UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 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 **June 30, 2024**

☐ **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: **000-55264**



DYADIC INTERNATIONAL, INC.

(Exact Name of Registrant as Specified in its Charter)

Delaware	**45-0486747**
State or Other Jurisdiction of Incorporation or Organization	I.R.S. Employer Identification No.
1044 North U.S. Highway One, Suite 201 Jupiter, Florida	**33477**
Address of Principal Executive Offices	Zip Code

(561) 743-8333
Registrant's Telephone Number, Including Area Code
N/A
Former Name, Former Address and Former Fiscal Year, if Changed Since Last Report

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.001 per share	DYAI	The NASDAQ Stock Market LLC

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

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

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

Large accelerated filer ☐

Accelerated filer ☐

Non-accelerated filer X

Smaller reporting company X

Emerging growth company ☐

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

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

The number of shares outstanding of the registrant's Common Stock as of August 12, 2024 was 29,477,639.

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This quarterly report on Form 10-Q ("Quarterly Report") contains forward-looking statements within the meaning of the Federal securities laws, particularly under Item 2 "Management's Discussion and Analysis." All statements other than statements of historical fact are forward-looking. Examples of forward-looking statements include, but are not limited to, statements regarding industry prospects, future business, future results of operations or financial condition, future liquidity and capital resources, our ability to implement our agreements with third parties, management strategies, and our competitive position. Forward-looking statements generally can be identified by use of the words "expect," "should," "intend," "anticipate," "will," "project," "may," "might," "potential," or "continue" and other similar terms or variations of them or similar terminology. Dyadic International, Inc., and its subsidiaries cautions readers that any forward-looking information is not a guarantee of future performance and that actual results could differ materially from those contained in the forward-looking information. Such statements reflect the current views of our management with respect to our operations, results of operations and future financial performance.

Forward-looking statements involve many risks, uncertainties, or other factors beyond Dyadic's control. These factors include, but are not limited to (i) our history of net losses; (ii) market and regulatory acceptance of our microbial protein production platforms and other technologies; (iii) competition, including from alternative technologies; (iv) the results of nonclinical studies and clinical trials; (v) our capital needs; (vi) changes in global economic and financial conditions; (vii) our reliance on information technology; (viii) our dependence on third parties; (ix) government regulations and environmental, social and governance issues; (x) intellectual property risks and (xi) other factors discussed in Dyadic's publicly available filings, including information set forth under the caption "Risk Factors" in this Quarterly Report and in our annual report on Form 10-K filed with the Securities and Exchange Commission ("SEC") on March 28, 2024 (the "Annual Report"). We caution you that the foregoing list of important factors is not exclusive. Any forward-looking statements are based on our beliefs, assumptions, and expectations of future performance, considering the information currently available to us. Before investing in our common stock, investors should carefully read the information set forth under the caption "Risk Factors" and elsewhere in this Quarterly Report, in our Annual Report and in our other SEC filings, which could have a material effect on our business, results of operations and financial condition. The forward-looking statements contained in this Quarterly Report are made only as of the date hereof, and except as required by law, we undertake no obligation to publicly update any forward-looking statements for any reason after the date of this Quarterly Report to conform these statements to actual results or to changes in our expectations.

PART I

Item 1. Financial Statements

DYADIC INTERNATIONAL, INC. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

	June 30, 2024 (Unaudited)	December 31, 2023 (Audited)
Assets		
Current assets:		
Cash and cash equivalents	$ 6,133,398	$ 6,515,028
Short-term investment securities	3,964,517	748,290
Interest receivable	28,160	10,083
Accounts receivable	249,806	466,159
Prepaid expenses and other current assets	126,720	327,775
Total current assets	10,502,601	8,067,335
Non-current assets:		
Operating lease right-of-use asset, net	117,346	141,439
Other assets	10,425	10,462
Total assets	$ 10,630,372	$ 8,219,236
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 432,521	$ 656,445
Accrued expenses	870,597	1,057,164
Deferred research and development obligations	482,323	490,113
Operating lease liability, current portion	51,075	48,059
Accrued interest	80,000	—
Accrued interest - related party	32,000	—
Total current liabilities	1,948,516	2,251,781
Non-current liabilities:		
Convertible notes, net of issuance costs	3,893,602	—
Convertible notes, net of issuance costs - related party	1,557,441	—
Operating lease liability, net of current portion	62,631	88,870
Total liabilities	7,462,190	2,340,651
Commitments and contingencies (Note 5)		
Stockholders' equity:		
Preferred stock, $.0001 par value:		
Authorized shares - 5,000,000; none issued and outstanding	—	—
Common stock, $.001 par value:		
Authorized shares - 100,000,000; issued shares - 41,731,141 and 41,064,563, outstanding shares - 29,477,639 and 28,811,061 as of June 30, 2024, and December 31, 2023, respectively	41,732	41,065
Additional paid-in capital	106,388,505	105,044,756
Treasury stock, shares held at cost - 12,253,502	(18,929,915)	(18,929,915)
Accumulated deficit	(84,332,140)	(80,277,321)
Total stockholders' equity	3,168,182	5,878,585
Total liabilities and stockholders' equity	$ 10,630,372	$ 8,219,236

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

DYADIC INTERNATIONAL, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF OPERATIONS

(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2024	**2023**	**2024**	**2023**
Revenues:				
Research and development revenue	$ 385,896	$ 793,042	$ 720,513	$ 1,726,976
License revenue	—	44,117	—	88,235
Total revenue	385,896	837,159	720,513	1,815,211
Costs and expenses:				
Costs of research and development revenue	301,956	792,944	445,911	1,519,862
Research and development	515,629	917,552	1,038,352	1,728,118
General and administrative	1,607,756	1,402,569	3,396,350	2,882,609
Foreign currency exchange loss	3,146	14,521	8,049	25,543
Total costs and expenses	2,428,487	3,127,586	4,888,662	6,156,132
Loss from operations	(2,042,591)	(2,290,427)	(4,168,149)	(4,340,921)
Other income (expense):				
Interest income	138,471	109,194	225,914	213,925
Gain on sale of Alphazyme	—	28,273	60,977	1,017,592
Interest expense	(88,634)	—	(110,273)	—
Interest expense - related party	(52,469)	—	(63,288)	—
Total other income (expense), net	(2,632)	137,467	113,330	1,231,517
Net loss	$ (2,045,223)	$ (2,152,960)	$ (4,054,819)	$ (3,109,404)
Basic and diluted net loss per common share	$ (0.07)	$ (0.07)	$ (0.14)	$ (0.11)
Basic and diluted weighted-average common shares outstanding	29,291,259	28,881,061	29,085,696	28,786,402

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

DYADIC INTERNATIONAL, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

(Unaudited)

	Six Months Ended June 30, 2024						
	Common Stock		Treasury Stock		Additional Paid-In	Accumulated	
	Shares	Amount	Shares	Amount	Capital	Deficit	Total
January 1, 2024	41,064,563	$ 41,065	(12,253,502)	$ (18,929,915)	$ 105,044,756	$ (80,277,321)	$ 5,878,585
Stock-based compensation expense	—	—	—	—	306,478	—	306,478
Issuance of common stock upon vesting of restricted stock units	375,753	376	—	—	339,959	—	340,335
Net loss	—	—	—	—	—	(2,009,596)	(2,009,596)
March 31, 2024	41,440,316	$ 41,441	(12,253,502)	$ (18,929,915)	$ 105,691,193	$ (82,286,917)	$ 4,515,802
Stock-based compensation expense	—	—	—	—	297,603	—	297,603
Issuance of common stock upon vesting of restricted stock units	61,793	62	—	—	(62)	—	—
Issuance of common stock upon exercise of stock options	5,569	6	—	—	(6)	—	—
Issuance of common stock upon settlement of convertible debt	223,463	223	—	—	399,777	—	400,000
Net loss	—	—	—	—	—	(2,045,223)	(2,045,223)
June 30, 2024	41,731,141	$ 41,732	(12,253,502)	$ (18,929,915)	$ 106,388,505	$ (84,332,140)	$ 3,168,182

