Deferred revenue, net of current portion (includes $117,750 and $119,053 from related parties)				
Deferred revenue, net of current portion (includes $117,750 and $119,053 from related parties)				
Deferred revenue, net of current portion (includes $117,750 and $119,053 from related parties)				
Operating lease liabilities, non-current				
Other non-current liabilities				
Total liabilities				
Commitments and contingencies (Note 8)				
Commitments and contingencies (Note 9)				
Stockholders' equity:				
Preferred stock, $0.0001 par value; 200,000 shares authorized; none issued				
Preferred stock, $0.0001 par value; 200,000 shares authorized; none issued				
Preferred stock, $0.0001 par value; 200,000 shares authorized; none issued				
Common stock, $0.0001 par value (Note 6)				
Common stock, $0.0001 par value (Note 7)				
Additional paid-in capital				

Accumulated deficit	
Accumulated other comprehensive (loss) income	
Total stockholders' equity	
Total liabilities and stockholders' equity	

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

Ginkgo Bioworks Holdings, Inc.
Condensed Consolidated Statements of Operations and Comprehensive Loss
(unaudited)
(in thousands, except per share data)

	Three Months Ended March 31,	Three Months Ended June 30,		Six Months Ended June 30,			
	2024	2024	2023	2024	2023	2024	2023
Cell Engineering revenue (1)							
Biosecurity revenue:							
Product							
Product							
Product							
Service							
Total revenue							
Costs and operating expenses:							
Cost of Biosecurity product revenue							
Cost of Biosecurity product revenue							
Cost of Biosecurity product revenue							
Cost of Biosecurity service revenue							
Cost of other revenue							
Research and development							
General and administrative							
Goodwill impairment							
Restructuring charges							
Total operating expenses							
Loss from operations							
Other income (expense):							
Interest income, net							
Interest income, net							
Interest income, net							
Loss on equity method investments							
Loss on investments							
Change in fair value of warrant liabilities							
Other income, net							
Total other income (expense)							
Other income (expense), net							
Total other income							
Loss before income taxes							
Income tax expense							
Net loss							
Net loss per share, basic and diluted							
Weighted average common shares outstanding:							

Basic								
Basic								
Basic	2,004,460	1,914,963	2,054,801	1,933,437		2,029,630		1,924,251
Diluted	Diluted 2,005,336	1,916,637	Diluted 2,055,024	1,933,437		2,029,853		1,924,251
Comprehensive loss:								
Net loss								
Net loss								
Net loss								
Other comprehensive (loss) income:								
Foreign currency translation adjustment								
Foreign currency translation adjustment								
Foreign currency translation adjustment								
Total other comprehensive (loss) income								
Comprehensive loss								

(1) Includes related party revenue of $733 $5,146 and $4,703 $6,507 for the three months ended March 31, 2024 June 30, 2024 and 2023, respectively, and $5,819 and $11,212 for the six months ended June 30, 2024 and 2023, respectively.

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

Ginkgo Bioworks Holdings, Inc.
Condensed Consolidated Statements of Stockholders' Equity
(unaudited)
(in thousands)

	Three Months Ended March 31, 2023						Three Months Ended June 30, 2024					
	Common Stock Shares											
	Shares	Amount	Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Stockholders' Equity	Shares	Amount	Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
Balance as of December 31, 2022												
Balance as of March 31, 2024												
Issuance of common stock upon exercise or vesting of equity awards												
Settlement of contingent consideration - restricted stock												
Settlement of contingent consideration												
Issuance of common stock for asset acquisitions												
Issuance of common stock in exchange for services												
Stock-based compensation expense												
Foreign currency translation												
Net loss												
Balance as of March 31, 2023												
Balance as of June 30, 2024												

	Three Months Ended March 31, 2024
	Six Months Ended June 30, 2024
	Three Months Ended March 31, 2024
	Six Months Ended June 30, 2024
	Three Months Ended March 31, 2024
	Six Months Ended June 30, 2024

	Common Stock Shares Shares										
	Shares	Amount	Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Stockholders' Equity	Amount	Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
Balance as of December 31, 2023											
Issuance of common stock upon exercise or vesting of equity awards											
Settlement of contingent consideration											
Issuance of common stock for asset acquisitions											
Issuance of common stock in exchange for services											
Stock-based compensation expense											
Foreign currency translation											
Net loss											
Balance as of March 31, 2024											
Balance as of June 30, 2024											

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

Ginkgo Bioworks Holdings, Inc.
Condensed Consolidated Statements of Stockholders' Equity
(unaudited)
(in thousands)

	Three Months Ended June 30, 2023					
	Common Stock					
	Shares	Amount	Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
Balance as of March 31, 2023	1,933,880	$ 194	$ 6,211,634	$ (4,602,628)	$ (1,614)	$ 1,607,586
Issuance of common stock upon exercise or vesting of equity awards	15,995	2	470	—	—	472
Tax withholdings related to net share settlement of equity awards	(14)	—	(23)	—	—	(23)
Issuance of common stock for asset acquisitions	2,820	—	3,581	—	—	3,581
Issuance of common stock in exchange for services	2,023	—	2,500	—	—	2,500
Stock-based compensation expense and other	—	—	62,470	—	—	62,470
Foreign currency translation	—	—	—	—	314	314
Net loss	—	—	—	(173,315)	—	(173,315)
Balance as of June 30, 2023	1,954,704	$ 196	$ 6,280,632	$ (4,775,943)	$ (1,300)	$ 1,503,585

	Six Months Ended June 30, 2023					
	Common Stock					
	Shares	Amount	Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
Balance as of December 31, 2022	1,891,976	$ 190	$ 6,136,378	$ (4,397,659)	$ (2,632)	$ 1,736,277

Issuance of common stock upon exercise or vesting of equity awards	57,899	6	478	—	—	484
Tax withholdings related to net share settlement of equity awards	(14)	—	(23)	—	—	(23)
Settlement of contingent consideration - restricted stock	—	—	2,262	—	—	2,262
Issuance of common stock for asset acquisitions	2,820	—	3,581	—	—	3,581
Issuance of common stock in exchange for services	2,023	—	2,500	—	—	2,500
Stock-based compensation expense and other	—	—	135,456	—	—	135,456
Foreign currency translation	—	—	—	—	1,332	1,332
Net loss	—	—	—	(378,284)	—	(378,284)
Balance as of June 30, 2023	1,954,704	$ 196	$ 6,280,632	$ (4,775,943)	$ (1,300)	$ 1,503,585

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

Ginkgo Bioworks Holdings, Inc.
Condensed Consolidated Statements of Cash Flows
(unaudited)
(in thousands)

	Three Months Ended March 31,		Six Months Ended June 30,	
	2024	2023	2024	2023
Cash flows from operating activities:				
Net loss				
Net loss				
Net loss				
Adjustments to reconcile net loss to net cash used in operating activities:				
Depreciation and amortization				
Depreciation and amortization				
Depreciation and amortization				
Stock-based compensation				
Goodwill impairment				
Restructuring related impairment charges				
Loss on investments and equity method investments				
Change in fair value of warrant liabilities				
Change in fair value of contingent consideration liability				
Non-cash lease expense				
Non-cash in-process research and development				
Impairment loss on assets held for sale				
Other non-cash activity				
Changes in operating assets and liabilities:				
Accounts receivable ($372 and $(26) from related parties)				
Accounts receivable ($372 and $(26) from related parties)				
Accounts receivable ($372 and $(26) from related parties)				
Accounts receivable				
Accounts receivable				
Accounts receivable				
Prepaid expenses and other current assets				
Operating lease right-of-use assets				
Other non-current assets				
Accounts payable, accrued expenses and other current liabilities				
Deferred revenue, current and non-current ($(223) and $(2,226) from related parties)				
Deferred revenue, current and non-current ($(4,577) and $(7,718) from related parties)				

Operating lease liabilities, current and non-current	
Other non-current liabilities	
Net cash used in operating activities	
Cash flows from investing activities:	
Purchases of property and equipment	
Purchases of property and equipment	
Purchases of property and equipment	
Business acquisition	
Proceeds from sale of equipment	
Other	
Net cash used in investing activities	
Cash flows from financing activities:	
Proceeds from exercise of stock options	
Proceeds from exercise of stock options	
Proceeds from exercise of stock options	
Principal payments on finance leases	
Contingent consideration payment	
Payment of equity issuance costs	
Other	
Net cash used in financing activities	
Effect of foreign exchange rates on cash and cash equivalents	
Net decrease in cash, cash equivalents and restricted cash	
Cash and cash equivalents, beginning of period	
Cash and cash equivalents, beginning of period	
Cash and cash equivalents, beginning of period	
Restricted cash, beginning of period	
Cash, cash equivalents and restricted cash, beginning of period	
Cash and cash equivalents, end of period	
Cash and cash equivalents, end of period	
Cash and cash equivalents, end of period	
Restricted cash, end of period	
Cash, cash equivalents and restricted cash, end of period	

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

Ginkgo Bioworks Holdings, Inc.
Notes to Condensed Consolidated Financial Statements
(unaudited)

1. Basis of Presentation and Summary of Significant Accounting Policies

Business

The mission of Ginkgo Bioworks Holdings, Inc. (“Ginkgo” or the “Company”) is to make biology easier to engineer. The Company designs custom cells for customers across multiple markets. Since inception, the Company has devoted its efforts to improving its platform for programming cells to enable customers to leverage biology to create impactful products across a range of industries. The Company’s platform comprises (i) equipment, robotic automation, software, data pipelines and tools, and standard operating procedures for high throughput cell engineering, fermentation, and analytics (referred to collectively as the “Foundry”), (ii) a library of proprietary biological assets and associated performance data (referred to collectively as “Codebase”), and (iii) the Company’s team of expert users, developers and operators of the Foundry and Codebase.

With a mission to make biology easier to engineer, the Company has recognized the need to invest in biosecurity as a key component of its platform. The Company’s Biosecurity business is building a global infrastructure for biosecurity to empower governments, communities, and public health leaders to prevent, detect and respond to a wide variety of biological threats.

Basis of Presentation

The accompanying condensed consolidated financial statements have been prepared in conformity with the rules and regulations of the Securities and Exchange Commission and generally accepted accounting principles in the United States ("GAAP") for interim financial reporting. Accordingly, certain detailed disclosures which would normally be included with annual financial statements have been omitted. In the opinion of management, all normal recurring adjustments necessary for a fair presentation have been made. These condensed consolidated financial statements should be read in conjunction with the Company's 2023 Annual Report on Form 10-K. Interim results are not necessarily indicative of results for a full year.

Principles of Consolidation

The accompanying condensed consolidated financial statements include the accounts of the Company and its wholly owned subsidiaries. All intercompany accounts and transactions have been eliminated.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, revenues and expenses, and the disclosure of contingent liabilities in the consolidated financial statements. The Company bases its estimates on historical experience and other market-specific or relevant assumptions that it believes to be reasonable under the circumstances. Reported amounts and disclosures reflect the overall economic conditions that management believes are most likely to occur, and the anticipated measures management intends to take. Actual results could differ materially from those estimates. All revisions to accounting estimates are recognized in the period in which the estimates are revised.

Significant Accounting Policies

There have been no new or material changes to the Company's significant accounting policies during the three six months ended March 31, 2024 June 30, 2024 as compared to the significant accounting policies described in Note 2 to the Company's 2023 consolidated financial statements included in the Company's 2023 Annual Report on Form 10-K.

Ginkgo Bioworks Holdings, Inc.
Notes to Condensed Consolidated Financial Statements
(unaudited)

Recently Issued Accounting Pronouncements

There were no new recently issued accounting pronouncements that are of significance or potential significance to the Company from those disclosed within Note 2 to the Company's 2023 consolidated financial statements included in the 2023 Annual Report on Form 10-K.

Ginkgo Bioworks Holdings, Inc.
Notes to Condensed Consolidated Financial Statements
(unaudited)

2. Acquisitions

AgBiome

On April 10, 2024, the Company acquired certain platform assets, including fully sequenced and isolated strains, unique gene sequences, relevant functional data and metadata, and a development pipeline from AgBiome, Inc. ("AgBiome"), a biotechnology company in the agriculture industry. These assets expand the Company's proprietary unified metagenomics database. The fair value of the consideration transferred totaled $18.2 million and was paid with the issuance of 16.3 million shares of Ginkgo's Class A common stock. The Company accounted for the transaction as an asset acquisition since substantially all of the value received was concentrated in the acquired developed technology, which is being amortized over a useful life of three years.

Zymergen

On October 3, 2023, and in connection with the Zymergen Bankruptcy, as defined and discussed in the Company's 2023 Annual Report on Form 10-K, the Company entered into an asset purchase agreement with Zymergen (the "Zymergen APA") as the stalking horse bidder under Section 363 of the U.S. Bankruptcy Code to acquire exclusive rights to substantially all of Zymergen's intellectual property assets and certain other assets.

On January 18, 2024 (the "Closing Date"), the Company, through certain of its affiliates, completed its acquisition of substantially all of Zymergen's assets under the Zymergen APA, and on February 5, 2024, Zymergen's plan of liquidation was confirmed by the Bankruptcy Court. All of the Company's interests in the Zymergen entities were extinguished and terminated as of February 23, 2024. The acquisition under the Zymergen APA was accounted for as a business combination in accordance with ASC 805 and was not material to the Company's consolidated financial statements. The total cash purchase price was $6.2 million, with $5.4 million paid at closing and $0.8 million released from escrow. The allocation of the purchase price to the assets acquired and liabilities assumed as of the acquisition date primarily includes $19.9 million of operating lease right-of-use assets, $6.0 million of property and equipment, and $19.9 million of operating lease liabilities. No goodwill or intangible assets were recognized. Transaction costs associated with the Zymergen APA were not material for the three six months ended March 31, 2024 June 30, 2024.

In Other Acquisitions

The Company completed three other asset acquisitions during the six months ended June 30, 2024. The aggregate purchase price for the three months ended March 31, 2024, acquisitions was $19.8 million and was paid with the Company issued 13.1 issuance of 15.8 million shares of Ginkgo's Class A common stock to acquire certain stock. Each transaction was accounted for as an asset acquisition as the acquired assets, which consisting primarily of intellectual property rights, did not meet the definition of a business for accounting purposes. business. The assets acquired consisted of intellectual property with an aggregate estimated fair value of $16.9 million, all of which was expensed as represent in-process research and development with no alternative future use. Accordingly, the Company recorded $3.0 million and $19.8 million as acquired in-process research and development expense in the accompanying condensed consolidated statements of operations and comprehensive loss during for the period, as the assets did not have an alternative use. three and six months ended June 30, 2024, respectively.

3. Restructuring

In the three months ended June 30, 2024, in connection with the Company's plans to reduce operational expenditures, management, with the approval of the Board of Directors, approved a restructuring plan. This plan includes an expected reduction in labor expenses, primarily through a workforce reduction of at least 35%, and a planned consolidation and sublease of certain facilities. Initial workforce reductions commenced in June 2024, with further reductions expected in the second half of 2024. All reductions are expected to be substantially completed in 2025, subject to compliance with

applicable laws. The Company plans to consolidate certain facilities through various actions, including the consolidation of office and laboratory operations into fewer locations, subleasing unused facilities, and other related measures. While the Company aims to complete the majority of its facility consolidation actions in 2025, the actual timing may vary.

The costs for the reduction in force are expected to range from $18.0 million to $22.0 million primarily in the Cell Engineering segment and consist of one-time cash severance and related costs. The employee termination costs are recognized as of the communication date to employees, given (i) the Company instituted a one-time employee termination benefit related to its restructuring, and (ii) the employees will not be retained to render service beyond a minimum retention period. The Company is currently unable to estimate the costs associated with consolidating its facilities. These costs may include, but are not limited to, losses on subleases, contract terminations, asset impairments, sale or disposal of equipment or other long-lived assets, and related costs and fees pertaining to the consolidation, closure, or disposition of facilities. Additional charges may be incurred as the Company progresses its restructuring plan and such charges could be material.

During the three and six months ended June 30, 2024, the Company incurred $17.1 million in restructuring costs, which are recorded as "Restructuring charges" in the condensed consolidated statements of operations and comprehensive loss.

The following table presents details of expenses incurred including a summary of the changes in the accrued liability balance related to the restructuring activities, which is included in "Accounts payable" and "Accrued expenses and other current liabilities" in the accompanying condensed consolidated balance sheet as of June 30, 2024 (in thousands):

	Employee Termination Costs and Other	Impairment of Right-of-Use Asset (1)	Total
Expenses incurred	$ 12,243	$ 4,823	$ 17,066
Cash payments	(489)		
Liability balance at June 30, 2024	$ 11,754		

(1) Relates to a decision to sublease a certain facility in connection with the restructuring and reflects the excess of the right-of-use asset's carrying value over its fair value, which was determined based on estimates of future discounted cash flows and is classified as Level 3 in the fair value hierarchy.

4. Fair Value Measurements

The following tables present information about the Company's financial assets and liabilities measured at fair value on a recurring basis (in thousands):

	As of March 31, 2024						As of June 30, 2024				
	Classification	Classification	Total	Level 1	Level 2	Level 3	Classification	Total	Level 1	Level 2	Level 3
Assets:	Assets:						Assets:				
Money market funds											
Synlogic, Inc. warrants (1)											
Marketable equity securities											

Notes receivable											
Notes receivable											
Total assets											
Liabilities:	Liabilities:						Liabilities:				
Public Warrants											
Private Placement Warrants (3)											
Contingent consideration											
Contingent consideration											
Total liabilities											

Ginkgo Bioworks Holdings, Inc.
Notes to Condensed Consolidated Financial Statements
(unaudited)

			As of December 31, 2023								
	Classification	Classification	Total	Level 1	Level 2	Level 3	Classification	Total	Level 1	Level 2	Level 3
Assets:											
Money market funds											
Money market funds											
Money market funds											
Synlogic, Inc. warrants (1)											
Marketable equity securities (2)											
Notes receivable											
Notes receivable											
Total assets											
Liabilities:											
Public Warrants											
Public Warrants											
Public Warrants											
Private Placement Warrants (3)											
Contingent consideration											
Contingent consideration											
Total liabilities											

(1) The fair value of Synlogic, Inc. warrants is calculated as the quoted price of the underlying common stock, less the unpaid exercise price of the warrants.

(2) Marketable equity securities classified as Level 2 reflect a discount for lack of marketability due to regulatory sales restrictions.

(3) The fair value of Private Placement Warrants classified as Level 2 is equivalent to that of Public Warrants as the transfer of Private Placement Warrants to anyone other than the initial purchasers or any of their permitted transferees results in the Private Placement Warrants having substantially the same terms as the Public Warrants.

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Transfers to and from Levels 1, 2 and 3 are recognized at the end of the reporting period in which a change in valuation technique or methodology occurs. During the three six months ended March 31, 2024 June 30, 2024, transfers from Level 2 to Level 1 occurred due to lapse of regulatory sales restrictions on marketable equity securities. Additionally, as of March 31, 2024 June 30, 2024, a portion of the Private Placement Warrants' estimated fair value was transferred from Level 3 to Level 2 as a result of the Private Placement Warrants having substantially the same terms as the Public Warrants when transferred to anyone other than the initial purchasers or their permitted transferees, leading the Company to determine their fair value to be equivalent to that of the Public Warrants. There were no other transfers between Levels 1, 2, or 3 during the three six months ended March 31, 2024 June 30, 2024 or 2023.

Notes Receivable

For all of its notes receivable, the Company has elected the fair value option, for which changes in fair value are recorded in other income (expense), net in the condensed consolidated statements of operations and comprehensive loss.

As of March 31, 2024 June 30, 2024 and December 31, 2023, the Company held a senior secured note in the principal amount of $11.8 million and a convertible promissory note in the principal amount of $10.0 million, both issued by Bolt Threads, Inc. (“Bolt Threads”). The senior secured note bears interest at 12% per annum, is due December 31, 2027 and is included in other non-current assets at its estimated fair value. The convertible promissory note bears interest at 8% per annum, is convertible into equity securities of Bolt Threads upon a qualified financing, a non-qualified financing, or special purpose acquisition company transaction, at a conversion price equal to 80% of based on certain conditions as defined in the price paid per share under the conversion scenario, note agreement, or is otherwise payable on demand any time after the maturity date of October 4, 2024. The convertible promissory note is included in prepaid expenses and other current assets at its estimated fair value.

The Company used the yield method to value the senior secured note. Under this method, the estimated future cash flows, consisting of principal and interest payments, are discounted to present value using an applicable market yield or discount rate. Increases or decreases in the market yield or discount rate would result in a decrease or increase, respectively, in the fair value measurement. The market yield is determined using a corporate bond yield curve corresponding to the credit

rating category of the issuer. The fair value of the senior secured note is based on observable market inputs, which represents a Level 2 measurement within the fair value hierarchy.

In addition to the convertible promissory note issued by Bolt Threads, the Company holds a series of convertible debt instruments issued by customers as payment for Cell Engineering services. The Company used a scenario-based method to value the convertible debt instruments issued by customers and by Bolt Threads. customers. Under this method, future cash flows are evaluated under various payoff scenarios, probability-weighted, and discounted to present value. The significant unobservable (Level 3) inputs used in the fair value measurement as of March 31, 2024 were June 30, 2024, included scenario probabilities of between 5% and 85% ranging from 20% to 27%, a discount rate of 17% 15%, and estimated time to event date of up to two 2 years. The significant unobservable (Level 3) inputs used in the fair value measurement as of December 31, 2023 were , included scenario probabilities of between ranging from 5% and to 85%, a discount rate of 17% and estimated time to event date of one to two years. Significant changes in these inputs could have resulted in a significantly lower or higher fair value measurement. As of March 31, 2024 June 30, 2024, the convertible debt instruments had an unpaid principal balance of $21.9 million $22.7 million and a fair value of $15.1 million $13.2 million. As of December 31, 2023, the convertible debt instruments had an unpaid principal balance of $21.0 million and a fair value of $14.1 million.

The following table provides a reconciliation of notes receivable measured at fair value using Level 3 significant unobservable inputs for the three six months ended March 31 June 30 (in thousands):

	2024	2023	2024	2023
Balance at January 1,				
Additions				
Change in fair value				
Balance at March 31,				
Balance at June 30,				

Warrant Liabilities

In connection with the Company's merger with Soaring Eagle Acquisition Corp. (“SRNG”) on September 16, 2021, the Company assumed 34.5 million publicly-traded warrants (“Public Warrants”) and 17.3 million private placement warrants (the “Private Placement Warrants”) previously issued in connection with SRNG’s initial public offering. The fair value of the Public Warrants is based on the observable quoted price of such warrants on the New York Stock Exchange (“NYSE”). The fair value of the Private Placement Warrants is estimated using the Black-Scholes option pricing model, which is considered to be a Level 3 fair value measurement. The primary unobservable input used in the valuation of the Private Placement Warrants is expected stock-price volatility. The Company estimated the volatility of its Private Placement Warrants using a Monte-Carlo simulation of the redeemable Public Warrants that assumes optimal exercise of the Company's redemption option at the earliest possible date. The risk-free interest rate is based on the U.S. Treasury zero-coupon yield curve for a maturity similar to the expected remaining life of the warrants. The expected life of the warrants is assumed to be equivalent to their remaining contractual term. The dividend yield is based on the historical rate, which the Company anticipates remaining at zero.

The following table provides quantitative information regarding Level 3 inputs used in the recurring valuation of the Private Placement Warrants as of their measurement dates:

	March 31, 2024	December 31, 2023
Exercise price	$ 11.50	$ 11.50

Stock price	$ 1.16	$ 1.69
Volatility	87.8 %	70.5 %
Term (in years)	2.46	2.71
Risk-free interest rate	4.54 %	4.01 %

	June 30, 2024	December 31, 2023
Exercise price	$ 11.50	$ 11.50
Stock price	$ 0.33	$ 1.69
Volatility	122.8 %	70.5 %
Term (in years)	2.21	2.71
Risk-free interest rate	4.70 %	4.01 %

The following table provides a reconciliation of the Private Placement Warrants measured at fair value using Level 3 significant unobservable inputs for the three six months ended March 31 June 30 (in thousands):

	2024	2024	2023	2024	2023
Balance at January 1,					
Change in fair value					
Balance at March 31,					
Transfers to Level 2					
Balance at June 30,					

Contingent Consideration

In connection with various business acquisitions, the Company is required to make contingent earnout payments payable upon the achievement of certain technical, commercial and/or performance milestones. The Company also issued restricted stock in connection with acquisitions, which is subject to vesting conditions and is classified as contingent consideration liability.

The Company can settle a majority of its contingent consideration liabilities in cash or shares of Class A common stock at the Company's election with the remainder payable in cash. During the three six months ended March 31, 2024 June 30, 2024, the Company settled $2.8 million $5.4 million in contingent consideration liabilities through payment of $0.9 million in cash and vesting of 3.9 million shares of restricted stock valued at $4.4 million. During the six months ended June 30, 2023, the Company settled $3.8 million in contingent consideration liability through payment of $1.5 million in cash and vesting of 1.2 million shares of restricted stock valued at $1.9 million. During the three months ended March 31, 2023, the Company settled $2.3 million in contingent consideration liability related to restricted stock that was contingent on the filing of a registration statement to register the shares issued as purchase consideration for acquisitions. million. Of that amount, $1.4 million was recorded as an increase to the acquired intangible asset with an offset to additional paid-in-capital as the contingent consideration liability was deemed not probable until the filing of the registration statement. occurring.

The fair value of contingent consideration related to earnout payments from acquisitions was estimated using unobservable (Level 3) inputs as illustrated in the table below. The fair value of contingent consideration related to restricted stock was

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estimated using the quoted price of Ginkgo's Class A common stock, an estimate of the number of shares expected to vest, probability of vesting, and a discount rate. Material increases or decreases in these inputs could result in a higher or lower fair value measurement. Changes in the fair value of contingent consideration are recorded in general and administrative expense in the condensed consolidated statements of operations and comprehensive loss.

The following table provides quantitative information regarding Level 3 inputs used in the fair value measurements of contingent consideration liabilities as of the periods presented:

				March 31, 2024		December 31, 2023				June 30, 2024		December 31, 2023
Contingent Consideration Liability	Contingent Consideration Liability	Valuation Technique	Unobservable Input			Range	Contingent Consideration Liability	Valuation Technique		Unobservable Input		Range

Earnout payments (FGen and Dutch DNA acquisitions)	Earnout payments (FGen and Dutch DNA acquisitions)	Probability-weighted present value	Probability of payment	10% - 80%	10% - 100%	Earnout payments (FGen and Dutch DNA acquisitions)	Probability-weighted present value	Probability of payment	5% - 100%	10% - 100%
			Discount rate	15.8%	13.4%			Discount rate	19.5%	13.4%
Earnout payments (Dutch DNA acquisition)	Earnout payments (Dutch DNA acquisition)	Discounted cash flow	Projected years of payments	2028 - 2031	2025 - 2028	Earnout payments (Dutch DNA acquisition)	Discounted cash flow	Projected years of payments	2028 - 2031	2025 - 2028
			Discount rate	10.5 %	10.3 %			Discount rate	10.6 %	10.3 %

The following table provides a reconciliation of the contingent consideration measured at fair value using Level 3 significant unobservable inputs (in thousands):

	2024	2023
Balance at January 1,	$ 24,273	$ 24,473
Change in fair value	(926)	5,177
Settlements and payments	(2,753)	(864)
Balance at March 31,	$ 20,594	$ 28,786

	2024	2023
Balance at January 1,	$ 24,273	$ 24,473
Change in fair value	2,284	8,453
Settlements and payments	(5,363)	(2,364)
Balance at June 30,	$ 21,194	$ 30,562

Nonrecurring Fair Value Measurements

The Company measures the fair value of certain assets, including investments in privately held companies without readily determinable fair values, on a nonrecurring basis when events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable and when observable price changes occur for the identical or similar security of the same issuer.

The fair value of non-marketable equity securities is classified within Level 3 in the fair value hierarchy when the Company estimates fair value using unobservable inputs to measure the amount of the impairment loss. The fair value of non-marketable equity securities is classified within Level 2 in the fair value hierarchy when the Company estimates fair value using the observable transaction price paid by third party investors for the identical or similar security of the same issuer.

During the three months ended March 31, 2023 June 30, 2024, the Company recorded a $4.9 million impairment loss related to its investment in Genomatica preferred stock. The fair value measurement was determined using the guideline public company method under the market approach. The significant unobservable inputs used in the valuation included the selection and analysis of guideline public companies, revenue multiple and other unobservable assumptions. The fair value measurement is classified as Level 3 in the fair value hierarchy.

During the six months ended June 30, 2023, the Company received a total purchase amount of $11.0 million in Simple Agreement for Future Equity ("SAFEs") from customers as prepayment for Cell Engineering services. The Company used a scenario-based method to value the SAFEs as of each contract inception date, which resulted in total fair value of $4.5 million. Under the scenario-based method, future cash flows were evaluated under qualified financing and dissolution scenarios with partial recovery and no recovery in dissolution. The cash flows under each scenario were probability-weighted and discounted to present value. The significant unobservable (Level 3) inputs used in the fair value measurement were scenario probabilities of 20% to 60%, a discount rate of 14% and estimated time to event date of one to two years.

During the three months ended March 31, 2024 and 2023, the

The Company recorded impairment losses of zero and $1.8 million related to SAFEs during the three months ended June 30, 2024 and 2023, respectively, and $5.2 million and $1.8 million, respectively, related to SAFEs. during the six months ended June 30, 2024 and 2023, respectively. The fair value was generally estimated using the scenario-based method,

whereby where various payout scenarios were probability weighted probability-weighted and discounted to present value.

4. 5. Investments and Equity Method Investments

The Company partners with other investors to form business ventures, including Motif FoodWorks, Inc. ("Motif"), Allonnia, LLC ("Allonnia"), Arcaea, LLC ("Arcaea"), Verb Biotics, LLC ("Verb"), BiomEdit, LLC ("BiomEdit") and Ayana Bio, LLC ("Ayana") (collectively "Platform Ventures"). The Company also partners with existing entities, including Genomatica, Inc. ("Genomatica") and Synlogic, Inc. ("Synlogic") (collectively, "Legacy Structured Partnerships") with complementary assets for high potential synthetic biology applications. The Company holds equity interests in these Platform Ventures and Legacy Structured Partnerships. The Company also holds equity interests in other public and private companies as a result of entering into collaboration and license revenue arrangements with these entities.

The Company accounts for its investments in Platform Ventures under the equity method. The Company's marketable equity securities consist of Synlogic common stock, Synlogic warrants and the shares of common stock of other publicly traded companies. Marketable equity securities are measured at fair value with changes in fair value recorded in other income (expense) in the condensed consolidated statements of operations and comprehensive loss. The Company's non-marketable equity securities consist of preferred stock of Genomatica and preferred and common stock of other privately held companies without readily determinable fair values. Non-marketable equity securities are initially recorded using the measurement alternative at cost and subsequently adjusted for any impairment and observable price changes in orderly transactions for the identical or a similar security of the same issuer. Impairment losses and adjustments from observable price changes are recorded in loss on investments in the condensed consolidated statements of operations and comprehensive loss.

The Company also holds investments in early-stage synthetic biology product companies via SAFEs. The Company enters into SAFE agreements in conjunction with a revenue contract with a customer under which the Company grants the customer a prepaid Cell Engineering services credit equal to the principal amount of the SAFE (the "Purchase Amount"), which may be used and drawn down as payment for the Company's research and development services. The SAFEs will automatically convert into shares of preferred stock equal to the Purchase Amount divided by the discount price, which is calculated as the price per share sold in a qualified equity financing multiplied by a discount rate. The SAFEs also provide the Company with the right to future equity of the entity in a liquidation scenario or the cash-out amount in liquidation and dissolution scenarios or at the election of the SAFE issuer prior to an agreed outside date. The Company initially records SAFEs at fair value (see Note 3 4) and adjusts the carrying amount of the instrument at each reporting period for any impairments.

Investments consisted of the following (in thousands):

Investments:	**As of June 30, 2024**	**As of December 31, 2023**
SAFEs	$ 18,686	$ 23,898
Non-marketable equity securities	16,232	22,938
Marketable equity securities	19,698	17,563
Genomatica preferred stock	6,985	11,885
Synlogic common stock	634	1,627
Synlogic warrants	255	654
Total	$ 62,490	$ 78,565

Investments consisted of the following (in thousands):

	As of March 31, 2024	**As of December 31, 2023**
Investments:		
SAFEs	$ 18,686	$ 23,898
Non-marketable equity securities	22,937	22,938
Marketable equity securities	21,452	17,563
Genomatica preferred stock	11,885	11,885
Synlogic common stock	757	1,627
Synlogic warrants	304	654
Total	$ 76,021	$ 78,565

Loss on investments and equity method investments consisted of the following (in thousands):

Three Months Ended March 31,	**Three Months Ended June 30,**		**Six Months Ended June 30,**	
2024	**2023**	**2024**	**2023**	**2024**	**2023**

Gain (loss) on investments:	
(Loss) gain on investments:	
Synlogic common stock	
Synlogic common stock	
Synlogic common stock	
Synlogic warrants	
Genomatica preferred stock	
Marketable equity securities	
SAFEs	
Total	
Gain (loss) on equity method investments:	
Loss on equity method investments:	
BiomEdit	
BiomEdit	
BiomEdit	
Other	
Total	

The components of loss on investments for each period were as follows (in thousands):

	Three Months Ended March 31,	Three Months Ended June 30,		Six Months Ended June 30,			
	2024	2024	2023	2024	2023	2024	2023
Impairment charges							
Ongoing mark-to-market adjustments on marketable equity securities							
Total loss on investments							

The carrying value for non-marketable equity securities accounted for using the fair value measurement alternative and held as of March 31, 2024 June 30, 2024, including cumulative unrealized losses, were as follows (in thousands):

	As of March 31, 2024 June 30, 2024
Total initial cost	$ 114,701 107,996
Impairment charges	(59,566) (64,465)
Downward adjustments from observable price changes	(1,627) (1,628)
Carrying value	$ 53,508 41,903

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5. 6. Variable Interest Entities

With respect to the Company's investments in Motif, Allonnia, Genomatica, Arcaea, BiomEdit, Verb and Ayana (collectively, the "Unconsolidated VIEs"), the Company has concluded these entities represent variable interest entities ("VIEs"). While the Company has board representation on certain of these entities and is involved in the ongoing development activities of these entities via its participation on such entities' joint steering committees ("JSC"), the Company has concluded that it is not the primary beneficiary of these entities because: (i) the Company does not control the board of directors of any of the Unconsolidated VIEs, and no voting or consent agreements exist between the Company and other members of each respective board of directors or other investors, (ii) the holders of preferred security interests in the Unconsolidated VIEs hold certain rights that require their consent prior to taking certain actions, which include certain significant operating and financing decisions, and (iii) the Company's representation on the JSC of each respective entity does not give it control over the development activities of any of the Unconsolidated VIEs, as all JSC decisions are made by consensus and there are no agreements in place that would require any of the entities to vote in alignment with the Company. As the Company's involvement in the Unconsolidated VIEs does not give it the power to control the decisions with respect to their development or other activities, which are their most significant activities, the Company has concluded that it is not the primary beneficiary of the Unconsolidated VIEs.