	Six Months Ended June 30, 2023						
	Common Stock		Treasury Stock		Additional Paid-In	Accumulated	
	Shares	Amount	Shares	Amount	Capital	Deficit	Total
January 1, 2023	40,816,602	$ 40,817	(12,253,502)	$ (18,929,915)	$ 103,458,697	$ (73,481,860)	$ 11,087,739
Stock-based compensation expense	—	—	—	—	330,639	—	330,639
Issuance of common stock upon vesting of restricted stock units	247,961	248	—	—	341,938	—	342,186
Net loss	—	—	—	—	—	(956,444)	(956,444)
March 31, 2023	41,064,563	$ 41,065	(12,253,502)	$ (18,929,915)	$ 104,131,274	$ (74,438,304)	$ 10,804,120
Stock-based compensation expense	—	—	—	—	334,316	—	334,316
Net loss	—	—	—	—	—	(2,152,960)	(2,152,960)
June 30, 2023	41,064,563	$ 41,065	(12,253,502)	$ (18,929,915)	$ 104,465,590	$ (76,591,264)	$ 8,985,476

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

DYADIC INTERNATIONAL, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

(Unaudited)

	Six Months Ended June 30,	
	2024	**2023**
Cash flows from operating activities		
Net loss	$ (4,054,819)	$ (3,109,404)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation expense	604,081	664,955
Amortization of held-to-maturity securities, net	(27,699)	(25,889)
Amortization of debt issuance costs	26,717	—
Gain from the sale of investment in Alphazyme	(60,977)	(1,017,592)
Foreign currency exchange loss (gain), net	8,049	25,543
Changes in operating assets and liabilities:		
Interest receivable	(18,077)	22,232
Accounts receivable	210,725	(429,790)
Prepaid expenses and other current assets	201,073	256,484
Operating lease assets and liabilities	870	—
Accounts payable	(224,307)	(404,801)
Accrued expenses	152,800	296,587
Accrued interest	80,000	—
Accrued interest - related party	32,000	—
Deferred research and development obligation	(7,790)	(31,743)
Deferred license revenue	—	(88,236)
Net cash used in operating activities	**(3,077,354)**	**(3,841,654)**
Cash flows from investing activities		
Purchases of held-to-maturity investment securities	(4,734,528)	(1,977,166)
Proceeds from maturities of investment securities	1,546,000	4,563,000
Proceeds from the sale of investment in Alphazyme	60,977	1,302,524
Net cash (used in) provided by investing activities	**(3,127,551)**	**3,888,358**
Cash flows from financing activities		
Proceeds from issuance of convertible notes, net of issuance costs	3,882,884	—
Proceeds from issuance of convertible notes, net of issuance costs - related party	1,941,442	—
Net cash provided by financing activities	**5,824,326**	**—**
Effect of exchange rate changes on cash	(1,051)	615
Net (decrease) increase in cash and cash equivalents	**(381,630)**	**47,319**
Cash and cash equivalents at beginning of period	6,515,028	5,794,272
Cash and cash equivalents at end of period	$ **6,133,398**	$ **5,841,591**
Supplemental cash flow information		
Vesting of restricted stock units	$ 439,085	$ 342,186
Conversion of convertible notes	$ 400,000	$ —
Cash paid for interest	$ 34,844	$ —

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

Note 1: Organization and Summary of Significant Accounting Policies

Description of Business

Dyadic International, Inc. ("Dyadic", "we", "us", "our", or the "Company") is a global biotechnology company based in Jupiter, Florida with operations in the United States and a satellite office in the Netherlands, and it utilizes several third-party consultants and research organizations to carry out the Company's activities. Over the past two plus decades, the Company has developed a gene expression platform for producing commercial quantities of industrial enzymes and other proteins, and has previously licensed this technology to third parties, such as Abengoa Bioenergy SA, BASF SE, Codexis, Inc. and others, for use in industrial (non-pharmaceutical) applications. This technology is based on the *Thermothelomyces heterothallica* (formerly known as *Myceliophthora thermophila*) fungus, which the Company named C1.

Subsequent to the Company selling its industrial technology business to Danisco USA ("Danisco"), the industrial biosciences business of DuPont (NYSE: DD) (the "DuPont Transaction") on December 31, 2015, the Company has been focused on building the C1-cell protein production platform for the development and production of biologic products including enzymes and other proteins for human and animal health. Some examples of human and animal vaccines and drugs which have the potential to be produced from C1-cells are protein antigens, ferritin nanoparticles, virus-like particles ("VLPs"), monoclonal antibodies ("mAbs"), Bi/Tri-specific antibodies, Fab antibody fragments, Fcfusion proteins, as well as other therapeutic enzymes and proteins. The Company is involved in multiple funded research collaborations with animal and human pharmaceutical companies which are designed to leverage its C1-cell protein production platform to develop innovative vaccines and drugs, biosimilars and/or biobetters.

The Company also developed the Dapibus™ thermophilic filamentous fungal based microbial protein production platform to enable the rapid development and large-scale manufacture of low-cost proteins, metabolites, and other biologic products for use in non-pharmaceutical applications, such as food, nutrition, and wellness.

Liquidity and Capital Resources

The Company expects to incur losses and have negative net cash flows from operating activities as it continues developing its microbial platforms and related products, and as it expands its pipelines and engages in further research and development activities for internal products as well as for its third-party collaborators and licensees. The success of the Company depends on its ability to develop its technologies and products to the point of regulatory approval and subsequent revenue generation or through the sublicensing of the Company's technologies and products, and its ability to raise capital to finance these developmental efforts.

On March 8, 2024, the Company issued an aggregate principal amount of $6.0 million of its 8.0% Senior Secured Convertible Promissory Notes due March 8, 2027 (the "Convertible Notes") in a private placement in reliance on the exemption from registration provided by Section 4(a)(2) of the Securities Act of 1933, as amended (the "Securities Act"). The purchasers of the Convertible Notes include immediate family members and family trusts related to Mark Emalfarb, our President and Chief Executive Officer and a member of our Board of Directors, including The Francisco Trust, an existing holder of more than 5% of the Company's outstanding common stock, (collectively, the "Purchasers"). The net proceeds from the sale of the Convertible Notes, after deducting offering expenses, is $5,824,000. The Company intends to use the net proceeds from the offering of the Convertible Notes for working capital and general corporate purposes.

The Convertible Notes are senior, secured obligations of Dyadic and its affiliates, and interest is payable quarterly in cash on the principal amount equal to 8% per annum. The Convertible Notes will mature on March 8, 2027 (the "Maturity Date"), unless earlier converted, repurchased, or redeemed in accordance with the terms of the Convertible Notes.

The Convertible Notes can be converted into shares of Dyadic's Class A common stock (the "Common Stock"), at the option of the holders of the Convertible Notes (the "Noteholders") at any time prior to the Maturity Date. The conversion price is $1.79 per share of the Common Stock, which is equal to 125% of the trailing 30-day VWAP of the Common Stock ending on the trading day immediately preceding the date of the securities purchase agreement. As of June 30, 2024, $400,000 of the Convertible Notes were converted into 223.463 shares of Common Stock. For more information regarding the Convertible Notes, including the covenants related thereto see Note 4 to the Consolidated Financial Statements.

This private placement funding will support our near-term revenue growth and accelerate our strategic objective of commercialization opportunities for pharmaceutical and non-pharmaceutical applications.

The Company expects its existing cash and cash equivalents and cash raised from the Convertible Notes, investments in debt securities, and operating cash flows will be sufficient to meet its operational, business, and other liquidity requirements for at least the next twelve (12) months from the date of issuance of the financial statements contained in this Quarterly Report. However, the Company has based this estimate on assumptions that may prove to be wrong, and its operating plan may change as a result of many factors currently unknown to it. In the event our financing needs are not able to be met by our existing cash, cash equivalents and investments, we would seek to raise additional capital through strategic financial opportunities that could include, but are not limited to, future public or private equity offerings, collaboration agreements, and/or other means. Any amounts raised may be used for the further development and commercialization of product candidates, and for other working capital purposes. There is no guarantee that any of these strategic or financing opportunities will be executed or realized on favorable terms, if at all, and some could be dilutive to existing shareholders.

Summary of Significant Accounting Policies

Basis of Presentation

The accompanying unaudited condensed consolidated financial statements, including the accounts of the Company and its wholly owned subsidiaries, have been prepared in accordance with U.S. generally accepted accounting principles ("GAAP") as found in the Accounting Standards Codification ("ASC"), Accounting Standards Update ("ASU") of the Financial Accounting Standards Board ("FASB") and applicable rules and regulations of the Securities and Exchange Commission ("SEC") regarding interim financial reporting. Certain information and footnote disclosures normally included in consolidated financial statements have been condensed or omitted pursuant to such rules and regulations. All significant intra-entity transactions and balances have been eliminated in consolidation. The information included in this Quarterly Report should be read in conjunction with the audited consolidated financial statements and footnotes as of and for the year ended December 31, 2023, included in our Annual Report.