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Additionally, the Company holds equity interests in certain privately-held companies that are not consolidated as the Company is not the primary beneficiary. As of March 31, 2024 June 30, 2024 and December 31, 2023, the maximum risk of loss related to the Company's VIEs was limited to the carrying value of its investments in such entities.

Refer to Note 4 5 for additional details on the Company's investments and equity method investments.

6. 7. Supplemental Financial Information

Cash, Cash Equivalents and Restricted Cash

The reconciliation of cash, cash equivalents and restricted cash reported within the condensed consolidated balance sheet to the totals shown within the condensed consolidated statement of cash flows is as follows (in thousands):

	As of March 31, 2024	2023	As of June 30, 2024	As of June 30, 2023
Cash and cash equivalents				
Restricted cash included in prepaid expenses and other current assets (1)				
Restricted cash included in other non-current assets (1)				
Total cash, cash equivalents and restricted cash				

(1) Includes cash balances collateralizing letters of credit associated with the Company's facility leases and customer prepayments requiring segregation and restrictions in its use in accordance with the customer agreement.

Supplemental cash flow information

The following table presents non-cash investing and financing activities (in thousands):

	Three Months Ended March 31,		Six Months Ended June 30,	
	2024	2023	2024	2023
Supplemental disclosure of non-cash investing and financing activities:				
Right-of-use assets obtained in exchange for new operating lease liabilities				
Right-of-use assets obtained in exchange for new operating lease liabilities				
Right-of-use assets obtained in exchange for new operating lease liabilities				
Common stock issued for asset acquisitions				
Purchases of property and equipment included in accounts payable and accrued expenses				
Purchases of property and equipment included in accounts payable and accrued expenses				
Purchases of property and equipment included in accounts payable and accrued expenses				
Return of investment in equity securities for reduction in deferred revenue				
Common stock issued as settlement of contingent consideration liability				
Common stock issued for retention payments related to business and asset acquisitions				
Equity securities received for Cell Engineering services				
Convertible financial instruments received for Cell Engineering services				
Equity securities and warrants received for Cell Engineering services				
Common stock issued as settlement of contingent consideration liability				

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Property, Plant, and Equipment, net

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

	As of March 31, 2024	As of December 31, 2023	June 30, 2024	December 31, 2023
Lab equipment				
Leasehold improvements				
Buildings and facilities				
Construction in progress				
Computer equipment and software				
Furniture and fixtures				
Land				
Total property, plant, and equipment				
Less: Accumulated depreciation and amortization				
Property, plant, and equipment, net				

Operating Lease

In April 2024, the Company commenced its 15-year lease of a new office and laboratory space located in Boston, Massachusetts. The leased property consists of approximately 260,000 rentable square feet and is expected to be occupied by mid-2025. The lease agreement includes an option to extend the lease for ten years at then-market rates. The Company is not reasonably certain to exercise this option at lease commencement. The lease is classified as an operating lease, includes a period of free rent and also tenant improvement incentives. The lease does not contain material restrictive covenants or residual value guarantees. Upon the lease commencement, the Company recorded a right-of-use asset of $213.3 million, net of lease incentives received, and a lease liability of $223.9 million. The discount rate used in determining the lease liability was the Company's estimated incremental borrowing rate of 7.8%. Base rent during the first lease year is approximately $21.1 million and is subject to annual increases of 3% thereafter.

Capitalization

The following table presents the Company's authorized, issued, and outstanding common stock as of the dates indicated (in thousands):

		Authorized	Issued		Outstanding		Authorized		Issued		Outstanding
Common stock as of March 31, 2024:											
Common stock as of June 30, 2024:											
Class A											
Class A											
Class A		10,500,000	1,669,628		1,554,178						
Class B	Class B	4,500,000	382,399		359,446						
Class C	Class C	800,000		120,000							
		15,800,000	2,172,027		2,033,624						
Common stock as of December 31, 2023:											
Class A											
Class A											
Class A		10,500,000	1,639,885		1,525,058		10,500,000		1,639,885		1,525,058
Class B	Class B	4,500,000	379,108		356,257	Class B	4,500,000		379,108		356,257
Class C	Class C	800,000		120,000	Class C		800,000			120,000	
		15,800,000	2,138,993		2,001,315		15,800,000		2,138,993		2,001,315

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7. 8. Goodwill and Intangible Assets, net

All goodwill is allocated to the Cell Engineering reporting unit and segment identified in Note 11 12.

During the three months ended June 30, 2024, due to a sustained decrease in the market price of the Company's Class A common stock and market capitalization, the Company identified that an indicator of impairment was present as of June 30, 2024. As such, the Company completed a quantitative impairment test related to its Cell Engineering reporting unit. To conduct the impairment test of goodwill, the estimated fair value of the reporting unit was compared to its carrying value. The estimated fair value of the reporting unit was determined using a weighted approach that considered a discounted cash flow ("DCF") model under the income approach and the guideline public company ("GPC") method under

the market approach. Significant inputs used in the DCF model included the projected future operating results of the reporting unit and the applicable discount rate, while inputs used in the GPC method consisted of a revenue multiple. The fair value measurement of the reporting unit is classified as Level 3 in the fair value hierarchy because it involves significant unobservable inputs. The Company reconciled the resulting fair value of its reporting unit to the market capitalization of the Company to corroborate the fair value estimate used in the impairment test.

The result of the interim impairment test indicated that the estimated fair value of the reporting unit was less than its carrying value. As a result, the Company recorded a $47.9 million goodwill impairment charge during the three and six months ended June 30, 2024.

Changes in the carrying amount of goodwill consisted of the following (in thousands):

Balance as of December 31, 2023	$ 49,238
Goodwill impairment (accumulated impairment loss)	(47,858)
Impact of foreign currency translation	(1,329) (1,380)
Balance as of March 31, 2024 June 30, 2024	$ 47,909 —

Intangible assets, net consisted of the following (in thousands):

	Gross Carrying Value (1)		Gross Carrying Value (1)		Accumulated Amortization (1)		Net Carrying Value		Weighted Average Amortization Period		Gross Carrying Value (1)		Accumulated Amortization (1)		Ca
March 31, 2024:															
June 30, 2024:															
Developed technology															
Developed technology															
Developed technology	$103,099	$		$(25,763)	$	$77,336	8.6	8.6	$121,206		$	$	(30,628)	$	$ 90,578 7.4
Customer relationships	Customer relationships	380	(309)	(309)	71	71	0.4	0.4	Customer relationships	380	(356)		(356)		24
Assembled workforce	Assembled workforce	190	(190)	(190)	—	—	0	0	Assembled workforce	190	(190)		(190)		—
Total intangible assets															
December 31, 2023:															
December 31, 2023:															
December 31, 2023:															
Developed technology															
Developed technology															
Developed technology	$105,279	$		$(22,663)	$	$82,616	8.8	8.8	$105,279		$	$	(22,663)	$	$ 82,616 8.8
Customer relationships	Customer relationships	380	(261)	(261)	119	119	0.9	0.9	Customer relationships	380	(261)		(261)		119
Assembled workforce	Assembled workforce	190	(184)	(184)	6	6	0.3	0.3	Assembled workforce	190	(184)		(184)		6
Total intangible assets															

(1) Gross The gross carrying value and accumulated amortization balances include the impact of cumulative foreign currency translation adjustments.

During the three months ended June 30, 2024, in connection with the acquisition of AgBiome, the Company acquired developed technology with an aggregate fair value of $18.2 million and an estimated useful life of three years. For further information, see Note 2.

Amortization expense was $3.4 million $4.9 million and $4.3 million $4.0 million for the three months ended March 31, 2024 June 30, 2024 and 2023, respectively, and $8.4 million and $8.3 million for the six months ended June 30, 2024 and 2023, respectively. As of March 31, 2024 June 30, 2024, estimated future amortization expense for identifiable intangible assets is as follows (in thousands):

Remainder of 2024
2025
2026
2027
2028
Thereafter
Total

8. 9. Commitments and Contingencies

Legal Proceedings

From time to time, the Company may in the ordinary course of business be named as a defendant in lawsuits, indemnity claims and other legal proceedings. The Company accrues for a loss contingency when it concludes that the likelihood of a loss is probable and the amount of loss can be reasonably estimated. The Company adjusts its accruals from time to time as it receives additional information. The Company does not believe any pending litigation to be material, or that the outcome of any such pending litigation, in management's judgment based on information currently available, would have a material adverse effect on the Company's results of operations, cash flows or financial condition.

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9. 10. Stock-Based Compensation

The following table summarizes stock-based compensation expense by financial statement line item in the Company's condensed consolidated statement of operations and comprehensive loss for the periods presented (in thousands):

	Three Months Ended March 31,		Three Months Ended June 30,		Six Months Ended June 30,	
	2024	2023	2024	2023	2024	2023
Research and development						
General and administrative						
Total						

The Company grants stock-based incentive awards pursuant to the 2021 Incentive Award Plan (the "2021 Plan") and the 2022 Inducement Plan (the "2022 Inducement Plan"). As of March 31, 2024 June 30, 2024, there were approximately 173.2 million 147.1 million shares and 3.1 million shares available for future issuance under the 2021 Plan and 2022 Inducement Plan, respectively.

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Time-based Stock Options

A summary of stock option activity for options that are subject to time-based vesting conditions for the three six months ended March 31, 2024 June 30, 2024, is presented below:

	Number of Shares (1) (in thousands)	Weighted Average Exercise Price per Share	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (2) (in thousands)	Number of Shares (in thousands)	Weighted Average Exercise Price per Share	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (1) (in thousands)
Outstanding as of December 31, 2023								
Granted								
Granted								
Granted								
Exercised								
Exercised								

Exercised	
Outstanding as of March 31, 2024	
Outstanding as of March 31, 2024	
Outstanding as of March 31, 2024	
Exercisable as of March 31, 2024	
Forfeited	
Forfeited	
Forfeited	
Outstanding as of June 30, 2024	
Outstanding as of June 30, 2024	
Outstanding as of June 30, 2024	
Exercisable as of June 30, 2024	

(1) Excludes 1.5 million shares underlying options issued outside the accounting for compensation awards under ASC 718.

(2) The aggregate intrinsic value is calculated as the difference between the Company's closing stock price on the last trading day of the quarter and the exercise prices, multiplied by the number of in-the-money stock options.

The aggregate intrinsic value of stock options exercised during the three six months ended March 31, 2024 June 30, 2024 and 2023 was $3.9 million $1.3 million and $1.5 million $2.9 million, respectively. The weighted-average grant-date fair value of options granted during the six months ended June 30, 2024 and 2023 was $0.35 and $1.43 per share, respectively, and was calculated using the following key assumptions in the Black-Scholes option-pricing model:

	Six Months Ended June 30,	
	2024	2023
Risk-free interest rate	4.24 %	3.94 %
Expected volatility	96 %	93 %
Expected term (in years)	5.7	5.5
Dividend yield	— %	— %

As of March 31, 2024 June 30, 2024, there was $0.5 million $2.3 million of unrecognized compensation expense related to time-based stock options recognizable over a weighted-average period of 0.7 1.7 years.

Market-based Stock Options

In April 2024, the Company granted to each of the Company's four founders an option to purchase in aggregate 5.0 million shares of Ginkgo's Class A common stock with an exercise price of $2.50 per share, subject both to time-based and market-based vesting criteria (the “Founder Options”). The market-based vesting is tied to the achievement of four specified stock price hurdles within a five-year period, with 10% of the Founder Options vesting based on the achievement of a 90-calendar-day average stock price of $5.00, 10% of the Founder Options vesting based on the achievement of a 90-calendar-day average stock price of $7.50, 20% of the Founder Options vesting based on the achievement of a 90-calendar-day average stock price of $10.00 and the remaining 60% of the Founder Options vesting based on the achievement of a 90-

calendar-day average stock price of $12.50. If the market-based criteria are achieved during the five-year period, the awards will vest on the five-year anniversary of the grant date.

The weighted-average grant-date fair value of the options granted was $0.20 per share and was calculated using a Monte Carlo simulation model with the following assumptions:

	Six Months Ended June 30, 2024
Risk-free interest rate	4.65 %
Expected volatility	71.8 %
Suboptimal exercise multiple	2.8
Dividend yield	— %

As of June 30, 2024, there was $3.8 million of unrecognized compensation expense related to the market-based stock options recognizable over a weighted-average period of 4.8 years.

Restricted Stock Units

A summary of the restricted stock units ("RSU") activity for the three six months ended March 31, 2024 June 30, 2024 is presented below:

	Number of Shares (in thousands)	Weighted Average Grant Date Fair Value
Nonvested as of December 31, 2023	152,168	$ 3.15
Granted	103,480	1.21
Vested	(14,683)	4.36
Forfeited	(2,260)	2.97
Nonvested as of March 31, 2024	238,705	2.24

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	Number of Shares (in thousands)	Weighted Average Grant Date Fair Value
Nonvested as of December 31, 2023	152,168	$ 3.15
Granted	110,994	1.18
Vested	(35,380)	3.86
Forfeited	(8,605)	2.33
Nonvested as of June 30, 2024	219,177	2.07

The weighted average grant date fair value of RSUs granted during the three six months ended March 31, 2024 June 30, 2024 and 2023 was $1.21 $1.18 and $1.32, respectively.

As of March 31, 2024 June 30, 2024, there was $395.8 million $360.8 million of unrecognized compensation expense related to RSUs recognizable over a weighted-average period of 3.2 2.9 years.

Earnouts

Earnout shares represent equity awards in the form of RSUs and restricted stock awards ("RSAs") that were granted to existing shareholders of the Company as of the closing date of the Company's merger with SRNG on September 16, 2021 (the "Closing Date"). The earnout shares are subject to the same terms time vesting and performance conditions (change in control or an initial public offering) as the underlying awards (including with respect to vesting and termination-related provisions). Additionally, the earnout shares are subject to a market condition that will be met when the trading price of the Company's common stock is greater than or equal to $12.50, $15.00, $17.50 and $20.00 for any 20 trading days within any period of 30 consecutive trading days, on or before the fifth anniversary of the Closing Date (collectively, the "Earnout Targets"). The first Earnout Target of $12.50 per share was met on November 15, 2021.

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A summary of activity during the three six months ended March 31, 2024 June 30, 2024 for the earnout shares is presented below:

	Number of Shares (in thousands)	Weighted Average Grant Date Fair Value	Number of Shares (in thousands)	Weighted Average Grant Date Fair Value
Nonvested as of December 31, 2023				
Vested				
Forfeited				
Nonvested as of March 31, 2024				
Nonvested as of June 30, 2024				

As of March 31, 2024 June 30, 2024, there was $2.5 million $2.3 million of unrecognized compensation expense related to earnout shares recognizable over a weighted-average period of 1.1 0.8 years.

10. 11. Revenue Recognition

Disaggregation of Revenue

The following table sets forth the percentage of Cell Engineering revenues by industry based on total Cell Engineering revenue:

	Three Months Ended March 31,		Three Months Ended June 30,		Six Months Ended June 30,	
	2024	2023	2024	2023	2024	2023
Government and defense	25 %	4 %	21 %	5 %		
Agriculture						
Pharma and biotech	28 %	30 %				
Agriculture						
Consumer and technology						
Industrial and environment						
Food and nutrition						
Government and defense						
Industrial and environment						
Consumer and technology						
Total Cell Engineering revenue	100 %	100 %	Total Cell Engineering revenue 100 %	100 %	100 %	100 %

For both the three months ended March 31, 2024 June 30, 2024 and 2023, the Company's revenue from customers within the United States comprised 70% 84% of total revenue. For the six months ended June 30, 2024 and 2023, the Company's revenue from customers within the United States comprised 79% and 84%, respectively, of total revenue.

Contract Balances

The Company recognizes a contract asset when the Company transfers goods or services to a customer before the customer pays consideration or before payment is due, excluding any amounts presented as accounts receivable. The Company had no contract asset balances as of March 31, 2024 June 30, 2024 and December 31, 2023. The Company's accounts receivable consists of both billed and unbilled amounts. Unbilled receivables arise when revenue is recognized in excess of invoiced amounts and represent the Company's unconditional right to consideration for goods or services already transferred to the customer. The balance of unbilled accounts receivable, included in accounts receivable, net in the accompanying condensed consolidated balance sheets, was $10.8 million and $9.1 million as of June 30, 2024 and December 31, 2023, respectively.

Contract liabilities, or deferred revenue, primarily consist of payments received in advance of performance under the contract or when the Company has an unconditional right to consideration under the terms of the contract before it transfers goods or services to the customer. The Company's collaborative arrangements with its investees and related parties typically include upfront payments consisting of cash or non-cash consideration for future research and development services and non-cash consideration in the form of convertible financial instruments and equity securities for licenses that

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will be transferred in the future. The Company records the upfront cash payments and fair value of the convertible financial instruments and equity securities as deferred revenue.

The Company also invoices customers based on contractual billing schedules, which results in the recording of deferred revenue to the extent payment is received prior to the Company's performance of the related services. Contract liabilities are recognized as revenue as (or when) the Company performs under the contract.

During the three six months ended March 31, 2024 June 30, 2024, the Company recognized $13.8 million $29.4 million of revenue that was included in the contract liabilities balance of $202.5 million as of December 31, 2023. During the three six months ended March 31, 2023 June 30, 2023, the Company recognized $24.4 million $44.1 million of revenue that was included in the contract liabilities balance of $222.6 million as of December 31, 2022.

Performance Obligations

The aggregate amount of the transaction price that was allocated to performance obligations that have not yet been satisfied or are partially satisfied as of March 31, 2024 June 30, 2024 and December 31, 2023 was $96.9 million $76.8 million and $110.0 million, respectively. The Company has elected the practical expedient not to provide the remaining performance obligation disclosures related to contracts for which the Company recognizes revenue on a cost-plus basis in the amount to which it has the right to invoice, and for contracts with a term of one year or less. As of March 31, 2024 June 30, 2024, of the performance obligations not yet satisfied or partially satisfied, nearly all is expected to be recognized as revenue during the years 2024 to 2027.

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11. 12. Segment Information

The Company has identified two operating and reportable segments: Cell Engineering and Biosecurity. The Company's chief operating decision makers ("CODMs") evaluate the financial performance of the Company's segments based upon segment revenues and operating results. The Company's measure of segment operating results for management reporting purposes excludes the impact of stock-based compensation expense, depreciation and amortization, asset impairment charges, restructuring charges, and change in fair value of certain contingent liabilities.

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The following table presents summary results of the Company's reportable segments for the periods indicated (in thousands):

	Three Months Ended March 31,					
	Three Months Ended June 30,		Six Months Ended June 30,			
	2024	2023	2024	2023	2024	2023
Revenue:						
Cell Engineering						
Cell Engineering						
Cell Engineering						
Biosecurity						
Total revenue						
Segment cost of revenue:						
Biosecurity						
Biosecurity						
Cell Engineering						
Cell Engineering						
Cell Engineering						
Biosecurity						
Segment research and development expense:						
Cell Engineering						
Cell Engineering						
Cell Engineering						
Biosecurity						
Total segment research and development expense						
Segment general and administrative expense:						
Cell Engineering						
Cell Engineering						
Cell Engineering						
Biosecurity						
Total segment general and administrative expense						
Segment operating (loss) income:						
Cell Engineering						
Cell Engineering						
Cell Engineering						
Biosecurity						
Total segment operating loss						
Operating expenses not allocated to segments:						
Stock-based compensation (1)						
Stock-based compensation (1)						
Stock-based compensation (1)						
Depreciation and amortization						

Impairment expense (2)	
Restructuring charges (3)	
Change in fair value of contingent consideration liability	
Loss from operations	

(1) Includes $1.6 million $1.1 million and $2.2 million $1.0 million in employer payroll taxes for the three months ended March 31, 2024 June 30, 2024 and 2023, respectively, and $2.7 million and $3.2 million in employer payroll taxes for the six months ended June 30, 2024 and 2023, respectively.

(2) Includes $47.9 million related to goodwill impairment in the three and six months ended June 30, 2024 and $9.0 million related to impairment of lab equipment acquired as part of the Zymergen acquisition in the three and six months ended June 30, 2023.

12.(3) See Note 3, Restructuring, for composition of costs.

13. Net Loss per Share

The Company computes net loss per share using the two-class method required for participating securities. The earnings per share amounts are the same for the different classes of common stock because the holders of each class are legally entitled to equal per share distributions whether through dividends or liquidation. The calculation of basic and diluted earnings per common share are as follows (in thousands, except per share amounts):

	Three Months Ended March 31,	Three Months Ended June 30,		Six Months Ended June 30,			
	2024	2024	2023	2024	2023	2024	2023
Numerator:							
Net loss, basic							
Net loss, basic							
Net loss, basic							
Change in fair value of contingent consideration common shares liability							
Net loss, diluted							
Denominator:							
Weighted average common shares outstanding, basic							
Weighted average common shares outstanding, basic							
Weighted average common shares outstanding, basic							
Effect of dilutive securities:							
Contingent consideration common shares							
Contingent consideration common shares							
Contingent consideration common shares							
Weighted average common shares outstanding, diluted							
Basic net loss per share							
Diluted net loss per share							

The following potential common shares, presented based on amounts outstanding at each period end, were excluded from the calculation of diluted net loss per share for the periods presented because including them would have been anti-dilutive (in thousands):

As of March 31,							
2024			2023				
As of June 30, 2024			As of June 30, 2023				
Unvested RSUs	Unvested RSUs	238,705	197,108	Unvested RSUs	219,177	184,236	184,236
Earnout shares (1)	Earnout shares (1)	152,135	156,457	Earnout shares (1)	152,021	152,318	152,318
Warrants to purchase Class A common stock	Warrants to purchase Class A common stock	51,825	51,825	Warrants to purchase Class A common stock	51,825	51,825	51,825
Outstanding stock options	Outstanding stock options	4,165	11,588	Outstanding stock options	28,203	11,796	11,796
Escrow shares (2)	Escrow shares (2)	731	—	Escrow shares (2)	997	—	—
		447,561	416,978		452,223	400,175	400,175

(1) Represents earnout shares for which the service-based and/or market-based vesting conditions have not been satisfied.

(2) Represents restricted common stock issued in connection with asset acquisitions, held in escrow for indemnification purposes, and subject to forfeiture.

13. 14. Related Parties

The Company's significant transactions with its related parties are primarily comprised of revenue generating activities under collaboration and license agreements.

Significant related party transactions included in the condensed consolidated balance sheet are summarized below (in thousands):

	As of March 31, 2024	As of December 31, 2023
Accounts receivable:		
Ayana Bio		
Ayana Bio		
Ayana Bio		
Allonnia		
BiomEdit		
Verb Biotics		
Arcaea		
	$	

	As of June 30, 2024	As of December 31, 2023
Deferred revenue, current and non-current:		
Motif FoodWorks		
Motif FoodWorks		
Motif FoodWorks		
Allonnia		
Arcaea		
BiomEdit		
Genomatica		
Ayana Bio		
Other equity investees		

Significant related party transactions included in the condensed consolidated statement of operations and comprehensive loss are summarized below (in thousands):

	Three Months Ended March 31,	Three Months Ended June 30,		Six Months Ended June 30,			
	2024	2024	2023	2024	2023	2024	2023
Cell Engineering revenue:							
Genomatica							
Genomatica							
Genomatica							
Ayana Bio							
Allonnia							
Motif FoodWorks							
Arcaea							
BiomEdit							
Verb Biotics							
Other equity investees							
	$						

Refer to Note 4 5 for additional details on the Company's investments and equity method investments held in its related parties.

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14. Subsequent Events

On May 9, 2024, in connection with the Company's plans to reduce operational expenditures, management approved a plan for restructuring actions, including an expected reduction in labor expenses and a planned consolidation of certain of its facilities. Initial headcount reductions are expected to commence in the second quarter of 2024 and be substantially completed in 2025, subject to local laws. The aggregate expected costs and overall timing for completion of the restructuring plan is not yet known.

On April 10, 2024, the Company acquired platform assets, including fully sequenced and isolated strains, unique gene sequences, and relevant functional data and metadata, as well as a development pipeline from AgBiome, Inc. These assets will be integrated into the Company's Ag Biologicals Services, established with the acquisition of a Bayer agricultural biologicals R&D facility in 2022, and expands Ginkgo's proprietary unified metagenomics database. The acquisition was completed with the issuance of unregistered Class A common stock with registration rights and a price protection provision that requires the issuance of additional shares should the price per Class A common shares decline by more than a specified threshold prior to registration of the shares or 6 months, whichever is sooner. The Company has not yet completed its accounting for the acquisition.

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

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with the unaudited condensed consolidated financial statements and related notes thereto included elsewhere in this Quarterly Report on Form 10-Q. This discussion contains forward-looking statements that reflect our plans, estimates and beliefs that involve risks and uncertainties. Actual results may differ materially from those anticipated in these forward-looking statements as a result of many factors, including those discussed in Item 1A "Risk Factors" and "Cautionary Note Regarding Forward-Looking Statements" elsewhere in this Quarterly Report on Form 10-Q and in our 2023 Annual Report on Form 10-K.

Overview

Our mission is to make biology easier to engineer.

Ginkgo is the leading horizontal platform for cell programming, providing flexible, end-to-end services that solve challenges for organizations across diverse markets, from food and agriculture to pharmaceuticals to industrial and specialty chemicals. Ginkgo's Biosecurity business is building a global infrastructure for biosecurity to empower governments, communities, and public health leaders to prevent, detect and respond to a wide variety of biological threats.

We use our platform to program cells on behalf of our customers. These "cell programs" are designed to enable biological production of products as diverse as novel therapeutics, key food ingredients, and chemicals currently derived from petroleum. Biology did not evolve by end market. All of these applications run on cells which have a common code—DNA—and a common programming platform can enable all of them. Because of this shared platform, we are able to drive scale and learning efficiencies while maintaining flexibility and diversity in our program areas. Ultimately, customers come to us because they believe we maximize the probability of successfully developing their products.

The foundation of our cell programming platform includes two core assets that execute a wide variety of cell programs for customers according to their specifications: our Foundry and our Codebase.

- Our Foundry is a highly automated, yet flexible, lab powered by proprietary automation and software to enable flexibility and scale. The Foundry automates lab workflows at high levels of abstraction, enabling users to generate potentially valuable datasets labeling broad genetic sequence design space with a wide range of functional data through modular design-build-test-learn cycles or campaigns. Our scale economic means that the Foundry's capacity to perform more and more diverse campaigns grows while the cost per campaign decreases. We call this scaling factor Knight's Law.

- Our Codebase is a data asset which accumulates as we operate our Foundry in service of customer projects. Our Codebase includes vast amounts of data at different levels of characterization and usability in engineering projects, including: proprietary libraries of genetic sequence data that can be used for pretraining large language models via unsupervised learning, experimental data for fine tuning task-specific generative artificial intelligence ("AI") models, as well as sequences and optimized host cells that can be directly reusable for different applications of cell engineering.

As the platform scales, we have observed a virtuous cycle between our Foundry, our Codebase, and the value we deliver to customers. We believe this virtuous cycle sustains Ginkgo's growth and differentiated value proposition.

- Foundry: As we take on more work in the Foundry, we benefit from scale economics, which over time may lead to lower program costs. We expect that these lower costs, in turn, will drive additional demand for our cell programming capabilities.

- Codebase: Cell programs also generate Codebase, which can drive better experimental direction and improve the odds of technical success, further increasing our customer value proposition, which we believe will result in additional demand.

Put simply: we believe that as we scale, the platform improves. We believe that this in turn yields better program execution and customer outcomes, ultimately driving more demand, which drives further investments in scale and platform improvements, and so on. We believe this positive feedback loop has the potential to drive compounding value creation in the future, as new programs typically contribute to both near-term revenues and have the potential to add significant downstream economics and more positive impact.

Our cell programming business model mirrors the structure of our platform and we are compensated in two primary ways. First, we charge usage fees for services, in much the same way that cloud computing companies charge usage fees for utilization of computing capacity or contract research organizations charge for services. Additionally, we typically negotiate a value share with our customers (typically in the form of royalties, milestones, and/or equity interests) in order to align our economics with the success of the programs enabled by our platform. As we add new programs, our portfolio of programs with this "downstream" value potential grows. Commencing in the second quarter of 2024, we announced changes in commercial terms, including the removal of downstream value share from certain program types.

With a mission to make biology easier to engineer, we have always recognized the need to invest in biosecurity as a key component of our platform. We are building the future bioeconomy with our customers and partners, and we envision the future of biosecurity as a global immune system equipped with the capabilities to prevent, detect, and respond to biological threats. The first, critical step in realizing this future is to build a robust early warning system for biological threats—this is the primary focus of Ginkgo's Biosecurity business.

Our biosecurity offering includes biomonitoring and bioinformatic support services internationally as well as domestically. We are currently offering biomonitoring and bioinformatic support services domestically through our partnership with the Centers for Disease Control and Prevention ("CDC") and XpresCheck, and internationally such as through our international programs, including those in Qatar, Rwanda and Ukraine.

We operate in two reportable business segments:

- Cell Engineering: Consists of research and development ("R&D") services performed under collaboration and license agreements relating to our cell programming platform. Our cell programming platform includes two core assets: the Foundry, highly efficient biology lab facilities, enabled by investment in proprietary workflows, custom software, robotic automation, and data science and analytics, which is paired with our Codebase, a collection of biological "parts" and a database of biological data used to program cells. The Cell Engineering segment includes costs incurred for the development, operation, expansion and enhancement of the Foundry and Codebase. Cell Engineering revenue is derived from service fees and downstream value share in the form of milestone payments, royalties or equity interests.
- Biosecurity: Consists of our end-to-end biomonitoring and bioinformatic support services primarily provided to public health authorities. Biosecurity revenue is derived from fees for data, analytics, and services. Before the fourth quarter of 2023, Biosecurity revenue was also derived from sales of test kits.

Generating Economic Value Through Cell Programs

Our cell programming platform is a key enabling technology and source of intellectual property for our customers' products. We earn Cell Engineering revenue for our R&D services as well as generally through a share of the value of products created using our platform.

We typically structure Cell Engineering revenue to include some combination of the following:

- service fees, which may comprise cash and/or non-cash consideration, in the form of:
  - upfront payments upon consummation of an agreement or other fixed payments that are generally recognized over our period of performance;
  - reimbursement for costs incurred for R&D services;
  - milestone payments upon the achievement of specified technical criteria;

plus, when applicable,

- downstream value share payments in the form of:
  - milestone payments, which may comprise cash and/or non-cash consideration, upon the achievement of specified commercial criteria;
  - royalties on sales of products from or comprising engineered organisms;
  - royalties related to cost of goods sold reductions realized by our customers;

or,

- downstream value share in the form of equity interests in our customer.
  - downstream value share in the form of equity interest appreciation is not recognized as revenue but is expected to contribute to future cash flows upon liquidation, the amount and timing of which is inherently unpredictable.

Customer arrangements which involve non-cash consideration generally fall into two categories: Platform Ventures and Structured Partnerships.

Platform Ventures

Platform Ventures enable Ginkgo to partner with leading multinationals and financial investors to form new ventures in identified market segments with potential to benefit from synthetic biology. In exchange for an equity position in the venture, we contribute license rights to our proprietary cell programming technology and intellectual property, while our partners contribute relevant industry expertise, other resources and venture funding. We also provide R&D services for which we receive cash consideration on a fixed-fee or cost-plus basis. Platform Ventures include:

Motif FoodWorks, Inc.

Founded in 2018, Motif FoodWorks, Inc. ("Motif") was formed to focus on the application of synthetic biology to reduce the reliance on animal products in the food industry. We entered into an intellectual property contribution agreement that granted Motif rights to our intellectual property, subject to mutually agreed upon technical development plans. In return for our contribution of intellectual property and access to our platform, we received shares of common stock in Motif. The initial fair value of our common stock investment in Motif was $65.1 million, which has subsequently been reduced to a carrying value of zero as a result of the allocation of losses under our accounting for equity method investments. Motif was capitalized through Series A preferred stock financings that raised approximately $119 million in gross proceeds from an investor group which included certain of our investors, Louis Dreyfus Company and Fonterra Co-operative Group Limited. In June 2021, Motif raised an additional $226 million through a Series B preferred stock financing.

Ginkgo also entered into a Technical Development Agreement with Motif under which we provide R&D services in return for cash consideration on a fixed-fee or cost-plus fixed margin basis.

Allonnia, LLC

Founded in 2019, Allonnia, LLC ("Allonnia") was formed to focus on the application of synthetic biology in the waste bioremediation and biorecovery industries. We entered into an intellectual property contribution agreement that granted Allonnia rights to our intellectual property, subject to mutually agreed upon technical development plans. In return for our contribution of intellectual property and access to our platform, we received common units in Allonnia with a right to additional units subject to additional closings of Allonnia's Series A preferred units. The initial fair value of our common units received in Allonnia was $24.5 million, subsequently increased by $12.7 million in 2021, all of which has been reduced to a carrying value of zero as a result of the allocation of losses under our accounting for equity method investments. Allonnia was capitalized through Series A preferred unit financings that raised approximately $52 million in gross proceeds from an investor group which included certain of our investors and Battelle Memorial Institute. In 2023, Allonnia raised an additional $30 million through a Series A extension. Ginkgo also entered into a Technical Development Agreement with Allonnia under which we provide R&D services in return for cash consideration on a fixed fee or cost-plus basis.

Arcaea, LLC

Founded in 2021, Arcaea, LLC ("Arcaea") was formed to focus on the application of synthetic biology in the beauty and personal care products industry. In March 2021, we entered into an intellectual property contribution agreement that granted Arcaea rights to our intellectual property, subject to mutually agreed upon technical development plans. In return for our contribution of intellectual property and access to our platform, we received common units in Arcaea with a right to additional units subject to additional closings of Arcaea's Series A preferred units. The initial fair value of our common units received in Arcaea was $11.9 million, which has subsequently been reduced to a carrying value of zero as a result of the allocation of losses under our accounting for equity method investments. Arcaea was capitalized through a Series A preferred unit financing that raised approximately $77 million in gross proceeds from an investor group which included certain of our investors, CHANEL and Givaudan. Upon the closing of the Series A preferred unit financing in July 2021, we received an additional 5.2 million common units in Arcaea. The fair value of our Arcaea common units received in July 2021 of $35.5 million has subsequently been reduced to a carrying value of zero as a result of the allocation of losses under our accounting for equity method investments. Ginkgo also entered into a Technical Development Agreement with Arcaea under which we provide R&D services in return for cash consideration on a fixed fee or cost-plus basis.