In the opinion of management, the accompanying unaudited interim consolidated financial statements reflect all adjustments, which are of a normal recurring nature, considered necessary for a fair presentation of all periods presented. The results of the Company's operations for any interim periods are not necessarily indicative of the results of operations for any other interim period or for a full fiscal year.

The Company conducts business in one operating segment, which is identified by the Company based on how resources are allocated, and operating decisions are made. Management evaluates performance and allocates resources based on the Company as a whole.

Use of Estimates

The preparation of these consolidated financial statements in accordance with GAAP requires management to make estimates and judgments that affect the reported amount of assets and liabilities and related disclosure of contingent assets and liabilities at the date of our consolidated financial statements and the reported amounts of revenues and expenses during the applicable period. Estimates inherent in the preparation of these consolidated financial statements include, but are not limited to, estimates related to revenue recognition, accrued expenses, stock-based compensation expense, and income taxes. The Company bases its estimates on historical experience and other market specific or other relevant assumptions it believes to be reasonable under the circumstances. On an ongoing basis, management evaluates its estimates as there are changes in circumstances, facts, and experience. Actual results may differ from these estimates under different assumptions or conditions. Such differences could be material to the consolidated financial statements.

Concentrations and Credit Risk

The Company's financial instruments that are potentially subject to concentrations of credit risk consist primarily of cash and cash equivalents, investment securities, and accounts receivable. At times, the Company has cash, cash equivalents, and investment securities at financial institutions exceeding the Federal Depository Insurance Company ("FDIC") and the Securities Investor Protection Corporation ("SIPC") insured limit on domestic currency and the Netherlands' FDIC counterpart for foreign currency. The Company currently deals with four reputable financial institutions and has not experienced any losses in those accounts.

For the three months ended June 30, 2024 and 2023, the Company's revenue was generated from ten and eight customers, respectively. For the six months ended June 30, 2024 and 2023, the Company's revenue was generated from thirteen and eight customers, respectively. Significant customers are those that account for greater than 10% of the Company's revenues. For the three months ended June 30, 2024 and 2023, four and three significant customers accounted for $285,000 or 73.7% and $525,000 or 66.2% of research and development revenue, respectively. For the six months ended June 30, 2024 and 2023, five and three significant customers accounted for 506,000 or 70.3% and $1,152,000 or 66.7% of research and development revenue, respectively.

As of June 30, 2024 and December 31, 2023, accounts receivable was from six and thirteen customers, of which, three and two customers accounted for $191,000 or 76.3% and $1,150,000 or 45.2% of total accounts receivable, respectively. The loss of business from one or a combination of the Company's customers could adversely affect its operations.

The Company conducts operations in the Netherlands through its foreign subsidiary and generates a portion of its revenues from customers that are located outside of the United States. For the three months ended June 30, 2024 and 2023, the Company had four and two customers outside of the United States (i.e., European customers) that accounted for $106,000 or 27.5% and $98,000 or 12.4% of research and development revenue, respectively. For the six months ended June 30, 2024 and 2023, the Company had seven and two customers outside of the United States (i.e., European customers) that accounted for $304,000 or 42.2% and $187,000 or 10.8% of research and development revenue, respectively.

As of June 30, 2024 and December 31, 2023, the Company had three and six customers outside of the United States (i.e., European customers) that accounted for $108,000 or 43.3% and $213,000 or 45.6% of accounts receivable, respectively.

The Company uses several contract research organizations ("CROs") to conduct its research projects. For the three months ended June 30, 2024 and 2023, two and three CROs accounted for $598,000 or 96.5% and $1,586,000 or 99.4% of total research services we purchased, respectively. For the six months ended June 30, 2024 and 2023, two and three CROs accounted for $957,000 or 90.2% and $2,662,000 or 97.6% of total research services we purchased, respectively. As of June 30, 2024 and December 31, 2023, two and three CROs accounted for $195,000 or 35.9% and $620,000 or 94.4% of accounts payable, respectively. The loss of one CRO or a combination of the Company's CROs could adversely affect its operations.

Cash and Cash Equivalents

We treat highly liquid investments with original maturities of three months or less when purchased as cash equivalents, including money market funds, which are unrestricted for withdrawal or use.

Investment Securities

The Company's investment policy requires investment securities to be investment grade and held to maturity with the primary objective to maintain a high degree of liquidity while maximizing yield. The Company invests excess cash balances in short-term and long-term investment grade securities. Short-term investment securities mature within twelve (12) months or less, and long-term investment securities mature over twelve (12) months from the applicable reporting date. Management determines the appropriate classification of each investment at the time of purchase and reevaluates the classifications at each balance sheet date.

The Company classifies its investments in debt securities as held-to-maturity. Held-to-maturity securities are those securities that the Company has the ability and intent to hold until maturity. Held-to-maturity securities are recorded at amortized cost, net of allowance for credit losses if applicable, and adjusted for the amortization or accretion of premiums or discounts. Premiums and discounts are amortized over the life of the related held-to-maturity security. When a debt security is purchased at a premium, both the face value of the debt and premium amount are reflected as investing outflow.

When evaluating an investment for other-than-temporary impairment, the Company reviews factors such as the length of time and extent to which fair value has been below its cost basis, the financial condition of the issuer and any changes thereto, changes in market interest rates, and whether it is more likely than not the Company will be required to sell the investment before recovery of the investment's cost basis. The Company measures expected credit losses on held to maturity debt securities on an individual security basis. The estimate of expected credit losses considers historical credit information from external sources. The impairment of the investment that is related to the credit loss, if any, is expensed in the period in which the event or change occurred.

The Company classifies its investments in money market funds as available-for-sale securities and presented as cash equivalents on the consolidated balance sheets. As of June 30, 2024 and December 31, 2023, all of our money market funds were invested in U.S. Government money market funds, for which the risk of loss is minimal.

As of June 30, 2024, and December 31, 2023, the Company did not have any investment securities classified as trading.

Accounts Receivable

Accounts receivable consist of billed receivables currently due from customers and unbilled receivables. Unbilled receivables represent the excess of contract revenue (or amounts reimbursable under contracts) over billings to date. Such amounts become billable in accordance with the contract terms, which usually consider the passage of time, achievement of certain milestones or completion of the project.

Accounts receivable are stated net of an allowance for credit losses, if deemed necessary based on the Company's evaluation of collectability and potential credit losses. Management assesses the collectability of its accounts receivable using the specific identification of account balances and considers the credit quality and financial condition of its significant customers, historical information regarding credit losses and the Company's evaluation of current and expected future economic conditions and changes in our customer collection trends. If necessary, an allowance for credit losses is recorded against accounts receivable such that the carrying value of accounts receivable reflects the net amount expected to be collected. Accounts receivable balances are written off against the allowance for credit losses when the potential for collectability is considered remote. Substantially all of our accounts receivable were current and include unbilled amounts that will be billed and collected over the next twelve (12) months. Management determined that no allowance for credit losses was required as of June 30, 2024, and December 31, 2023.

Accounts receivable consist of the following:

	June 30, 2024	December 31, 2023
	(Unaudited)	(Audited)
Billed receivable	$ 188,084	$ 410,617
Unbilled receivable	61,722	55,542
	$ 249,806	$ 466,159

Accounts Payable

Accounts payable consist of the following:

	June 30, 2024	December 31, 2023
	(Unaudited)	(Audited)
Research and development expenses	$ 204,354	$ 575,436
Legal expenses	158,228	1,957
Other	69,939	79,052
	$ 432,521	$ 656,445

Accrued Expenses

Accrued expenses consist of the following:

	June 30, 2024	December 31, 2023
	(Unaudited)	(Audited)
Employee wages and benefits	$ 330,181	$ 561,720
Research and development expenses	499,056	274,080
Legal expenses	41,360	210,004
Other	—	11,360
	$ 870,597	$ 1,057,164

Deferred Financing Costs

Deferred financing costs represent costs incurred in connection with the issuance of debt instruments and equity financings. Deferred financing costs related to the issuance of debt are amortized over the term of the financing instrument using the effective interest method and are presented in the consolidated balance sheets as an offset against the related debt. Offering costs from equity financings are netted against the gross proceeds received from the equity financings. See Note 4 for the amortization amount.

Research and Development Costs

Research and development ("R&D") costs are expensed as incurred. R&D costs are for the Company's internally funded pharmaceutical programs and other governmental and commercial projects.

Research and development costs consist of personnel-related costs, facilities, research-related overhead, services from independent contract research organizations, and other external costs. Research and development costs, including related party, for the three and six months ended June 30, 2024 and 2023 were as follows:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2024	2023	2024	2023
	(Unaudited)	(Unaudited)	(Unaudited)	(Unaudited)
Outside contracted services	$ 395,188	$ 748,139	$ 783,434	$ 1,391,186
Personnel related costs	106,889	147,414	213,216	299,608
Facilities, overhead and other	13,552	21,999	41,702	37,324
	$ 515,629	$ 917,552	$ 1,038,352	$ 1,728,118

Foreign Currency Transaction Gain or Loss

The Company and its foreign subsidiary use the U.S. dollar as its functional currency, and initially measure the foreign currency denominated assets and liabilities at the transaction date. Monetary assets and liabilities are then re-measured at exchange rates in effect at the end of each period, and property and non-monetary assets and liabilities are carried at historical rates.

Fair Value Measurements

The Company applies fair value accounting for certain financial instruments that are recognized or disclosed at fair value in the financial statements. The Company defines fair value as the price that would be received from selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Fair value is estimated by applying the following hierarchy, which prioritizes the inputs used to measure fair value into three levels and bases the categorization within the hierarchy upon the lowest level of input that is available and significant to the fair value measurement:

- *Level 1* – Quoted prices in active markets for identical assets or liabilities.
- *Level 2* – Observable inputs other than quoted prices in active markets for identical assets and liabilities, quoted prices for identical or similar assets or liabilities in inactive markets, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.
- *Level 3* – Inputs that are generally unobservable and typically reflect management's estimate of assumptions that market participants would use in pricing the asset or liability.

The Company's financial instruments included cash and cash equivalents, investment in debt securities, accounts receivable, accounts payable and accrued expenses, accrued payroll and related liabilities, deferred research and development obligations, deposits, and the Company's 8% Senior Secured Convertible Promissory Notes (the "Convertible Notes"), due March 2027. The carrying amount of these financial instruments, except for investment in debt securities and Convertible Notes, approximates fair value due to the short-term maturities of these instruments. The Company's short-term and long-term investments in debt securities are recorded at amortized cost, and their estimated fair value amounts are provided by the third-party broker service for disclosure purposes. See Note 4 for additional information related to the Convertible Notes.

Income Taxes

For the six months ended June 30, 2024, there was no provision for income taxes or unrecognized tax benefits recorded. As of June 30, 2024 and December 31, 2023, deferred tax assets were $17.8 million and $16.4 million, respectively. Due to the Company's history of operating losses and the uncertainty regarding our ability to generate taxable income in the future, the Company has established a 100% valuation allowance against deferred tax assets as of June 30, 2024 and December 31, 2023.

Stock-Based Compensation

We recognize all share-based payments to employees, consultants, and our Board of Directors (the "Board"), as non-cash compensation expense, in research and development expenses or general and administrative expenses in the consolidated statement of operations based on the grant date fair values of such payments. Stock-based compensation expense recognized each period is based on the value of the portion of share-based payment awards that is ultimately expected to vest during the period. Forfeitures are recorded as they occur.

For performance-based awards, the Company recognizes related stock-based compensation expenses based upon its determination of the potential likelihood of achievement of the specified performance conditions at each reporting date.

Net Loss Per Share

Basic net loss per share is computed by dividing net loss available to common shareholders by the weighted average number of common stock shares outstanding during the reporting period. Diluted net loss per share adjusts the weighted average number of common stock shares outstanding for the potential dilution that could occur if common stock equivalents, such as stock options were exercised and converted into common stock, calculated by applying the treasury stock method.

For the three and six months ended June 30, 2024, a total of 5,948,147 shares of potentially dilutive securities, including 117,925 shares of unvested restrict stock units and options to purchase 5,830,222 shares of common stock, were excluded from the computation of diluted net loss per share as their effect would have been anti-dilutive. For the three and six months ended June 30, 2023, a total of 5,619,491 shares of potentially dilutive securities, including 163,044 shares of unvested restrict stock units and options to purchase 5,456,447 shares of common stock, were excluded from the computation of diluted net loss per share as their effect would have been anti-dilutive

Recent Accounting Pronouncements Not Adopted as of June 30, 2024

In December 2023, the FASB issued Accounting Standards Update 2023-09 – Income Taxes (Topic ASC 740) Income Taxes. The ASU improves the transparency of income tax disclosures by requiring (1) consistent categories and greater disaggregation of information in the rate reconciliation and (2) income taxes paid disaggregated by jurisdiction. It also includes certain other amendments to improve the effectiveness of income tax disclosures. The amendments in ASU 2023-09 will become effective for annual periods beginning January 1, 2025. Early adoption is permitted for annual financial statements that have not yet been issued or made available for issuance. We do not expect that this guidance will have a material impact on our financial position and results of operations.

In November 2023, the FASB issued Accounting Standards Update 2023-07 – Segment Reporting (Topic ASC 280) Improvements to Reportable Segment Disclosures. The ASU improves reportable segment disclosure requirements, primarily through enhanced disclosure about significant segment expenses. The enhancements under this update require disclosure of significant segment expenses that are regularly provided to the Chief Operating Decision Maker ("CODM") and included within each reported measure of segment profit or loss, require disclosure of *other segment items* by reportable segment and a description of the composition of *other segment items*, require annual disclosures under ASC 280 to be provided in interim periods, clarify use of more than one measure of segment profit or loss by the CODM, require that the title of the CODM be disclosed with an explanation of how the CODM uses the reported measures of segment profit or loss to make decisions, and require that entities with a single reportable segment provide all disclosures required by this update and required under ASC 280. ASU 2023-07 is effective for public business entities for fiscal years beginning January 1, 2024, and interim periods beginning January 1, 2025, with early adoption permitted. We do not expect that this guidance will have a material impact on our financial position and results of operations.

Note 2: Cash, Cash Equivalents, and Investments

The Company's investments in debt securities are classified as held-to-maturity and are recorded at amortized cost, net of allowance for credit losses, and its investments in money market funds are classified as available-for-sale securities and presented as cash equivalents on the consolidated balance sheets. The following table shows the Company's cash, available-for-sale securities, and investment securities by major security type as of June 30, 2024, and December 31, 2023:

	June 30, 2024 (Unaudited)					
	Level (1)	Fair Value	Allowance for Credit Losses	Gross Unrealized Holding Gains	Gross Unrealized Holding Losses	Adjusted Cost
Cash and Cash Equivalents						
Cash		$ 683,233	$ —	$ —	$ —	$ 683,233
Money Market Funds (2)	1	5,450,165	—	—	—	5,450,165
Subtotal		6,133,398	—	—	—	6,133,398
Short-Term Investment Securities (3)						
Corporate Bonds (4)(5)	2	3,962,295	—	—	(2,222)	3,964,517
Total		$ 10,095,693	$ —	$ —	$ (2,222)	$ 10,097,915

	December 31, 2023 (Audited)					
	Level (1)	Fair Value	Allowance for Credit Losses	Gross Unrealized Holding Gains	Gross Unrealized Holding Losses	Adjusted Cost
Cash and Cash Equivalents						
Cash		$ 25,775	$ —	$ —	$ —	$ 25,775
Money Market Funds (2)	1	6,489,253	—	—	—	6,489,253
Subtotal		6,515,028	—	—	—	6,515,028
Short-Term Investment Securities (3)						
Corporate Bonds (4)(5)	2	748,105	—	—	(185)	748,290
Total		$ 7,263,133	$ —	$ —	$ (185)	$ 7,263,318

Notes:

(1) Definition of the three-level fair value hierarchy:

- Level 1 - Quoted prices (unadjusted) in active markets for identical assets or liabilities
- Level 2 - Other inputs that are directly or indirectly observable in the markets
- Level 3 - Inputs that are generally unobservable

(2) All our money market funds were invested in U.S. Government money market funds.

(3) Short-term investment securities will mature within 12 months or less, from the applicable reporting date.