Ayana Bio, LLC

Founded in September 2021, Ayana Bio, LLC ("Ayana") was formed to identify and design new bioactive compounds for use as complementary medicine to support human health and wellness. Ayana was capitalized through a Series A funding that raised $30 million in gross proceeds from an investor group comprising certain of our investors. We hold an interest in 9.0 million common units (representing 100% of common units at inception) of Ayana and have also provided Ayana with certain licenses to our intellectual property for use in the development or production of products that we have agreed to research and develop under technical development plans. Prior to the third quarter of 2022, we consolidated Ayana as a variable interest entity. In the third quarter of 2022, we deconsolidated Ayana and began accounting for our retained investment in Ayana as an equity method investment. The initial carrying value of the equity method investment in Ayana was equal to the fair value of our retained interest of $16.0 million as of the deconsolidation date, which has been subsequently reduced to a carrying value of zero due to a basis difference associated with in-process research and development identified as part of the initial accounting for the equity method investment. Ginkgo also entered into a Technical Development Agreement with Ayana under which we provide R&D services in return for cash consideration on a fixed fee or cost-plus basis.

Verb Biotics, LLC

Founded in September 2021, Verb Biotics, LLC ("Verb") was formed to identify and design new strains of probiotic bacteria with advanced properties for human nutrition, health, and wellness. Verb was capitalized through a Series A funding that raised $30 million in gross proceeds from an investor group comprising certain of our investors. We hold an interest in 9.0 million common units (representing 100% of common units at inception) of Verb and have also provided Verb with certain licenses to our intellectual property for use in the development or production of products that we have agreed to research and develop under technical development plans. Prior to the first quarter of 2022, we consolidated Verb as a variable interest entity. In the first quarter of 2022, we deconsolidated Verb and began accounting for our retained investment in Verb as an equity method investment. The initial carrying value of the equity method investment in Verb was equal to the fair value of our retained interest of $15.9 million as of the deconsolidation date, which has been subsequently reduced to a carrying value of zero due to a basis difference associated with in-process research and development identified as part of the initial accounting for the equity method investment. Ginkgo also entered into a Technical Development Agreement with Verb under which we provide R&D services in return for cash consideration on a fixed fee or cost-plus basis.

BiomEdit, LLC

Founded in April 2022, BiomEdit, LLC ("BiomEdit") was formed to discover, design and develop novel probiotics, microbiome derived bioactives and engineered microbial medicines in the animal health industry. BiomEdit was capitalized through a Series A preferred unit financing that raised approximately $32.5 million in gross proceeds from an investor group which included one of our investors. In April 2022, we entered into an intellectual property contribution agreement that granted BiomEdit rights to our intellectual property, subject to mutually agreed upon technical development plans and, in return, we received 3.9 million voting common units in BiomEdit. In addition, Elanco Animal Health also contributed intellectual property in exchange for 3.9 million non-voting common units in BiomEdit. The initial fair value of our common units received in BiomEdit was $8.9 million, subsequently increased by $1.1 million in the first quarter of 2023, all of which has been reduced to a carrying value of zero as a result of the allocation of losses under our accounting for equity method investments. Ginkgo also entered into a Technical Development Agreement with BiomEdit under which we provide R&D services in return for cash consideration on a fixed fee or cost-plus basis.

Structured Partnerships

Structured Partnerships allow Ginkgo to: (i) partner with early stage synthetic biology product companies to adopt our Foundry as their cell programming R&D platform, in which we offer flexible commercial terms on the service fees including the ability to pay a portion or all of such upfront fees in the form of non-cash consideration (convertible financial

instruments and/or equity securities), in addition to downstream value share consideration ("Startup Structured Partnership"); and (ii) partner with existing entities with complementary assets for high potential synthetic biology applications in a large-scale, multi-program collaboration ("Legacy Structured Partnership"). In the three and six months ended March 31, 2023 June 30, 2023, we entered into four two and six, respectively, Startup Structured Partnerships and received prepayments of service fees in the form of equity securities or convertible financial instruments in the amount of $15.9 million totaling $1.1 million and $17.0 million, respectively, that is recognized as revenue over our period of performance. In the three and six months ended March 31, 2024 June 30, 2024, we did not enter into any new Startup Structured Partnerships. Our Legacy Structured Partnerships are described below:

Genomatica, Inc.

Genomatica, Inc. ("Genomatica") is a biotechnology company specializing in the development and manufacturing of intermediate and specialty chemicals from both sugar and alternative feedstocks. In 2016 and 2018, we acquired preferred stock in Genomatica with an aggregate investment value of $55.0 million in exchange for cash and committed R&D services. The carrying value of the investment was $11.9 million $7.0 million as of March 31, 2024 June 30, 2024, reflective of impairment losses recognized through that date.

Synlogic, Inc.

Synlogic, Inc. ("Synlogic") is a publicly traded clinical-stage biopharmaceutical company focused on advancing drug discovery and development for synthetic biology-derived medicines. In 2019, we entered into several agreements with Synlogic whereby we purchased Synlogic common stock and warrants to purchase Synlogic common stock and agreed to provide R&D services to Synlogic. At inception, the fair value of Synlogic common stock and warrants was recorded at $35.8 million and $14.4 million, respectively. On February 8, 2024, Synlogic announced its decision to cease operations and evaluate strategic options for the company. Effective in the second quarter of 2024, we no longer provide R&D services to Synlogic. As of March 31, 2024 June 30, 2024, the fair value of Synlogic common stock and warrants was $0.8 million $0.6 million and $0.3 million, respectively.

See Note 4 5 of our condensed consolidated financial statements included elsewhere in this Quarterly Report on Form 10-Q for further details of our investments in and the material terms of our agreements with our Platform Ventures and Structured Partnerships.

Key Business Metrics

A cell program (or "program") is the work we do for our customers to enable their product(s) of interest. Programs are defined by a technical development plan or objective. We generally exclude proof-of-concept projects and other exploratory work undertaken on a customer's behalf from the program count. In the near-term, programs typically deliver multi-year revenue from service fees. Over the long-term, program growth drives a physical infrastructure scale economic through our Foundry, a data and learning scale economic through our Codebase and accumulation of potential downstream value share. Our key business metrics comprise New Programs, Current Active Programs, and Cumulative Programs.

		Three Months Ended March 31,		LTM (1)		Three Months Ended June 30,			Six Months Ended June 30,		LTM (1)
		2024	2023		2024		2024	2023	2024	2023	2024
New Programs	New Programs	17	13		82	New Programs	10	21	27	34	71
Current Active Programs	Current Active Programs	140	97		166	Current Active Programs	140	105	151	118	166
Cumulative Programs	Cumulative Programs	259	177		259	Cumulative Programs	269	198	269	198	269

(1) Last twelve months ended March 31, 2024. June 30, 2024

New Programs

New Programs represent the number of unique programs commenced within the reporting period. As new programs typically have multi-year durations, we view this metric as an indication of future Cell Engineering revenue growth.

Current Active Programs

Current Active Programs represent the number of unique programs for which we performed R&D services in the reporting period. We view this metric as an indication of current period and future Cell Engineering revenue.

Cumulative Programs

Cumulative Programs represent the cumulative number of unique programs Ginkgo has commenced. We view this metric as an indication of our competitive advantage and as a leading indicator of the mid- to long-term potential economic value derived from downstream value share arrangements. The cumulative number of programs also contributes to Codebase,

which accumulates with each additional program we conduct over time and drives better experimental direction and improves the odds of technical success in current and future programs.

We believe the preceding metrics are important to understand our current business. These metrics may change or be substituted for additional or different metrics as our business develops. For example, as our program mix changes, our data gathering abilities expand or our understanding of key business drivers develops, we anticipate updating these metrics or their definitions to reflect such changes.

Components of Results of Operations

Revenue

Cell Engineering Revenue

We generate Cell Engineering revenue through the execution of license and collaboration agreements whereby customers obtain license rights to our proprietary technology and intellectual property for use in the development and commercialization of engineered organisms and derived products. Under these agreements, we typically provide R&D services for cell programming with the goal of producing an engineered cell that meets a mutually agreed specification. Our customers obtain license rights to the output of our services, which are primarily the optimized strains or cell lines, in order to manufacture and commercialize products derived from that licensed strain or cell line. Generally, the terms of these agreements provide that we receive some combination of: (1) service fees in the form of (i) upfront payments upon consummation of the agreement or other fixed payments, (ii) reimbursement for costs incurred for R&D services and (iii) milestone payments upon the achievement of specified technical criteria, plus (2) downstream value share payments in the form of (i) milestone payments upon the achievement of specified commercial criteria, (ii) royalties on sales of products from or comprising engineered organisms arising from the collaboration or licensing agreement and (iii) royalties related to cost of goods sold reductions realized by our customers. Royalties did not comprise a material amount of our revenue during any of the periods presented.

Cell Engineering revenue includes transactions with Platform Ventures and Legacy Structured Partnerships where, as part of these transactions, we received an equity interest in such entities. Specifically related to the Platform Ventures, in these transactions, we received upfront non-cash consideration in the form of common equity interests in these entities, while the Platform Ventures each received cash equity investments from strategic partners and financial investors. We view the upfront non-cash consideration as prepayments for licenses which will be granted in the future as we complete mutually agreed upon technical development plans. In these instances, we also receive cash consideration for the R&D services performed by us on a fixed fee or cost-plus basis. We are not compensated through additional milestone or royalty payments under these arrangements. Our transactions with Genomatica and Synlogic included the purchase of equity securities and the provision of R&D services. As we perform R&D services under the mutually agreed upon development plans, we recognize a reduction in the prefunded obligation on a cost-plus basis. These arrangements are further described in Notes 4 5, 5 6, and 13 14 of our condensed consolidated financial statements included elsewhere in this Quarterly Report on Form 10-Q.

Cell Engineering revenue also includes transactions with Startup Structured Partnerships where, as part of these transactions, we received upfront non-cash consideration in the form of current equity interests or financial instruments that are convertible into equity upon a triggering event. We grant the customer a prepaid Cell Engineering services credit in exchange for the upfront non-cash consideration, which can be drawn down as payment for R&D services performed under mutually agreed upon development plans.

Downstream value share in the form of equity interest appreciation is not recognized as revenue but is expected to contribute to future cash flows upon liquidation, the amount and timing of which is inherently unpredictable. The initial fair market value of the equity interests received may also decrease after contract inception and the amount of cash proceeds eventually realized may be less than the revenue recognized. Equity investments are accounted for under the equity method, cost method or are carried at fair value.

Commencing in the second quarter of 2024, we announced changes in commercial terms, including new intellectual property terms in favor of customers, the removal of downstream value share from certain program types, and offering our Foundry capabilities on a lab-data-as-a-service (“LDaaS”) basis in addition to continuing our end-to-end Cell Engineering solutions offering where we will often maintain downstream value share. There has been no material impact on our revenue recognition policies to date from the announced changes in our new commercial terms and Cell Engineering offerings.

Biosecurity Revenue

We offer biomonitoring and bioinformatic support services internationally as well as domestically. We are currently offering biomonitoring and bioinformatic support services domestically through our partnerships with the CDC and XpresCheck, and internationally through our international programs, including those in Qatar, Rwanda and Ukraine. We are also engaged in a series of smaller partnerships that generate revenues through biosecurity services and R&D.

We generate service revenue through the sale of our end-to-end biomonitoring and bioinformatic support services. These service offerings generally consist of multiple promised goods and services including, but not limited to, sample collection, sample storage and transportation, outsourced laboratory analysis, access to results reported through a web-based portal, analytical reporting of results, and overall program management. Before the fourth quarter of 2023, we generated product revenue by selling lateral flow assay (“LFA”) diagnostic test kits, polymerase chain reaction (“PCR”) sample collection kits, and pooled test kits associated with COVID-19 tests to customers on a standalone basis.

In general, these agreements stipulate that we are entitled to compensation for service revenue as services are performed and for product revenue upon delivery of diagnostic test kits. The timing of revenue recognition depends on the identified performance obligations but is generally recognized ratably over time or as results are reported to the customer.

Costs and Operating Expenses

Cost of Biosecurity Product Revenue

Before Prior to the fourth quarter of 2023, the cost of Biosecurity product revenue consisted of costs associated with the sale of diagnostic and sample collection test kits, which included costs incurred to purchase test kits from third parties.

Cost of Biosecurity Service Revenue

The cost of Biosecurity service revenue consists of costs related to our end-to-end pathogen testing, sequencing, and analysis services. This includes costs incurred for sample collection equipment and materials, outsourced laboratory analysis, access to results reported through our proprietary web-based portal, and reporting of results to public health authorities. Additionally, the cost of Biosecurity service revenue includes direct labor cost associated with bioinformatics, lab network management, delivery logistics, and customer support.

Research and Development Expenses

The nature of our business, and primary focus of our activities, generates a significant amount of R&D expenses. R&D expenses represent costs incurred by us for the following:

- development, operation, expansion and enhancement of our Foundry and Codebase; and
- development of new offerings, such as Biosecurity.

The activities above incur the following expenses:

- laboratory supplies, consumables and related services provided under agreements with third parties and in-licensing arrangements;
- personnel compensation and benefits; and
- rent, facilities, depreciation, software, professional fees and other direct and allocated overhead expenses.

We expense R&D costs expenses as incurred. As We expect our R&D costs will be lowered as a result of our restructuring plan announced and commenced in the second quarter of 2024 as we grow rationalize our active current development programs and customer base and invest prioritize our investments in our Foundry, Codebase, AI and Codebasethrough organic and inorganic growth initiatives, we anticipate that our R&D expenses will continue to increase. new offerings. The nature, timing, and estimated costs required to support our growth will be dependent on advances in technology, our ability to attract new customers, and the rate of market penetration within our existing customer industries.

General and Administrative Expenses

General and administrative ("G&A") expenses consist primarily of costs for personnel in executive, business development, finance, human resources, legal and other corporate administrative functions. G&A expenses also include professional legal services fees and costs incurred relating to litigation, corporate, intellectual property and patent matters, professional fees incurred for accounting, auditing, tax and administrative consulting services, insurance costs, facility-related costs not otherwise included in R&D expenses, and asset impairments.

We anticipate that expect our G&A expenses attributable to organic business activities costs will either remain consistent or decline be lowered as a result of our restructuring plan announced and commenced in the second quarter of 2024 as compared we begin to 2023, reflecting a stabilization in lower our operational overhead. Conversely, we intend to maintain a strategic and opportunistic approach regarding inorganic G&A expenses arising from mergers, acquisitions, and other inorganic growth initiatives.

Goodwill Impairment

In the second quarter of 2024, we fully impaired the goodwill attributable to our Cell Engineering reporting unit. Refer to further discussion within "Critical Accounting Estimates".

Restructuring Charges

Restructuring charges relate to our restructuring plan announced and commenced in the second quarter of 2024 and consist primarily of severance and other employee termination costs resulting from a reduction in force that commenced in June 2024 and an impairment of a right-of-use asset relating to facilities consolidation and the related sublease of certain facilities.

Additional details are included in Note 3, Restructuring, of our condensed consolidated financial statements included elsewhere in this Quarterly Report on Form 10-Q.

Interest Income, Net

Interest income, net consists primarily of interest earned on our cash and cash equivalents.

Loss on Equity Method Investments

Loss on equity method investments includes our share of losses from certain of our equity method investments under the hypothetical liquidation at book value ("HLBV") method.

Loss on Investments

Loss on investments includes the change in fair value of our marketable equity securities in publicly traded companies and impairment losses recognized on non-marketable equity securities in privately held companies.

Change in Fair Value of Warrant Liabilities

Change in fair value of warrant liabilities includes the change in fair value of private placement warrants ("Private Placement Warrants") and publicly traded warrants ("Public Warrants"), which are classified as liabilities and were assumed as part of the SRNG Business Combination. Warrant liabilities are marked to market at each balance sheet date.

Other Income, Net

Other income (expense), net primarily consists of sublease rent income and changes in fair value of notes receivable that we elected to account for under the fair value option.

Provision for Income Taxes

Income taxes are recorded in accordance with ASC 740*, Income Taxes*, which provides for deferred taxes using an asset and liability approach. We recognize deferred tax assets and liabilities for the expected future tax consequences of events that have been included in our financial statements or tax returns. Deferred tax assets and liabilities are determined based on the difference between the financial statement and tax bases of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. A valuation allowance against deferred tax assets is recorded if, based on the weight of the available evidence, it is more likely than not that some or all the deferred tax assets will not be realized. For all periods presented, we have recorded a valuation allowance against the deferred tax assets that are not expected to be realized.

We account for uncertain tax positions using a more-likely-than-not threshold for recognizing and resolving uncertain tax positions. The evaluation of uncertain tax positions is based on factors, including, but not limited to, changes in the law, the measurement of tax positions taken or expected to be taken in tax returns, the effective settlement of matters subject to audit, new audit activity and changes in facts or circumstances related to a tax position.

Income taxes are determined at the applicable tax rates adjusted for non-deductible expenses, R&D tax credits and other permanent differences. Our income tax provision may be significantly affected by changes to our estimates.