(4) For the three months ended June 30, 2024 and 2023, the Company received discounts of $31,357 and $17,601 to purchase held-to-maturity investment securities, respectively. For the six months ended June 30, 2024 and 2023, the Company received discounts of $61,472 and $32,834 to purchase held-to-maturity investment securities, respectively. For the year ended December 31, 2023, the Company received discounts of $39,012 to purchase held-to-maturity investment securities.

(5) The Company considers the declines in market value of its investment portfolio to be temporary in nature. As of June 30, 2024 and December 31, 2023, the Company did not consider any of its investments to be other-than-temporarily impaired and no allowance for credit losses was recorded.

Note 3: Research and Collaboration Agreements, Sublicense Agreements, and Investments in Privately Held Companies

Proliant

On June 27, 2024, the Company entered into a License and Development Agreement (the "Proliant Agreement") with Proliant Biologicals, LLC d/b/a Proliant Health and Biologicals ("Proliant"), pursuant to which Proliant will license Dyadic's proprietary fungal microbial expression and production platforms and microbial strains for the production of recombinant serum albumin. Under the terms of the Proliant Agreement, Dyadic will receive an initial upfront payment of $500,000, a second payment of $500,000 upon the completion of the transfer of a Production Strain (as defined in the Proliant Agreement.), and a final payment of $500,000 upon the meeting of a certain productivity threshold. Dyadic also will receive a share of the profits received by Proliant from the sale of animal-free recombinant serum albumin products produced pursuant to the Proliant Agreement.

In July 2024, the Company has received the initial payment of $500,000. For the three and six months ended June 30, 2024, there was no revenue recognized related to the Proliant Agreement.

Inzymes ApS

On September 18, 2023, Dyadic International (USA) Inc., a subsidiary of the Company, signed a Development and Exclusive License Agreement (the "Inzymes Agreement") with Inzymes ApS ("Inzymes"), a Denmark corporation, to develop and commercialize certain non-animal dairy enzymes used in the production of food products using Dyadic's proprietary Dapibus™ platform.

Under the terms of the Inzymes Agreement, a research collaboration to develop a basket of dairy enzymes will be fully funded by Inzymes with an upfront payment of $0.6 million and an additional payment payable upon the first commercial sale of product. Dyadic will also be eligible to receive success fees upon the achievement of certain target yields, milestone payments upon first commercial sale of each product and royalties.

In October 2023, the Company received an upfront payment of $0.6 million in accordance with the terms of the Inzymes Agreement. The payment consisted of funding for specified product research and development efforts and right of first refusal for certain product candidates. For the three and six months ended June 30, 2024, the Company recorded research and development revenues of $52,000 and $92,000, respectively. in connection with the Inzymes Agreement.

A Global Food Ingredient Company

On May 10, 2022, the Company entered into a Joint Development Agreement (the "JDA") with a Global Food Ingredient Company ("GFIC") to develop and manufacture several animal free ingredient products using the Company's biotechnologies.

Under the initial terms of the JDA, Dyadic was to develop its proprietary production cell lines for the manufacture of animal free ingredient product candidates. The GFIC has completed its one-year funding commitment for the initial phase of research collaboration in an amount approximating $1.35 million, and, pursuant to the GFIC's rights under the JDA, the Company and the GFIC are in discussions related to the potential development of other animal free ingredient products. The Company is also considering other funding sources to continue the original project.

For the three and six months ended June 30, 2024, there was no revenue recognized related to this JDA. For the three and six months ended June 30, 2023, the Company recorded research and development revenues of approximately $226,000 and $565,000, as well as Success Fees of approximately $65,500 in connection with the JDA, respectively.

Janssen

On December 16, 2021, the Company entered a Research, License, and Collaboration Agreement (the "Janssen Agreement") for the manufacture of therapeutic protein candidates using its C1-cell protein production platform with Janssen Biotech, Inc., one of the Janssen Pharmaceutical Companies of Johnson & Johnson ("Janssen").

On October 2, 2023, Janssen provided written notice to Dyadic that it has decided to wind down the collaboration with an effective end date of December 31, 2023.

For the three and six months ended June 30, 2024, there was no revenue recognized related to the Janssen Agreement. For the three and six months ended June 30, 2023, the Company recognized approximately $44,000 and $88,000 of license revenue, respectively. For the three and six months ended June 30, 2023, the Company recorded research and development revenues of approximately $191,000 and $380,000, respectively, in connection with the Janssen Agreement.

Alphazyme

In 2019 the Company entered into a sub-licensing agreement with Alphazyme, LLC ("Alphazyme") that was subsequently amended (the "Amended Alphazyme LLC Agreement"). Under the Amended Alphazyme LLC Agreement, Alphazyme obtained additional capital contribution and Dyadic's ownership was diluted to 1.99%.

The Company evaluated the nature of its equity interest investment in Alphazyme and determined that Alphazyme is a VIE due to the capital structure of the entity. However, the Company is not the primary beneficiary of Alphazyme as Dyadic does not have the power to control or direct the activities of Alphazyme that most significantly impact the VIE. As a result, the Company does not consolidate its investment in Alphazyme. The Company reports its investment in Alphazyme under the cost method of accounting, given that it does not have the ability to exercise significant influence or control over Alphazyme.

On January 18, 2023, the Company entered into a Securities Purchase Agreement, under which the Company agreed to sell its equity interest in Alphazyme, LLC (the "Alphazyme Sale Agreement"). The Company continues to have the potential to receive additional payments based on the future sales of Alphazyme's existing products, pursuant to the Alphazyme Sale Agreement.

The Amended Sublicense Agreement between Dyadic and Alphazyme, which was previously entered on June 24, 2020, remains in effect. Under the Amended Alphazyme Sub-License Agreement, Dyadic is entitled to potential milestone and royalty payments upon the commercialization of Alphazyme products using Dyadic's proprietary C1-cell protein production platform.

For the year ended December 31, 2023, the Company received a total cash payment of $1.3 million from the sale of its equity interest in Alphazyme, LLC. In the first quarter of 2024, the Company received an additional cash payment of $61,977, which was recorded as gain on sale of Alphazyme in the consolidated statement of operations.

Note 4: Convertible Notes Payable

On March 8, 2024, the Company issued senior secured convertible promissory notes (the "Convertible Notes") with an aggregate principal amount of $6.0 million, of which, $2.0 million were sold to related parties, including immediate family members and family trusts related to Mark Emalfarb, our President and Chief Executive Officer and a member of our Board of Directors.

The Convertible Notes are senior, secured obligations of the Company and its affiliates, and interest is payable quarterly in cash on the principal amount equal to 8% per annum, and guaranteed by its subsidiary, Dyadic International (USA), Inc. under a subsidiary guarantee for the benefit of the holders of the Convertible Notes (each such holder, a "Holder").

The Convertible Notes mature on March 8, 2027, unless earlier converted or redeemed in accordance with the terms of the Convertible Notes. The Convertible Notes are secured by a first priority lien on substantially all assets of the Company and Dyadic International (USA), Inc.

The Holders may require the Company to redeem all or any part of the Convertible Notes on a redemption date falling on any of the 18, 21, 24, 27, 30, and 33-month anniversaries of the original issue date of the Convertible Notes (any such date, a "Redemption Date") upon not less than 60 calendar days written notice prior to the applicable Redemption Date. The Company may also elect to redeem all or any part of the Convertible Notes on a Redemption Date upon not less than 60 calendar days written notice prior to the applicable Redemption Date.

The Convertible Notes are convertible into shares of the Company's common stock, in whole or in part, at the option of the Holders at any time, based on an initial conversion price of $1.79 per share of common stock. For the three months ended June 30, 2024, $400,000 of the Convertible Notes were converted into 223,463 shares of the Company's common stock.

The Convertible Notes are accounted for in accordance with ASC 470-20, *Debt with Conversion and Other Options* and ASC 815-15, *Derivatives and Hedging*. Under ASC 815, contracts that are both indexed to its own stock and classified in stockholders' equity in its statement of financial position are not considered to be derivative instruments. Based on the Company's analysis, it is determined that the Convertible Notes contain embedded features that are indexed to the Company's own stock and are classified in stockholders' equity in the Company's statement of financial position, but do not meet the requirements for bifurcation and recognition as derivatives, and therefore, do not need to be accounted for separately. Accordingly, the proceeds received from the issuance of the Convertible Notes were recorded as a single liability in accordance with ASC 470 on the Company's consolidated balance sheets.

The Company incurred $176,000 of debt issuance costs associated with the Convertible Notes, which were recorded as a reduction of the Convertible Notes on the consolidated balance sheets. The debt issuance costs are being amortized and recognized as additional interest expense over the expected life of the Convertible Notes using the effective interest method. We determined the expected life of the debt is equal to the three-year term of the Convertible Notes.

As of June 30, 2024, accrued interest on the Convertible Notes to related parties and other third parties were $32,000 and $80,000, respectively, and was recognized as interest expenses in the consolidated statements of operations.

For the three months ended June 30, 2024, $34,844 of interest was paid and debt issuance costs of $23,591 were amortized and recorded in interest expense in the consolidated statements of operations. For the six months ended June 30, 2024, $34,844 of interest was paid and debt issuance costs of $26,716 were amortized and recorded in interest expense in the consolidated statements of operations. As of June 30, 2024, accumulated amortized debt issuance costs are $26,716.

As of June 30, 2024, convertible notes payable consisted of the following:

Holder	Issuance Date	Due Date	Interest Rate	Convertible Note Principal	Principal Repayments	Conversion to Common Stock	Principal Outstanding
Francisco Trust dated 2/28/1996 (1)	03/08/24	03/08/27	8%	$ 1,000,000	$ —	$ —	$ 1,000,000
Bradley Emalfarb (2)	03/08/24	03/08/27	8%	500,000	—	(400,000)	100,000
Bradley Scott Emalfarb Irrevocable Trust (2)	03/08/24	03/08/27	8%	410,000	—		410,000
Emalfarb Descendent Trust (3)	03/08/24	03/08/27	8%	90,000	—	—	90,000
Convertible Notes - Related Party				**$ 2,000,000**	$ —	$ —	**1,600,000**
Unamortized Debt Issuance Costs - Related Party							**(42,559)**
Net Carrying Amount							**$ 1,557,441**
Convertible Notes - Third Party	03/08/24	03/08/27	8%	**$ 4,000,000**	**$ —**	**$ —**	**4,000,000**
Unamortized Debt Issuance Costs - Third Party							**(106,398)**
Net Carrying Amount							**$ 3,893,602**

Notes:

(1) Mr. Thomas Emalfarb, nephew of Mr. Mark A. Emalfarb, our President and Chief Executive Officer, is the Trustee of the Francisco Trust. Mr. Thomas Emalfarb may be deemed to have voting, dispositive and investment power with respect to the shares of common stock held by the Francisco Trust and disclaims any such beneficial ownership other than to the extent of any pecuniary interest he may have therein, directly or indirectly. The amount of accrued interest as of June 30, 2024, is $20,000.

(2) Mark A. Emalfarb, our President and Chief Executive Officer, is the Trustee of the Irrevocable Trust and the brother of Mr. Bradley S. Emalfarb, who is the sole beneficiary of the Irrevocable Trust. Mr. Bradley S. Emalfarb, as sole beneficiary of the Irrevocable Trust, therefore, may be deemed to have voting, dispositive and investment power with respect to the shares of common stock held by the Irrevocable Trust and disclaims any such beneficial ownership other than to the extent of any pecuniary interest he may have therein, directly or indirectly. For the three months ended June 30, 2024, $400,000 of the Convertible Notes held by Mr. Bradley S. Emalfarb were converted into 223,463 shares of the Company's common stock. As of June 30, 2024, the amount of accrued interest for Bradley Emalfarb and Bradley Scott Emalfarb Irrevocable Trust was $2,000 and $8,200, respectively.

(3) Messrs. Thomas Emalfarb, Scott Emalfarb and Michael Emalfarb, nephews of Mr. Mark A. Emalfarb, our President and Chief Executive Officer, are co-trustees of the Descendant Trust and may therefore be deemed to have shared voting, dispositive and investment power over the shares of common stock held by the Descendant Trust. The amount of accrued interest as of June 30, 2024, is $1,800.

Note 5: Commitments and Contingencies

Legal Proceedings

We are not currently involved in any litigation that we believe could have a materially adverse effect in our financial condition or results of operations. From time to time, the Company is subject to legal proceedings, asserted claims and investigations in the ordinary course of business, including commercial claims, employment and other matters, which management considers immaterial, individually and in the aggregate. The Company makes a provision for a liability when it is both probable that a liability has been incurred and the amount of the loss can be reasonably estimated. The requirement for these provisions is reviewed at least quarterly and adjusted to reflect the impact of negotiations, settlements, rulings, advice of legal counsel and other information and events pertaining to a particular case. Litigation is inherently unpredictable and costly. Protracted litigation and/or an unfavorable resolution of one or more of proceedings, claims or investigations against the Company could have a material adverse effect on the Company's consolidated financial position, cash flows or results of operations.

VTT Research Contract Extension

On January 31, 2024, the Company entered into a Third Amendment to the commission contract concerning VTT Technical Research Centre of Finland Ltd. ("VTT") to develop Dyadic's C1 fungal expression system for therapeutic protein production. The original contract was entered on June 28, 2019, and subsequently amended by the First Amendment on June 21, 2022, and the Second Amendment on September 9, 2022. Under the terms of the Third Amendment, the contract duration was extended to January 31, 2025, and Dyadic will pay VTT a total of EUR €186,000 to continue developing Dyadic's C1-cell protein production platform for therapeutic protein production, including our C1 host system. Dyadic has the right to terminate the contract with 90 days' notice.

Note 6: Share-Based Compensation

Description of Equity Plans

The 2021 Equity Incentive Award Plan (the "2021 Plan") was adopted by the Company's Board of Directors on April 9, 2021 and approved by the Company's Annual Meeting of Shareholders (the "Annual Meeting") on June 11, 2021. The 2021 Plan serves as a successor to the Company's 2011 Equity Incentive Plan (the "2011 Plan"). Since the adoption of the 2021 Plan, all equity awards were made from the 2021 Plan and no additional awards will be granted under the 2011 Plan. The 2021 Plan provides for the issuance of a variety of share-based compensation awards, including stock options, restricted stock awards, restricted stock unit awards, performance awards, dividend equivalents awards, deferred stock awards, stock payment awards and stock appreciation rights. As of April 16, 2021, the 2021 Plan increased the number of shares available for grant by 3,000,000 in addition to the number of shares remaining available for the grant of new awards under the 2011.

As of June 30, 2024, the Company had 5,830,222 stock options outstanding and 117,925 unvested restricted stock units in addition to 2,040,004 shares of common stock available for grant under the 2021 Plan. As of December 31, 2023, there were 5,469,247 stock options outstanding and 243,044 unvested restricted stock units in addition to 2,773,406 shares of common stock available for grant under the 2021 Plan.

Stock Options

Options are granted to purchase common stock at prices that are equal to the fair value of the common stock on the date the option is granted. Vesting is determined by the Board of Directors at the time of grant. The term of any stock option awards under the Company's 2011 Plan and 2021 Plan is ten years, except for certain options granted to the contractors which are either one or three years.

The grant-date fair value of each option grant is estimated using the Black-Scholes option pricing model and amortized on a straight-line basis over the requisite service period, which is generally the vesting period, for each separately vesting portion of the award as if the award was, in substance, multiple awards. Use of a valuation model requires management to make certain assumptions with respect to selected model inputs, including the following.

Risk-free interest rate. The risk-free interest rate is based on U.S. Treasury rates with securities approximating the expected lives of options at the date of grant.

Expected dividend yield. The expected dividend yield is zero, as the Company has never paid dividends to common shareholders and does not currently anticipate paying any in the foreseeable future.

Expected stock price volatility. The expected stock price volatility was calculated based on the Company's own volatility since the DuPont Transaction in 2015. The Company reviews its volatility assumption on an annual basis and has used the Company's historical volatilities since 2016, as the DuPont Transaction resulted in significant changes in the Company's business and capital structure.

Expected life of option. The expected life of option was based on the contractual term of the option and expected employee exercise and post-vesting employment termination behavior. The Company uses the weighted average vesting period and contractual term of the option as the best estimate of the expected life of a new option, except for the options granted to the CEO (i.e., 5 or 10 years) and certain contractors (i.e., 1 or 3 years).