Results of Operations

Comparison of the Three and Six Months Ended March 31, 2024 June 30, 2024 and 2023

The following table presents the result of operations for the periods indicated:

	Three Months Ended March 31,								
	Three Months Ended June 30,								
(in thousands)									
(in thousands)									
(in thousands)	**2024**	**2023**	**Change**	**2024**	**2023**	**Change**	**2024**	**2023**	**Change**
Cell Engineering revenue									
Biosecurity revenue:									
Product									
Product									
Product									
Service									
Total revenue									
Costs and operating expenses:									
Cost of Biosecurity product revenue									
Cost of Biosecurity product revenue									
Cost of Biosecurity product revenue									
Cost of Biosecurity service revenue									
Cost of other revenue									
Research and development (1)									
General and administrative (1)									
Goodwill impairment									
Restructuring charges									
Total operating expenses									
Loss from operations									
Other income (expense):									
Interest income, net									
Interest income, net									
Interest income, net									
Loss on equity method investments									
Loss on investments									
Change in fair value of warrant liabilities									
Other income, net									
Total other income (expense)									
Other income (expense), net									
Total other income									
Loss before income taxes									
Income tax expense									

Net loss

(1) Total stock-based compensation expense, inclusive of employer payroll taxes, was allocated as follows (in thousands):

	Three Months Ended March 31,					
	Three Months Ended June 30,			Six Months Ended June 30,		
	2024	2024	2023	2024	2023	2024	2023
Research and development							
General and administrative							
Total							

Cell Engineering Revenue

Cell Engineering revenue decreased $6.2 million $9.1 million in the three months ended March 31, 2024 June 30, 2024 compared to the same period in 2023 and decreased $15.3 million in the six months ended June 30, 2024 compared to the same period in 2023. The decrease was primarily due to timing of programs completed prior to the current period partially offset by overall progress on Current Active Programs.

As discussed above in Components of Results of Operations, Cell Engineering revenue comprises both cash and non-cash consideration. Cell Engineering revenue recognized relating to non-cash consideration decreased from $13.0 million $16.8 million in the three months ended March 31, 2023 June 30, 2023 to $3.8 million $8.2 million in the three months ended March 31, 2024 June 30, 2024, and from $29.7 million in the six months ended June 30, 2023 to $12.1 million in the six months ended June 30, 2024, primarily due to a shift in focus on signing new programs with cash consideration.

In the first quarter of 2024, 17 three months ended June 30, 2024, 10 New Programs commenced, compared to 13 21 New Programs in the first quarter of same period in 2023. The number of Current Active Programs rose to 140, compared to 97 105 in the prior year period. Cumulative Programs increased to 259 269 from 177 198 over the same period. Additionally, the number of customers grew to 82, up from 60 63 in the prior year period.

In the six months ended June 30, 2024, 27 New Programs commenced, compared to 34 New Programs in the same period in 2023. The number of Current Active Programs rose to 151, compared to 118 in the prior year period. Cumulative Programs increased to 269 from 198 over the same period. Additionally, the number of customers grew to 88, up from 68 in the prior year period.

While the majority of Cell Engineering revenue today is made up of service fees, as we increase Cumulative Programs and to the extent our customers successfully commercialize products built on our platform, downstream value share is expected to comprise a larger proportion of Cell Engineering revenue. Downstream value share in the form of equity interest appreciation is not recognized as revenue but is expected to contribute to future cash flows upon liquidation, the amount and timing of which is inherently unpredictable. The initial fair market value of the equity interests received may also decrease after contract inception and the amount of cash proceeds eventually realized may be less than the revenue recognized.

Biosecurity Revenue

Biosecurity revenue decreased $36.6 million $15.3 million in the three months ended March 31, 2024 June 30, 2024 compared to the same period in 2023 and was comprised of a decrease in product revenue of $11.7 million $10.8 million and a decrease in service revenue of $24.9 million $4.5 million.

Biosecurity revenue decreased $51.8 million in the six months ended June 30, 2024 compared to the same period in 2023 and was comprised of a decrease in product revenue of $22.5 million and a decrease in service revenue of $29.4 million.

The decreases in revenue between periods is attributable to the end of our COVID-19 testing in schools in the third quarter of 2023, partially offset by new expanded offerings of biomonitoring and bioinformatic support services in the 2024 periods.

Since the end of the COVID-19 public health emergency in May 2023, we shifted our Biosecurity business focus to developing scalable biosecurity infrastructure and delivering global surveillance programs and analytics services. Biosecurity revenue in the first quarter half of 2024 was comprised of our expanded offerings of biomonitoring and bioinformatic support services. Through our partnerships, we operate programs for collections, testing, sequencing, and insights delivery on pathogen samples in different countries.

Cost of Biosecurity Product and Service Revenue

Cost of Biosecurity product and service revenue decreased $13.2 million $6.3 million and $19.5 million in the three and six months ended March 31, 2024 June 30, 2024, respectively, compared to the same period periods in 2023. The decrease was driven by the end of our COVID-19 testing in schools in the third quarter of 2023 and the transition of our Biosecurity business to global surveillance programs and analytic services.

Research and Development Expenses

Our research and development expenses principally relate to the development of new offerings and the operation, expansion and enhancement of our existing service offerings utilizing our proprietary platform, which includes our Foundry and Codebase assets, to our cell engineering customers. Our research personnel costs, including stock-based compensation, is our largest expense, aggregating $37.6 million and $76.5 million for the three and six months ended June 30, 2024, respectively, and $38.5 million and $81.1 million for the three and six months ended June 30, 2023, respectively. We also acquired and expensed in-process research and development through the issuance of our equity, aggregating $3.0 million and $19.8 million for the three and six months ended June 30, 2024, respectively, and $4.0 million for the three and six months ended June 30, 2023. Our remaining research and development costs are comprised primarily of rent and related facilities costs, information technology costs, depreciation pertaining to facilities and equipment, laboratory consumables, contract services and routine costs and fees.

Research and development expenses decreased $26.2 million $10.1 million in the three months ended March 31, 2024 June 30, 2024 compared to the same period in 2023. The decrease was primarily attributable to a decrease in stock-based compensation expense of $23.4 million $18.8 million (inclusive of employer payroll taxes) and the deconsolidation of our former subsidiary, Zymergen Inc. ("Zymergen"), in the fourth quarter of 2023 ($17.2 11.3 million). Further, there was a decrease in professional fees of $4.8 million $3.8 million and acquired in-process research and development costs of $1.0 million. This was partially offset by an increase in rent and related facilities costs of $10.5 million, software and technology expense of $5.2 million, laboratory supplies expense of $4.5 million, personnel-related compensation and benefits expense of $3.0 million, and non-capitalized equipment purchases and maintenance costs of $2.0 million $2.1 million. Increases in research and development expenses, excluding stock-based compensation expense and the Zymergen deconsolidation, supported the growth of Cell Engineering capabilities.

Research and development expenses decreased $36.2 million in the six months ended June 30, 2024 compared to the same period in 2023. The decrease was primarily attributable to a decrease in stock-based compensation expense of $40.8 million (inclusive of employer payroll taxes) and the deconsolidation of Zymergen ($30.0 million). Further, there was a decrease in professional fees of $8.6 million and temporary labor and contractors of $1.4 million. This was partially offset by increases in acquired in-process research and development costs of $16.9 million $15.9 million, rent and related facilities costs of $11.0 million, software and technology expense of $3.6 million $8.9 million, laboratory supplies expense of $4.8 million, and personnel-related compensation and benefits expense of $1.3 million $4.4 million. Increases in research and development expenses, excluding stock-based compensation expense and the Zymergen deconsolidation, supported the growth of Cell Engineering capabilities.

General and Administrative Expenses

General and administrative expenses decreased $41.1 million $36.1 million in the three months ended March 31, 2024 June 30, 2024 compared to the same period in 2023. The decrease was primarily attributable to the deconsolidation of Zymergen ($20.1 34.3 million) and a decrease in stock-based compensation expense of $9.4 million $3.7 million (inclusive of employer payroll taxes). Further, there was a decrease in professional fees of $5.6 million, partially offset by increases in personnel-related compensation and benefits expense of $5.1 million and depreciation and amortization expense of $1.6 million.

General and administrative expenses decreased $77.2 million in the six months ended June 30, 2024 compared to the same period in 2023. The decrease was primarily attributable to the deconsolidation of Zymergen ($55.4 million) and a decrease in stock-based compensation expense of $12.1 million (inclusive of employer payroll taxes). Further, there were decreases in professional fees and litigation costs of $8.3 million, $13.9 million and the change in fair value of contingent consideration liabilities resulting from acquisitions of $6.1 million, and depreciation and amortization expenses of $1.7 million $6.2 million, partially offset by increases an increase in personnel-related compensation and benefits expense of $5.0 million $10.1 million.

Goodwill Impairment

During both the three and six months ended June 30, 2024, we recorded goodwill impairment expense of $47.9 million related to our Cell Engineering reporting unit, further discussed within "Critical Accounting Estimates" below.

Restructuring Charges

During both the three and six months ended June 30, 2024, we incurred restructuring charges of $17.1 million in connection with our restructuring plan announced and commenced in the second quarter of 2024, primarily in the Cell Engineering segment. These charges primarily consisted of $12.2 million in employee termination costs from the reduction in force commenced in June 2024 and $4.8 million in impairment of right-of-use asset relating to facilities consolidation.

Interest Income, Net

Interest income, net decreased $2.8 million $4.0 million and $6.9 million in the three and six months ended March 31, 2024 June 30, 2024, respectively, compared to the same period periods in 2023 2023. The decrease was primarily due to lower average cash balances in interest bearing accounts.

Loss on Equity Method Investments

Loss on equity method investments was zero $0.1 million and $1.4 million in $1.5 million for the three and six months ended March 31, 2024 and 2023, June 30, 2023, respectively. The No loss on equity method investments was recognized in 2024.

In the prior period was primarily due to six months ended June 30, 2023, we recorded a $1.5 million loss on our equity method investment in BiomEdit, representing our share of the investee's losses under the HLBV method and the fair value of the additional equity we received in BiomEdit of $1.1 million in the first quarter half of 2023, which was reduced to zero during the period as a result of the application of the HLBV method.

Under the HLBV method, we absorb losses as a common unit holder prior to preferred unit holders due to a substantive profit-sharing agreement where the preferred unit holders receive preferential distribution rights. Because we have no commitment to fund the losses of our equity method investees, no further losses on these investments were recognized during the periods presented.

Loss on Investments

Loss on investments was $2.5 million $6.8 million and $6.4 million $2.1 million in the three months ended March 31, 2024 June 30, 2024 and 2023, respectively. The change of $3.8 million $4.7 million was due to fluctuations in the stock prices of our marketable equity securities and a $3.4 million $4.9 million increase in impairment losses recognized on our non-marketable equity securities.

Loss on investments was $9.4 million and $8.5 million in the six months ended June 30, 2024 and 2023, respectively. The change of $0.9 million was due to fluctuations in the stock prices of our marketable equity securities offset by an $8.3 million increase in impairment losses recognized on our non-marketable equity securities.

Change in Fair Value of Warrant Liabilities

We recognized gains of $0.9 million and $1.2 million on the The change in fair value of warrant liabilities was $3.2 million gain and $4.5 million loss in the three months ended March 31, 2024 June 30, 2024 and 2023, respectively, and $4.2 million gain and $3.3 million loss in the six months ended June 30, 2024 and 2023, respectively. The change in fair value of warrant liabilities is primarily driven by changes in the value of our common stock. Increases or decreases in the value of our common stock results in a loss or gain, respectively, on the change in fair value of warrant liabilities.

Other Income, Net

Other income (expense), net decreased $0.9 million $4.0 million in the three months ended March 31, 2024 June 30, 2024 compared to the same period in 2023 primarily due to a $2.4 million $2.3 million decrease in sublease rent income primarily as a result of the deconsolidation of Zymergen offset by and a $1.3 million $2.3 million increase in the gain net loss on the change in fair value of convertible notes.

Other income (expense), net decreased $4.9 million in the six months ended June 30, 2024 compared to the same period in 2023 primarily due to a $4.7 million decrease in sublease rent income primarily as a result of the deconsolidation of Zymergen and a $1.0 million increase in the net loss on the change in fair value of convertible notes.

Non-GAAP Information

In addition to our results determined in accordance with GAAP, we use earnings before interest, taxes, depreciation and amortization ("EBITDA") and Adjusted EBITDA internally to evaluate our performance and make financial and operational decisions. We believe these non-GAAP measures, when viewed with our GAAP results, may be helpful to investors in assessing our operating performance.

We define EBITDA as net loss attributable to Ginkgo Bioworks Holdings, Inc. stockholders before the impact of interest income, interest expense, provision for income taxes and depreciation and amortization.

We define Adjusted EBITDA as EBITDA adjusted for stock-based compensation expense, gain or loss on equity method investments, gain or loss on investments, change in fair value of warrant liabilities, gain or loss on deconsolidation of subsidiaries, transaction and integration costs associated with planned, completed or terminated mergers and acquisitions, including related litigation costs, acquired in-process research restructuring and development expenses, impairment charges (inclusive of impairments of goodwill and long-lived assets), costs associated with the bankruptcy filing of our former subsidiary, Zymergen (the "Zymergen Bankruptcy"), and certain other income and expenses. We believe that the use of EBITDA and Adjusted EBITDA provides an additional tool for investors to use in evaluating ongoing operating results and trends because it eliminates the effect of financing activities, investing activities, and certain non-cash charges and other items that are not related to our core operating performance or affect comparability period over period.

Beginning in the second quarter of 2024, we updated our definition of Adjusted EBITDA to no longer exclude the impact of acquired in-process research and development expenses. The comparable periods in 2023 and the first quarter of 2024 have been recast to conform to the revised definition.

Our non-GAAP financial measures have limitations as analytical tools and should not be considered in isolation or as a substitute for performance measures calculated in accordance with GAAP. In addition, our presentation of these measures should not be construed as an inference that our future results will be unaffected by future income or future expenses similar to those excluded when calculating these measures. Our computation of these measures, especially Adjusted EBITDA, may not be comparable to similarly titled measures of other companies because not all companies calculate these measures in the same way. We compensate for these limitations by providing a reconciliation of EBITDA and Adjusted EBITDA to their most directly comparable GAAP financial measure.

The following table reconciles net loss to EBITDA and Adjusted EBITDA for the three and six months ended March 31, 2024 June 30, 2024 and 2023:

	Three Months Ended March 31,		Three Months Ended June 30,			Six Months Ended June 30,	
(in thousands)	2024	2023	(in thousands)	2024	2023	2024	2023
Net loss							
Interest income, net							
Income tax expense							
Depreciation and amortization							
EBITDA							
Stock-based compensation (1)							
Impairment expense (2)							

Restructuring charges (3)	
Merger and acquisition related expenses (4)	
Loss on equity method investments	
Loss on investments	
Change in fair value of warrant liabilities	
Merger and acquisition related expenses (2)	
Change in fair value of convertible notes	
Adjusted EBITDA	

(1) Includes $1.6 million $1.1 million and $2.2 million $1.0 million in employer payroll taxes for the three months ended March 31, 2024 June 30, 2024 and 2023, respectively, and $2.7 and $3.2 million for the six months ended June 30, 2024 and 2023, respectively.

(2) Impairment expense includes $47.9 million related to goodwill impairment in the three and six months ended June 30, 2024 and $9.0 million related to lab equipment acquired as part of the Zymergen acquisition in the three and six months ended June 30, 2023.

(3) Restructuring charges include $12.2 million in employee termination costs from the reduction in force commenced in June 2024 and $4.8 million in impairment of right-of-use asset relating to facilities consolidation.

(4) Represents transaction and integration costs directly related to mergers and acquisitions, including: (i) due diligence, legal, consulting and accounting fees associated with acquisitions, (ii) post-acquisition employee retention bonuses and severance payments, (iii) the fair value adjustments to contingent consideration liabilities resulting from acquisitions, (iv) acquired intangible assets expensed as in-process research and development, and (v) costs associated with the Zymergen Bankruptcy, as well as securities litigation costs, net of insurance recovery. Not included in this adjustment are non-cash charges for acquired in-process research and development expenses, which totaled $3.0 million and $4.0 million in the three months ended June 30, 2024 and 2023, respectively, and $19.8 million and $4.0 million in the six months ended June 30, 2024 and 2023, respectively.

Liquidity and Capital Resources

Sources of Liquidity

Upon the closing of our merger with SRNG in September 2021, we received net proceeds totaling approximately $1,509.6 million, inclusive of $760.0 million from investments from certain accredited investors for 76 million shares of our Class A common stock. As of March 31, 2024 June 30, 2024, we had cash and cash equivalents of $840.4 million $730.4 million, which we believe will be sufficient to enable us to fund our projected operations through at least the next 12 months from the date of filing of this Quarterly Report on Form 10-Q.

Material Cash Requirements

We anticipate that our expenditures will exceed our revenue through at least the next 12 months from the date of filing of this Quarterly Report on Form 10-Q, as we:

- continue our R&D activities under existing and new programs and further invest in our Foundry and Codebase;
- develop and expand our offerings, including Biosecurity;
- upgrade and expand our operational, financial and management systems and support our operations;
- acquire and integrate companies, assets or intellectual property that advance our company objectives; and
- maintain, expand, and protect our intellectual property. property; and

Other than as noted below, there have been no significant changes to• implement our material cash requirements during the three months ended March 31, 2024 as compared to the material cash requirements disclosed in “Management’s Discussion and Analysis of Financial Condition and Results of Operations” included in our 2023 Annual Report on Form 10-K.

On May 9, 2024, in connection with our plans to reduce operational expenditures, we approved a plan for restructuring actions, including an expected reduction in labor expenses of at least 25% and a planned consolidation of certain of our facilities. Initial headcount reductions are expected to commence in the second quarter of 2024 and be substantially completed in 2025, subject to local laws. We expect a reduction in annualized run-rate operating expenditures of $200 million by mid-2025, with a substantial portion of such reduction occurring in 2024. The aggregate expected costs and overall timing for completion of the restructuring plan is not yet known. actions.

Cash Flows

The following table provides information regarding our cash flows for each period presented:

	Three Months Ended March 31,		Six Months Ended June 30,		
(in thousands)	**(in thousands)**	**2024**	**2023**	**(in thousands)**	**2024**	**2023**
Net cash used in:						

Operating activities	
Operating activities	
Operating activities	
Investing activities	
Financing activities	
Effect of exchange rate changes	
Net decrease in cash, cash equivalents and restricted cash	

Operating Activities

Net cash used in operating activities for the three six months ended March 31, 2024 June 30, 2024 consisted of net loss of $165.9 million $383.1 million, adjusted for net change in operating assets and liabilities of $0.3 million $6.2 million and non-cash charges of $76.3 million $203.3 million. The net change in operating assets and liabilities was primarily due to (i) a $6.8 million increase in accounts receivable, (ii) a $10.9 million increase in accounts payable, accrued expenses and other current liabilities primarily due to restructuring-related accruals, a $14.4 million decrease in operating lease right-of-use assets from lease incentives received, partially offset by (iii) a $2.9 million $17.0 million decrease in deferred revenue and (iv) a $4.1 million $3.9 million decrease in operating lease liabilities from rent payments. Non-cash adjustments primarily consisted of $12.9 million $30.2 million of depreciation and amortization, $40.8 million $77.9 million of stock-based compensation $16.8 million of expense, $9.4 million loss on investments, $13.1 million non-cash lease expense, $19.8 million in acquired in-process research and development expense, from asset acquisitions, and $5.6 million $47.9 million of non-cash lease expense. goodwill impairment.

Net cash used in operating activities for the three six months ended March 31, 2023 June 30, 2023 consisted of net loss of $205.0 million $378.3 million, adjusted for net change in operating assets and liabilities of $1.5 million $10.4 million and non-cash charges of $112.9 million $224.6 million. The net change in operating assets and liabilities was primarily due to (i) a $7.4 million $15.4 million decrease in accounts receivable, a $12.1 million decrease in prepaid expenses and other current assets, (ii) a $19.1 million increase $4.1 million decrease in operating lease right-of-use assets from lease incentives, partially offset by a $4.0 million decrease in accounts payable, accrued expenses and other current liabilities, partially offset by (iii) a $17.2 million $21.4 million decrease in deferred revenue, and (iv) a $8.5 million $13.3 million decrease in operating lease liabilities from rent payments. Non-cash adjustments primarily consisted of $19.0 million $36.6 million of depreciation and amortization, $73.0 million $134.5 million of stock-based compensation expense, $7.8 million $10.0 million loss on investments including equity method investments, $5.2 million $8.5 million loss on the change in fair value of contingent consideration liability, partially offset by $1.2 million gain liabilities, $16.3 million non-cash lease expense, and $9.0 million impairment loss on the change in fair value of warrant liabilities. assets held for sale.

Investing Activities

Net cash used in investing activities for the three six months ended March 31, 2024 June 30, 2024 primarily consisted of purchases of property and equipment of $6.7 million $33.7 million associated with Foundry capacity and capability investments and $5.4 million paid for the acquisition of Zymergen.

Net cash used in investing activities for the three six months ended March 31, 2023 June 30, 2023 primarily consisted of purchases of property and equipment of $19.4 million $33.0 million associated with Foundry capacity and capability investments.

Financing Activities

Net cash used in financing activities for the three six months ended March 31, 2024 June 30, 2024 primarily consisted of principal payments on finance leases and payments of contingent consideration related to business acquisitions.

Net cash used in financing activities for the three six months ended March 31, 2023 June 30, 2023 primarily consisted of principal payments on finance leases and payments payment of equity issuance costs. contingent consideration related to a business acquisition.

Critical Accounting Estimates

There Except as described below, there have been no material changes to our critical accounting estimates as compared to the critical accounting estimates disclosed in "Management's Discussion and Analysis of Financial Condition and Results of Operations" included in our 2023 Annual Report on Form 10-K.

Goodwill

We assess goodwill for impairment at the reporting unit level on an annual basis during the fourth quarter or whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. Goodwill impairment assessments require a significant amount of management judgment and the use of estimates and assumptions that could have a significant effect on whether or not an impairment charge is recorded and the magnitude of such a charge.

During the three months ended June 30, 2024, due to a sustained decrease in the market price of our Class A common stock and market capitalization, we identified that a possible indicator of impairment was present as of June 30, 2024. As such, we completed a quantitative impairment test related to our Cell Engineering reporting unit. To conduct the impairment test of goodwill, the estimated fair value of the reporting unit was compared to its carrying value. The estimated fair value of the Cell Engineering reporting unit was determined using a weighted approach that considered a discounted cash flow ("DCF") model under the income approach and the guideline public company ("GPC") method under the market approach. Inputs used in the DCF model included the projected future operating results of the reporting unit and the applicable discount rate, while inputs used in the GPC method consisted of a revenue multiple. The projected future operating results were based on historical experience and internal annual operating plans reviewed by management, extrapolated over the forecast period. The discount rate was determined using a weighted average cost of capital adjusted for risk factors specific to the reporting unit. The revenue multiple was based on the GPC method using comparable publicly traded company multiples of revenue for a group of benchmark companies. The DCF method was weighted 75% and the GPC 25%. We reconciled the resulting fair value of the reporting unit to our market capitalization to corroborate the fair value estimate used in the impairment test.

The interim impairment test indicated that the estimated fair value of the reporting unit was less than its carrying value. As a result, we fully impaired goodwill and recorded an impairment loss of $47.9 million.

Recently Issued Accounting Pronouncements

See Note 1, "Basis of Presentation and Summary of Significant Accounting Policies," of our condensed consolidated financial statements contained in Part I, Item 1 of this Quarterly Report on Form 10-Q for a discussion of recently issued accounting pronouncements, as disclosed in our Annual Report on Form 10-K for the year ended December 31, 2023.

Item 3. Quantitative and Qualitative Disclosures About Market Risk.

Interest Rate Risk

We are exposed to market risk related to changes in interest rates. Our primary exposure to market risk is interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates, particularly because our cash equivalents are invested in short-term U.S. Treasury obligations. However, because of the short-term nature of the instruments in our portfolio, an immediate change in market interest rates of 100 basis points would not have a material impact on the fair market value of our cash and cash equivalents or on our financial position or results of operations.

Foreign Currency Fluctuation Risk

We are subject to foreign currency exchange rate risk from the translation of the financial statements of our foreign subsidiaries, whose financial condition and results of operations are reported in their local currencies and then translated into U.S. dollars at the applicable currency exchange rate for inclusion in our condensed consolidated financial statements. Foreign currency translation (loss) gain was $(3.0) $(0.2) million and $1.0 million $0.3 million for the three months ended March 31, 2024 June 30, 2024 and 2023, respectively, and $(3.2) million and $1.3 million for the six months ended June 30, 2024 and 2023, respectively. Foreign currency translation adjustments are accounted for as a component of accumulated other comprehensive loss within stockholders' equity. Additionally, we have contracted with and may continue to contract with foreign vendors. We do not believe that an immediate 10% increase or decrease in the relative value of the U.S. dollar to other currencies would have a material effect on operating results or financial condition.

Inflation Fluctuation Risk

Inflation generally affects us by increasing our cost of labor, laboratory supplies, consumables and equipment. We do not believe that inflation had a material effect on our business, financial condition or results of operations during the three and six months ended March 31, 2024 June 30, 2024.

Item 4. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

Our disclosure controls and procedures are designed to ensure that information required to be disclosed in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the rules and forms of the SEC, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure. Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, concluded that the material weakness previously identified in Item 9A. "Controls and Procedures" of our Annual Report on Form 10-K for the year ended December 31, 2023 is still present as of March 31, 2024 June 30, 2024. Based on the material weaknesses, and the evaluation of our disclosure controls and procedures, our Chief Executive Officer and Chief Financial Officer concluded that the Company's disclosure controls and procedures were not effective as of March 31, 2024 June 30, 2024.

Notwithstanding the identified material weakness, our management, including our Chief Executive Officer and Chief Financial Officer, has concluded that the condensed consolidated financial statements present fairly, in all material respects, our financial position, results of operations and cash flows for the periods presented in this Quarterly Report on Form 10-Q, in conformity with GAAP.

Remediation of the Material Weakness in Internal Control Over Financial Reporting

With oversight of the Audit Committee, we continue to be engaged in remediation efforts to address the material weakness described above and enhance our control environment, including our internal control over financial reporting. We expect to continue remediation efforts during the remainder of fiscal year 2024. In addition, until remediation steps have been completed and are operated for a sufficient period of time, and subsequent evaluation of their effectiveness is completed, the material weakness previously disclosed will continue to exist. Our ongoing remediation efforts include:

- Continued employee training related to internal control over financial reporting specifically focused on data used in the operation of management review controls and the execution of management review controls with an appropriate level of precision and appropriate documentation of the identification and resolution of follow-up items;

- Implementation and enhancement of control activities, including automation of certain control processes; and
- Development of other tools and enablers, including increasing the standardization of control support and documentation.

Management and our board of directors are committed to the remediation of the material weakness described above, as well as the continued improvement of our internal control over financial reporting. We will continue to implement measures to remedy our internal control deficiencies, and we will continue to assess our internal controls and procedures and take further action as necessary or appropriate to address any other matters we identify.

Changes in Internal Control over Financial Reporting

Except as otherwise noted above under "Remediation of the Material Weakness in Internal Control Over Financial Reporting" including the ongoing remediation efforts described, there were no changes in our internal control over financial reporting (as such term is defined in Exchange Act Rule 13a–15(f) and 15d-15(f)) during the most recent fiscal quarter that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting. Our plans for remediating the material weakness described above will constitute changes in our internal control over financial reporting when such remediation plans are effectively implemented.

PART II—OTHER INFORMATION

Item 1. Legal Proceedings.

From time to time, the Company may in the ordinary course of business be named as a defendant in lawsuits, indemnity claims and other legal proceedings. The Company does not believe any pending litigation to be material, or that the outcome of any such pending litigation, in management's judgment based on information currently available, would have a material adverse effect on the Company's results of operations, cash flows or financial condition.

See Note 8 9, Commitments and Contingencies, to the unaudited condensed consolidated financial statements included elsewhere in this Quarterly Report on Form 10-Q.

Item 1A. Risk Factors.

An investment in our securities involves a high degree of risk. You should carefully consider the following risk factors, in addition to all of the information regarding risk factors that appears in Part I, Item 1A. "Risk Factors" of our Annual Report on Form 10-K for the year ended December 31, 2023, which was filed with the SEC on February 29, 2024, before making an investment decision. Our business, prospects, financial condition or operating results could decline due to any of these risks and, as a result, you may lose all or part of your investment.

Our restructuring actions that were publicly announced on May 9, 2024, in connection with the Company's plans to reduce operational expenditures, may not result in anticipated savings, could result in total costs and expenses that are greater than expected and could disrupt our business.

On As previously announced on May 9, 2024, in connection with the Company's plans multi-year plan to reduce operational expenditures, management approved a plan for restructuring actions, including an expected a reduction in labor expenses of at least 25% and a planned consolidation of certain of its facilities. Initial headcount workforce reductions commenced in June 2024, with further reductions expected in the second half of 2024. All reductions are expected to commence in the second quarter of 2024 and be substantially completed in 2025, subject to local compliance with applicable laws. The aggregate expected Company plans to consolidate certain facilities through various actions, including the consolidation of office and laboratory operations into fewer locations, subleasing unused facilities, and other related measures. While the Company aims to complete the majority of its facility consolidation actions in 2025, the actual timing may vary. The Company currently estimates the costs for the reduction in force to range from $18.0 million to $22.0 million primarily in the Cell Engineering segment and overall timing for completion consist of one-time cash severance and related costs.

If we fail to meet the continued listing standards of the restructuring plan is not yet known, and NYSE, it could result in total costs a delisting of our Class A shares.

On May 7, 2024, we received a notice from the NYSE that, because the average closing price for our Class A common stock has fallen below $1.00 per share for 30 consecutive trading days, we no longer comply with the price criteria for continued listing on the NYSE. The NYSE continued listing criteria provide us with a compliance period of six months in which to regain compliance. We have taken steps to regain compliance, but if we fail to satisfy the continued listing standards of the NYSE within the six-month cure period by achieving a minimum closing stock price of $1.00 per share of our Class A common stock for 30 consecutive trading days, the NYSE may take steps to delist our Class A common stock. Such a delisting would most likely have a negative effect on the price of our Class A common stock and expenses would impair stockholders' ability to sell or purchase shares of our Class A common stock when they wish to do so. In the event of a delisting, we would attempt to take actions to restore our compliance with the NYSE's listing requirements, but we can provide no assurance that are greater than expected and could disrupt any such action taken by us would allow our business. Class A common stock to become listed again, stabilize the market price, improve the liquidity of our Class A common stock, prevent our Class A common stock price from dropping below the NYSE minimum average closing price requirement or prevent future non-compliance with the NYSE's listing requirements.

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

On April 1, 2024, we issued 2,659,102 shares of our Class A common stock to certain sellers of Modulus Therapeutics, Inc. ("Modulus"), valued at approximately $3.0 million, as consideration in connection with the acquisition by merger of Modulus, in a private placement transaction exempt from the registration requirements of the Securities Act pursuant to Section 4(a)(2) of the Securities Act.

On February 23, 2024 April 26, 2024, we issued a total of 986,299 4,692,086 shares of our Class A common stock to certain former equity holders of Altar SAS, FGen AG, valued at approximately $1.4 million $4.3 million, in connection with the achievement of a certain milestone, milestones, in a private placement transaction exempt from the registration requirements of the Securities Act of 1933, as amended (the "Securities Act"), pursuant to Section 4(a)(2) of the Securities Act.

On February 23, 2024, we issued a total of 1,832,172 shares of our Class A common stock to Reverie Labs, Inc. ("Reverie"), valued at approximately $2.4 million, as consideration in connection with the acquisition of certain infrastructure and software assets from Reverie, in a private placement transaction exempt from the registration requirements of the Securities Act pursuant to Section 4(a)(2) of the Securities Act.

On March 7 and March 26, 2024, we issued 11,179,115 and 121,557 shares of our Class A common stock, respectively, to certain sellers of Patch Biosciences, Inc. ("Patch"), valued at approximately $14.4 million, as consideration in connection with the acquisition by merger of Patch, in a private placement transaction exempt from the registration requirements of the Securities Act pursuant to Section 4(a)(2) of the Securities Act.

Item 3. Defaults Upon Senior Securities.

None.

Item 4. Mine Safety Disclosures.

None.

Item 5. Other Information.

None.

Item 6. Exhibits.

Exhibit Number	Description
3.1	Certificate of Incorporation of Ginkgo Bioworks Holdings, Inc. (incorporated by reference to Exhibit 3.1 of the Company's Current Report on Form 8-K filed with the SEC on September 20, 2021).
3.2	Amendment to Certificate of Incorporation of Ginkgo Bioworks Holdings, Inc. (incorporated by reference to Exhibit 3.2 of the Company's Current Report on Form 8-K filed with the SEC on September 20, 2021).
3.3	Bylaws of Ginkgo Bioworks Holdings, Inc. (incorporated by reference to Exhibit 3.1 of the Company's Current Report on Form 8-K filed with the SEC on October 27, 2023).
10.1*	Form of Stock Option Agreement for 2024 Founder Award Program, granted under the Ginkgo Bioworks Holdings, Inc. 2021 Incentive Award Plan.
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.

SIGNATURES

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

Ginkgo Bioworks Holdings, Inc.

Date: May 9, 2024 August 8, 2024

By: /s/ Jason Kelly

Name: Jason Kelly

Title: Chief Executive Officer (Principal Executive Officer)

Date: May 9, 2024 August 8, 2024

By: /s/ Mark Dmytruk

Name: Mark Dmytruk

Title: Chief Financial Officer (Principal Financial Officer)

Date: May 9, 2024 August 8, 2024

By: /s/ Steven Coen

Name: Steven Coen

Title: Chief Accounting Officer (Principal Accounting Officer)

GINKGO BIOWORKS HOLDINGS, INC.
2021 INCENTIVE AWARD PLAN

STOCK OPTION GRANT NOTICE

Capitalized terms not specifically defined in this Stock Option Grant Notice (the "***Grant Notice***") have the meanings given to them in the 2021 Incentive Award Plan (as amended from time to time, the "***Plan***") of Ginkgo Bioworks Holdings, Inc. (the "***Company***").

The Company has granted to the participant listed below ("***Participant***") an option (the "***Option***") to purchase up to the number of Shares set forth below in this Grant Notice, subject to the terms and conditions of this Grant Notice, and the Plan and the Stock Option Agreement attached as **Exhibit A** and the Stock Option Vesting Schedule attached as **Exhibit B** (together with **Exhibit A**, the "***Agreement***"), both of which are incorporated into this Grant Notice by reference.

Participant:	[_____]
Grant Date:	April 25, 2024
Exercise Price per Share:	$2.50
Shares Subject to the Option:	5,000,000
Final Expiration Date:	April 25, 2034
Vesting Schedule:	The Option will vest in accordance with **Exhibit B** hereto.
Type of Option:	Non-Qualified Stock Option

By Participant's signature below, Participant agrees to be bound by the terms of this Grant Notice, the Plan and the Agreement. Participant has reviewed the Plan, this Grant Notice and the Agreement in their entirety, has had an opportunity to obtain the advice of counsel prior to executing this Grant Notice and fully understands all provisions of the Plan, this Grant Notice and the Agreement. Participant hereby agrees to accept as binding, conclusive and final all decisions or interpretations of the Administrator upon any questions arising under the Plan, this Grant Notice or the Agreement. If Participant does not click the "Accept" or "Reject" grant button on the Fidelity platform (or otherwise return an executed copy of this Grant Notice to the Company) by June 15, 2024 (unless a later date is determined by the Company), Participant will be deemed to have accepted this Option. Further, any exercise of the Option issued pursuant to this Grant Notice and Agreement shall constitute Participant's acceptance of the Option and agreement with all terms and conditions of the Option, as set forth in the Plan, the Agreement and this Grant Notice.