The assumptions used in the Black-Scholes option pricing model for stock options granted for the six months ended June 30, 2024 are as follows:

Risk-Free interest rate	3.93% - 4.61%
Expected dividend yield	—%
Expected stock price volatility	63.31%
Expected life of options (in years)	5.50-6.25

The following table summarizes the stock option activities for the six months ended June 30, 2024:

	Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value
Outstanding at December 31, 2023	5,469,247	$ 3.08	5.66	$ 322,738
Granted (1)	812,600	1.60		
Exercised	(30,000)	1.36		
Expired (2)	(358,500)	2.10		
Canceled (3)	(63,125)	1.59		
Outstanding at June 30, 2024	5,830,222	$ 2.96	5.83	$ 138,360
Exercisable at June 30, 2024	4,430,623	$ 3.20	4.89	$ 109,383

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Notes:

(1) Represents the following options granted:

- Annual share-based compensation awards on January 2, 2024, with an exercise price of $1.59, including: (a) 387,500 stock options granted to executives and key personnel, vesting upon one year anniversary, or annually in equal installments over four years, (b) 352,500 stock options granted to members of the Board of Directors, vesting upon one year anniversary, (c) 17,600 stock options granted to employees, vesting annually in equal installments over four years, and (d)15,000 stock options granted to a consultant, vesting upon one year anniversary.
- One-time awards on April 11, 2024, with an exercise price of $1.84, including 20,000 stock options granted to an executive, vesting annually in equal installments over four years, and 20,000 stock options granted to a member of the Board of Directors, vesting upon one year anniversary.

(2) Represents the following options expired:

(a) 300,000 stock options with an exercise price of $1.87 per share granted to an executive, (b) 25,000 stock options with an exercise price of $1.76 per share granted to a member of the Board of Directors, (c) 7,500 stock options with an exercise price of $5.56 per share granted to a consultant, (d) 25,000 stock options with an exercise price of $4.14 per share granted to a consultant, and (e) 1,000 stock options with an exercise price of $1.55 per share granted to an employee.

(3) Represents the following options canceled:

(a) 50,000 stock options granted to a former Board of Directors, (b) 13,125 stock options granted to the Company's former Chairman of the Board of Directors.

Restricted Stock Units

Restricted stock units (the "RSUs") are granted subject to certain restrictions. Vesting conditions are determined at the discretion of the Board of Directors. The fair market value of RSUs is generally determined based on the closing market price of the stock on the grant date.

The following table summarizes the restricted stock award activity for the six months ended June 30, 2024:

	Shares	Weighted-Average Grant Date Fair Value
Outstanding at December 31, 2023	213,044	$ 1.43
Granted (1)	354,219	1.60
Vested (2)	(437,546)	1.52
Unvested shares forfeited (3)	(11,792)	1.59
Outstanding at June 30, 2024	117,925	$ 1.59

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Notes:

(1) On March 13, 2024, the Company granted 212,709 RSUs with immediate vesting, to executives and key personnel in lieu of cash bonuses earned for the year ended 2023. On January 2, 2024, the Company granted 141,510 RSUs, vesting upon one year anniversary of the grant, to the Board of Directors. The fair value of the common stock is the Company's closing stock price on the grant date as reported on the Nasdaq Stock Exchange.

(2) Represents 212,709 RSUs granted to executives and key personnel, 174,837 RSUs granted to the Board of Directors, and 50,000 RSUs granted to a contractor.

(3) Represents the cancellation of RSUs granted to a former member of the Board of Directors.

Compensation Expenses

We recognize all share-based payments to employees and our Board of Directors, as non-cash compensation expense, in research and development expenses or general and administrative expenses in the consolidated statement of operations, and these charges had no impact on the Company's reported cash flows. Stock-based compensation expense is calculated on the grant date fair values of such awards, and recognized each period based on the value of the portion of share-based payment awards that is ultimately expected to vest during the period. Forfeitures are recorded as they occur. For the three and six months ended June 30, 2024, there were forfeitures of $20,000 and $40,000, respectively.

For performance-based awards, the Company recognizes related stock-based compensation expenses based upon its determination of the potential likelihood of achievement of the specified performance conditions at each reporting date.

Total non-cash share-based compensation expense was allocated among the following expense categories:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2024	2023	2024	2023
General and administrative	$ 285,372	$ 323,796	$ 579,406	$ 643,132
Research and development	12,231	10,520	24,675	21,823
Total	$ 297,603	$ 334,316	$ 604,081	$ 664,955

The following table summarizes the Company's non-cash share-based compensation expense allocation between options and restricted stock units:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2024	2023	2024	2023
Share based compensation expense - stock option	$ 243,538	$ 278,373	$ 433,807	$ 554,914
Share based compensation expense - restricted stock units	54,065	55,943	170,274	110,041
Total	$ 297,603	$ 334,316	$ 604,081	$ 664,955

Note 7: Shareholders' Equity

Issuances of Common Stock

For the six months ended June 30, 2024, there were 666,578 shares of the Company's common stock issued with a weighted average issue price of $1.61 per share, including 223,463 shares from the conversion of the Convertible Notes, 61,793 shares from the vesting of restricted stock units, and 5,569 shares from the exercise of stock options. For the six months ended June 30, 2023, there were 247,961shares of the Company's common stock issued resulting from the vesting of restricted stock units with a weighted average issue price of $1.38 per share.

Treasury Stock

As of June 30, 2024, there were 12,253,502 shares of common stock held in treasury, at a cost of $18.9 million, representing the purchase price on the date the shares were surrendered to the Company.

Note 8: Subsequent Events

For purpose of disclosure in the consolidated financial statements, the Company has evaluated subsequent events through August 13, 2024, the date the consolidated financial statements were available to be issued. Except for items mentioned in the notes, management is not aware of any material events that have occurred after the balance sheet date that would require adjustment to, or disclosure in the accompanying financial statements.

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

The following discussion and analysis of financial condition and results of operations should be read in conjunction with the financial statements and the notes to those statements appearing in this Quarterly Report. Some of the information contained in this discussion and analysis or set forth elsewhere in this Quarterly Report, including information with respect to our plans and strategy for our business, includes forward-looking statements that involve risks, assumptions and uncertainties. Important factors that could cause actual results to differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis include, but are not limited to, those set forth in "Item 1A. Risk Factors" in this Quarterly Report. All forward-looking statements included in this Quarterly Report are based on information available to us as of the time we file this Quarterly Report and, except as required by law, we undertake no obligation to update publicly or revise any forward-looking statements.

Overview

Description of Business

Dyadic International, Inc. ("Dyadic", "we", "us", "our", or the "Company") is a global biotechnology company based in Jupiter, Florida with operations in the United States and a satellite office in the Netherlands, and it utilizes several third-party consultants and research organizations to carry out the Company's activities. Over the past two plus decades, the Company has developed a gene expression platform for producing commercial quantities of industrial enzymes and other proteins, and has previously licensed this technology to third parties, such as Abengoa Bioenergy, BASF, Codexis and others, for use in industrial (non-pharmaceutical) applications. This technology is based on the *Thermothelomyces heterothallica* (formerly known as *Myceliophthora thermophila*) fungus, which the Company named C1.

On December 31, 2015, the Company sold its industrial technology business to Danisco USA ("Danisco"), the industrial biosciences business of DuPont (NYSE: DD) (the "DuPont Transaction"). As part of the DuPont Transaction, Dyadic retained co-exclusive rights to the C1-cell protein production platform for use in all human and animal pharmaceutical applications, and currently the Company has the exclusive ability to enter into sub-license agreements (subject to the terms of the license and to certain exceptions) for use in all human and animal pharmaceutical applications. Danisco retained certain rights to utilize the C1-cell protein production platform in pharmaceutical applications, including the development and production of pharmaceutical products, for which it will be required to make royalty payments to Dyadic upon commercialization. After December 31, 2029, Danisco will have certain rights to sublicense C1 technology to third parties for which the Company will be entitled to receive royalties on such pharmaceutical products for a certain period of time. In certain circumstances, Dyadic may owe a royalty to either Danisco or certain licensors of Danisco, depending upon whether Dyadic elects to utilize certain patents either owned by Danisco or licensed in by Danisco.

After the DuPont Transaction, the Company has been building innovative microbial platforms to address the growing demand for global protein bioproduction and unmet clinical needs for effective, affordable, and accessible biopharmaceutical products for human and animal health and for other biologic products for use in non-pharmaceutical applications.