GINKGO BIOWORKS HOLDINGS, INC. **PARTICIPANT**

By:
Name: [_____]
Title:

Exhibit A
STOCK OPTION AGREEMENT

Capitalized terms not specifically defined in this Agreement have the meanings specified in the Grant Notice or, if not defined in the Grant Notice, in the Plan.

ARTICLE I.
GENERAL

1.1 Grant of Option. The Company has granted to Participant the Option effective as of the grant date set forth in the Grant Notice (the "***Grant Date***").

1.2 Incorporation of Terms of Plan. The Option is subject to the terms and conditions set forth in this Agreement and the Plan, which is incorporated herein by reference. In the event of any inconsistency between the Plan and this Agreement, the terms of the Plan will control. Shares issued pursuant to this Option will be issued as Class A Common Stock. Common Stock issued pursuant to this Option will be subject to the provisions of the Charter regarding the conversion of shares of Class B Common Stock to Class A Common Stock, and the Company may provide for the exchange of any Class A Common Stock issued pursuant to this Option for Class B Common Stock, on such terms and conditions as determined by the Company in its sole discretion.

ARTICLE II.
PERIOD OF EXERCISABILITY

2.1 Commencement of Exercisability. The Option will become eligible to vest and become exercisable according to the vesting schedule set forth in **Exhibit B** to the Grant Notice (the "***Vesting Schedule***") except that any fraction of a Share as to which the Option would be vested or exercisable will be accumulated and will vest and become exercisable only when a whole Share has accumulated. Notwithstanding the foregoing, Participant may elect to early exercise all or a portion of the Option for shares of unvested Restricted Stock having the same vesting terms that apply to the Option, subject to execution of an Award Agreement in a form provided to Participant by the Company and on such procedures as may be established by the Company. Except as expressly set forth in **Exhibit B** to the Grant Notice, or as otherwise determined by the Administrator, the Option will immediately expire and be forfeited as to any portion that is not vested and exercisable as of Participant's Termination of Service for any reason.

2.2 Duration of Exercisability. The Vesting Schedule is cumulative. Any portion of the Option that vests and becomes exercisable will remain vested and exercisable until the Option expires as set forth in Section 2.3 below. The Option will be forfeited immediately upon its expiration.

2.3 Expiration of Option. The Option may not be exercised to any extent by anyone after, and will expire on, the first of the following to occur:

(a) The final expiration date in the Grant Notice;

(b) Except as the Administrator may otherwise approve, the expiration of three (3) months from the date of Participant's Termination of Service, unless Participant's Termination of Service is for: (i) willful failure to perform Participant's assigned duties for the Company or any Subsidiary, (ii) material breach of any agreement to which Participant and the Company or any Subsidiary are parties, (iii) any act (other than retirement) or omission to act by Participant which

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may have a material and adverse effect on the business of the Company or any Subsidiary or on Participant's ability to perform services for the Company or any Subsidiary, including, without limitation, the commission of any crime (other than minor traffic violations) or (iv) any material misconduct or neglect of duties by Participant in connection with the business or affairs of the Company or any Subsidiary (clauses (i) through (iv), "***Cause***"), or by reason of Participant's death or Disability;

(c) Except as the Administrator may otherwise approve, the expiration of one (1) year from the date of Participant's Termination of Service by reason of Participant's death or Disability; and

(d) Except as the Administrator may otherwise approve, Participant's Termination of Service for Cause.

ARTICLE II.
EXERCISE OF OPTION; HOLDING PERIOD

3.1 Person Eligible to Exercise. During Participant's lifetime, only Participant may exercise the Option. After Participant's death, any exercisable portion of the Option may, prior to the time the Option expires, be exercised by Participant's Designated Beneficiary as provided in the Plan.

3.2 Partial Exercise. Any exercisable portion of the Option or the entire Option, if then wholly exercisable, may be exercised, in whole or in part, according to the procedures in the Plan or as otherwise provided for by the Administrator at any time prior to the time the Option or portion thereof expires, except that the Option may only be exercised for whole Shares.

3.3 Post-Termination Holding Period. In the event of a Termination of Service for any reason other than a Termination of Service without Cause or by reason of Participant's death or Disability, Participant will be subject to a holding period through the one (1)-year anniversary of the date of Participant's Termination of Service, such that Participant may not sell any Shares acquired upon exercise of the Option, net of any Shares held back by the Company or otherwise disposed of by Participant in satisfaction of the Exercise Price or any tax withholding associated with the exercise of the Option, during such time. In the event of a Change in Control during such holding period, the holding period will automatically and immediately expire immediately prior to such Change in Control and will be of no further effect.

ARTICLE IV.
TAXATION AND WITHHOLDING

4.1 Representation. Participant represents to the Company that Participant has reviewed with Participant's own tax advisors the tax consequences of the Option and the transactions contemplated by the Grant Notice and this Agreement. Participant is relying solely on such advisors and not on any statements or representations of the Company or any of its agents.

4.2 Tax Withholding.

(a) To the extent that the grant, vesting or exercise of the Option results in compensation income or wages to Participant for U.S. federal, state, local and/or non-U.S. tax purposes, Participant shall make arrangements satisfactory to the Company regarding the payment of, any income tax, social insurance contribution or other applicable taxes that are required to be

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withheld in respect of the Option. The Company shall be permitted to use any of the methods permitted under Section 9.5 of the Plan to satisfy any tax withholding in connection with this Award, without the need for Participant's consent.

(b) Participant acknowledges and agrees that Participant is ultimately liable and responsible for all taxes owed in connection with the Option, regardless of any action the Company or any Subsidiary takes with respect to any tax withholding obligations that arise in connection with the Option. Neither the Company nor any Subsidiary makes any representation or undertaking regarding the treatment of any tax withholding in connection with any aspect of the Option, including the grant, vesting or exercise of the Option, the subsequent sale of Shares acquired upon exercise of the Option and the receipt of any dividends in respect of such Shares. The Company and the Subsidiaries do not commit and are under no obligation to structure the terms or any aspect of the Option to reduce or eliminate Participant's tax liability.

4.3 Section 280G. If any payment or benefit that a Participant may receive, whether or not in respect of the Option ("***Payment***"), would (a) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (b) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the "***Excise Tax***"), then such Payment shall be reduced to the Reduced Amount. The "***Reduced Amount***" shall be either (i) the largest portion of the Payment that would result in no portion of the Payment being subject to the Excise Tax or (ii) the largest portion, up to and including the total amount, of the

Payment, whichever of the amounts determined under (i) and (ii), after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in Participant's receipt, on an after-tax basis, of the greater amount of the Payment notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in payments or benefits constituting "parachute payments" is necessary so that the Payment equals the Reduced Amount, reduction shall occur in the following order: reduction of cash payments; reduction of employee benefits; and cancellation of accelerated vesting of outstanding equity awards. In the event that acceleration of vesting of outstanding equity awards is to be reduced, such acceleration of vesting shall be undertaken in the reverse order of the date of grant of Participant's outstanding equity awards. All calculations and determinations made pursuant this Section 4.3 will be made by an independent accounting or consulting firm or independent tax counsel appointed by the Company prior to a Change in Control (the "***Tax Counsel***"), whose determinations shall be conclusive and binding on the Company and Participant for all purposes. For purposes of making the calculations and determinations required by this Section 4.3, the Tax Counsel may rely on reasonable, good faith assumptions and approximations concerning the application of Section 280G of the Code and Section 4999 of the Code. The Company shall bear all costs the Tax Counsel may reasonably incur in connection with its services.

ARTICLE V.
OTHER PROVISIONS

5.1 Adjustments. Participant acknowledges that the Option is subject to adjustment, modification and termination in certain events as provided in this Agreement and the Plan.

5.2 Notices. Any notice to be given under the terms of this Agreement to the Company must be in writing and addressed to the Company in care of the Company's Secretary at the Company's principal office or the Secretary's then-current email address. Any notice to be given under the terms of this Agreement to Participant must be in writing and addressed to Participant (or, if Participant is then deceased, to the person entitled to exercise the Option) at Participant's last known mailing address or

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email address in the Company's personnel files. By a notice given pursuant to this Section, either party may designate a different address for notices to be given to that party. Any notice will be deemed duly given when actually received, when sent by email, when sent by certified mail (return receipt requested) and deposited with postage prepaid in a post office or branch post office regularly maintained by the United States Postal Service, or when delivered by a nationally recognized express shipping company.

5.3 Titles. Titles are provided herein for convenience only and are not to serve as a basis for interpretation or construction of this Agreement.

5.4 Conformity to Securities Laws. Participant acknowledges that the Plan, the Grant Notice and this Agreement are intended to conform to the extent necessary with all Applicable Laws and, to the extent Applicable Laws permit, will be deemed amended as necessary to conform to Applicable Laws.

5.5 Successors and Assigns. The Company may assign any of its rights under this Agreement to single or multiple assignees, and this Agreement will inure to the benefit of the successors and assigns of the Company. Subject to the restrictions on transfer set forth in the Plan, this Agreement will be binding upon and inure to the benefit of the heirs, legatees, legal representatives, successors and assigns of the parties hereto.

5.6 Limitations Applicable to Section 16 Persons. Notwithstanding any other provision of the Plan or this Agreement, if Participant is subject to Section 16 of the Exchange Act, the Plan, the Grant Notice, this Agreement and the Option will be subject to any additional limitations set forth in any applicable exemptive rule under Section 16 of the Exchange Act (including any amendment to Rule 16b-3) that are required for the application of such exemptive rule. To the extent Applicable Laws permit, this Agreement will be deemed amended as necessary to conform to such applicable exemptive rule.

5.7 Entire Agreement. The Plan, the Grant Notice (including any exhibits attached thereto) and this Agreement (including any exhibits attached hereto) constitute the entire agreement of the parties and supersede in their entirety all prior undertakings and agreements of the Company and Participant with respect to the subject matter hereof.

5.8 Agreement Severable. In the event that any provision of the Grant Notice or this Agreement is held illegal or invalid, the provision will be severable from, and the illegality or invalidity of the provision will not be construed to have any effect on, the remaining provisions of the Grant Notice or this Agreement.

5.9 Limitation on Participant's Rights. Participation in the Plan confers no rights or interests other than as herein provided. This Agreement creates only a contractual obligation on the part of the Company as to amounts payable and may not be construed as creating a trust. Neither the Plan nor any underlying program, in and of itself, has any assets. Participant will have only the rights of a general unsecured creditor of the Company with respect to amounts credited and benefits payable, if any, with respect to the Option, and rights no greater than the right to receive the Shares as a general unsecured creditor with respect to the Option, as and when exercised pursuant to the terms hereof.

5.10 Not a Contract of Employment. Nothing in the Plan, the Grant Notice or this Agreement confers upon Participant any right to continue in the employ or service of the Company or any Subsidiary or interferes with or restricts in any way the rights of the Company and its Subsidiaries, which rights are hereby expressly reserved, to discharge or terminate the services of Participant at any time for any reason whatsoever, with or without Cause.

5.11 Counterparts. The Grant Notice may be executed in one or more counterparts, including by way of any electronic signature, subject to Applicable Law, each of which will be deemed an original and all of which together will constitute one instrument.

5.12 Insider Trading/Market Abuse Laws. Participant acknowledges that Participant may be subject to insider trading restrictions and/or market abuse laws in applicable jurisdictions, which may affect Participant's ability to accept, acquire, sell or attempt to sell, or otherwise dispose of the shares, rights to shares (e.g., the Option) or rights linked to the value of Shares, during such times as Participant is considered to have "inside information" regarding the Company (as defined by the laws or regulations in applicable jurisdictions). Applicable insider trading laws and regulations may prohibit the cancellation or amendment of orders Participant placed before possessing inside information. Furthermore, Participant may be prohibited from (i) disclosing insider information to any third party (other than on a "need to know" basis) and (ii) "tipping" third parties or causing them to otherwise buy or sell securities. Any restrictions under these laws or regulations are separate from and in addition to any restrictions that may be imposed under any applicable Company insider trading compliance policy. Participant acknowledges that it is Participant's responsibility to comply with any applicable restrictions, and Participant should speak to Participant's personal advisor on this matter.

5.13 No Advice Regarding Grant. The Company is not providing any tax, legal or financial advice, nor is the Company making any recommendations regarding Participant's participation in the Plan, or Participant's acquisition or sale of Shares. Participant should consult with Participant's own personal tax, legal and financial advisors regarding Participant's participation in the Plan before taking any action related to the Plan.

5.14 Imposition of Other Requirements. The Company reserves the right to impose other requirements on Participant's participation in the Plan, on the Option and on any award or Shares acquired under the Plan, to the extent the Company determines it is necessary or advisable for legal or administrative reasons. Participant agrees to sign any additional agreements or undertakings that may be necessary to accomplish the foregoing.

5.15 Governing Law. The Option and this Agreement shall be governed by and construed in accordance with the laws of the State of Delaware, U.S.A., without regard to conflict of laws principles.

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Exhibit B
STOCK OPTION VESTING SCHEDULE

Capitalized terms not specifically defined in this **Exhibit B** have the meanings specified in the Grant Notice or **Exhibit A** thereto or, if not defined in the Grant Notice or **Exhibit A**, in the Plan.

1. Vesting Schedule. The Option will become eligible to vest and become exercisable as follows:

    a. The Option will become eligible to vest as to the percentage of the Option set forth in the table below on the date the respective Stock Price Hurdle set forth in the table below is met (with the number of Shares that vest on any such date being rounded down to the nearest whole Share and the Option becoming eligible to vest as to 100% of the Option if all such Stock Price Hurdles are met). A Stock Price Hurdle shall be met when the volume-weighted average price of a share of Class A Common Stock first meets or exceeds the applicable Stock Price Hurdle for ninety (90)

calendar days (the "***90-day Average Stock Price***") the within five-year period immediately following the Grant Date (such period, the "***Performance Period***").

Stock Price Hurdle	Portion of the Option Vested
$5.00	10%
$7.50	10%
$10.00	20%
$12.50	60%

b. Any portion of the Option that has become eligible to vest in accordance with Section 1(a) will vest on the fifth anniversary of the Grant Date, subject to Participant continuing as a Service Provider through such vesting date.

c. Any portion of the Option that remains unvested as of the day following the fifth anniversary of the Grant Date shall immediately terminate and be forfeited for no consideration on such date.

2. Termination of Service.

a. Except as set forth in this Section 2, in the event of Participant's Termination of Service during the Performance Period, the Option shall immediately terminate and be forfeited for no consideration as of the date of Participant's Termination of Service.

b. In the event of Participant's Termination of Service by reason of Participant's death or Disability during the Performance Period, the Option will vest as to the number of Shares subject to the Option that have become eligible to vest pursuant to Section 1(a) as of such Termination of Service. Any portion of the Option that does not vest pursuant to this Section 2(b) shall immediately terminate and be forfeited for no consideration as of the date of Participant's Termination of Service.

c. In the event of Participant's Termination of Service without Cause during the Performance Period, the Option will vest as to (a) the number of Shares subject to the Option that have become eligible to vest pursuant to Section 1(a), plus (b) in the event the 90-day Average Stock Price is between two of the Stock Price Hurdles on the date of

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such Termination of Service, and the higher of the two Stock Price Hurdles has not otherwise been achieved during the Performance Period through the date of such Termination of Service, a pro-rated number of Shares that would have become eligible to vest upon achievement of such higher Stock Price Hurdle, determined based on linear interpolation based on the actual 90-day Average Stock Price as of the date of such Termination of Service and the distance between the two Stock Price Hurdles. Any portion of the Option that does not vest pursuant to this Section 2(c) shall immediately terminate and be forfeited for no consideration on the date of Participant's Termination of Service.

3. Change in Control. In the event of a Change in Control during the Performance Period, any portion of the Option that has become eligible to vest pursuant to Section 1(a) as of such Change in Control shall remain outstanding and eligible to vest pursuant to the terms of this Agreement; provided, that, in the event the Option is not assumed in connection with the Change in Control, the Option will vest as to the number of Shares subject to the Option that have become eligible to vest pursuant to Section 1(a) as of such Change in Control. Any portion of the Option that does not vest pursuant to this Section 3 shall immediately terminate and be forfeited for no consideration on the date of the Change in Control.

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, Jason Kelly, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Ginkgo Bioworks Holdings, Inc.;

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

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

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

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

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

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

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

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

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

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

Date: May 9, 2024 August 8, 2024

By: /s/ Jason Kelly

Jason Kelly

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, Mark Dmytruk, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Ginkgo Bioworks Holdings, Inc.;

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

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

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

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

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

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

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

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

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

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

Date: May 9, 2024August 8, 2024

By: /s/ Mark Dmytruk

Mark Dmytruk

Chief Financial Officer

(Principal Executive 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 filing of the Quarterly Report on Form 10-Q of Ginkgo Bioworks Holdings, Inc. (the "Company") for the quarterly period ended March 31, 2024 June 30, 2024 with the Securities and Exchange Commission on the date hereof (the "Report"), I certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 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, as amended; 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: May 9, 2024 August 8, 2024

By: /s/ Jason Kelly

Jason Kelly

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 filing of the Quarterly Report on Form 10-Q of Ginkgo Bioworks Holdings, Inc. (the "Company") for the quarterly period ended March 31, 2024 June 30, 2024 with the Securities and Exchange Commission on the date hereof (the "Report"), I certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 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, as amended; 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: May 9, 2024 August 8, 2024

By: /s/ Mark Dmytruk

Mark Dmytruk

Chief Financial Officer

(Principal Financial Officer)

DISCLAIMER

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