The C1-cell protein production platform is a robust and versatile thermophilic filamentous fungal expression system for the development and production of biologic products including enzymes and other proteins for human and animal health. Some examples of human and animal vaccines and drugs which have the potential to be produced from C1-cells are protein antigens, ferritin nanoparticles, virus-like particles ("VLPs"), monoclonal antibodies ("mAbs"), Bi/Tri-specific antibodies, Fab antibody fragments, Fc-fusion proteins, as well as other therapeutic enzymes and proteins. The Company is involved in multiple funded research collaborations with animal and human pharmaceutical companies which are designed to leverage its C1-cell protein production platform to develop innovative vaccines and drugs, biosimilars and/or biobetters.

The Company also developed the Dapibus™ thermophilic filamentous fungal based microbial protein production platform to enable the rapid development and large-scale manufacture of low-cost proteins, metabolites, and other biologic products for use in non-pharmaceutical applications, such as food, nutrition, and wellness.

Recent Developments

Alternative Proteins

Non-Food Applications

- On June 28, 2024, the Company announced that it entered into a development and commercialization partnership with Proliant Health and Biologicals ("PHB"), a leading supplier of purified proteins for the diagnostic, nutrition and cell culture markets. According to the terms of the agreement, Dyadic received an initial payment of $500,000 in July 2024. Dyadic will receive a second payment of $500,000 upon the completion of the transfer of a Production Strain (as defined in the agreement), and will receive a final payment of $500,000 upon the meeting of a certain productivity threshold. Dyadic will also receive a share of profits received by PHB from the sale of animal-free recombinant albumin products produced using Dyadic's filamentous fungal microbial platforms. A portion of the upfront milestone payment will be allocated to the technology transfer and commercialization effort. The initial focus of the partnership will be the commercialization of recombinant human serum albumin products, with the anticipated launch of the first product in the first half of 2025.
- The Company has completed its development of the DNASE-1, and a Certificate of Analysis has been issued for the product, which is expected to begin sampling in the third quarter.
- The Company's project to produce recombinant transferrin for use in cell culture media for the alternative protein industry has achieved high titers with additional optimization and analysis ongoing; product samples are expected to be available in the fourth quarter.
- The Company's recombinant bovine albumin was shown in third party application testing to be comparable to animal derived bovine albumin for use as a component of cell culture media to grow animal muscle cells for the cultured meat industry; further development and analyses are ongoing.

Food Applications

- As previously announced, in September 2023, the Company entered into a development and exclusive license agreement to commercialize certain non- animal dairy enzymes used in the production of food products using Dapibus™ and received an upfront payment of $0.6 million in October 2023. The Company believes it has achieved the specified target yield level required for achieving a milestone payment and is in the process of delivering the strain for verification by its partner. The development of a second enzyme is progressing.
- The Company has developed a highly productive strain and is actively sampling recombinant alpha-lactalbumin, a whey protein, and has entered into a joint development agreement with a Top 10 global dairy company for the development of food grade alpha-lactalbumin. Additionally, the Company has ongoing discussions with plans to provide samples to three additional alternative protein companies.
- The Company is sampling recombinant lactoferrin for several interested parties.

Bio Industrial Products

- Dyadic has developed three enzymes, with plans for two additional enzymes, that have the potential for use in multiple industries, such as dairy, nutrition, biogas, biofuels and biorefining. Several initial enzymes are under evaluation with interested parties.

Animal Health

- The Company continued its ongoing development and collaboration with Phibro Animal Health/Abic Biological Laboratories Ltd to develop vaccines and treatments for livestock animal diseases.
- The Company has provided samples of the C1 produced H5 A/Astrakhan 2.3.4.4b recombinant ferritin nanoparticle antigen to multiple parties for evaluation and potential use in poultry and cattle vaccines.
- Initial studies indicate that the adjuvanted C1 produced *H5 A/2.3.3.4.b A/Astrakhan* ferritin nanoparticle antigen has the potential for use as an animal vaccine candidate against the current avian influenza 'Bird Flu' viruses in poultry and cattle.
- Animal studies conducted by ViroVax has demonstrated that the C1 produced H5 A/Astrakhan 2.3.4.4b ferritin nanoparticle vaccine elicits high neutralizing antibodies against the three circulating viruses: (a) H5/Influenza A/Astrakhan/3212/2020, (b) H5/Influenza A /Texas/37/2024, and (c) H5/Influenza A/Dairy Cattle/Texas/24-008749-003/2024.

Human Health

- In April 2024, Dyadic and its development partner ViroVax reported pre-clinical animal testing on an adjuvanted *H5 Clade 2.3.3.4.b A/Astrakhan avian influenza* ferritin nanoparticle 'Bird Flu' human vaccine candidate that demonstrated a strong immune response in rabbits. The potential vaccine combines Dyadic's C1 single step ferritin nanoparticle antigen production with a novel antigen and adjuvant from ViroVax. In the second quarter, the Company presented an overview of a H5N1 'Bird Flu' recombinant protein human vaccine candidate to BARDA Tech Watch, NIH, and to the White House Office of Pandemic Preparedness and Response Policy.
- The Company successfully delivered a C1 produced H1N1 influenza antigen in a fully funded research collaboration with the Vaccine and Immunotherapy Center at Massachusetts General Hospital. The program is focused on expressing vaccine antigens for influenza A and other infectious diseases, as part of a US $5.88 million award granted to Massachusetts General Hospital from the Department of Defense.
- In third party funded programs, the C1 Platform has:
    - successfully expressed multiple infectious disease antigens including HPV, HIV, and multiple RSV antigens;
    - delivered three mAbs for evaluation as neutralizing antibodies for infectious diseases; and
    - two additional mAbs in development, including a top ten pharmaceutical company.

Critical Accounting Estimates

The preparation of these consolidated financial statements in accordance with U.S. generally accepted accounting principles ("GAAP") requires management to make estimates that affect the reported amount of assets and liabilities and related disclosure of contingent assets and liabilities at the date of our consolidated financial statements and the reported amounts of revenues and expenses during the applicable period. Actual results may differ from these estimates under different assumptions or conditions. Such differences could be material to the consolidated financial statements.

We define critical accounting estimates as those that are reflective of significant judgments and uncertainties and which may potentially result in materially different results under different assumptions and conditions. In applying these critical accounting estimates, our management uses its judgment to determine the appropriate assumptions to be used in making certain estimates. These estimates are subject to an inherent degree of uncertainty. Our critical accounting estimates include the following:

Revenue Recognition

The Company has no products approved for sale. All our revenue to date has been research revenue from third-party collaborations and government grants, as well as revenue from sublicensing agreements and collaborative arrangements, which may include upfront payments, options to obtain a license, payment for research and development services, milestone payments and royalties, in the form of cash or non-cash considerations (e.g., minority equity interest).

Revenue related to research collaborations and agreements: The Company typically performs research and development services as specified in each respective agreement on a best-efforts basis, and recognizes revenue from research funding under collaboration agreements in accordance with the 5-step process outlined in ASC Topic 606 ("Topic 606"): (i) identify the contract(s) with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when (or as) the entity satisfies a performance obligation. We recognize revenue when we satisfy a performance obligation by transferring control of the service to a customer in an amount that reflects the consideration that we expect to receive. Depending on how the performance obligation under our license and collaboration agreements is satisfied, we recognize the revenue either at a point in time or over time by using the input method under Topic 606 to measure the progress toward complete satisfaction of a performance obligation.

Under the input method, revenue will be recognized based on the entity's efforts or inputs to the satisfaction of a performance obligation (e.g., resources consumed, labor hours expended, costs incurred, or time elapsed) relative to the total expected inputs to the satisfaction of that performance obligation. The Company believes that the cost-based input method is the best measure of progress to reflect how the Company transfers its performance obligation to a customer. In applying the cost-based input method of revenue recognition, the Company uses actual costs incurred relative to budgeted costs to fulfill the performance obligation. These costs consist primarily of full-time equivalent effort and third-party contract costs. Revenue will be recognized based on actual costs incurred as a percentage of total budgeted costs as the Company completes its performance obligations.

A cost-based input method of revenue recognition requires management to make estimates of costs to complete the Company's performance obligations. In making such estimates, significant judgment is required to evaluate assumptions related to cost estimates. The cumulative effect of revisions to estimated costs to complete the Company's performance obligations will be recorded in the period in which changes are identified and amounts can be reasonably estimated. A significant change in these assumptions and estimates could have a material impact on the timing and amount of revenue recognized in future periods.

Revenue related to grants: The Company may receive grants from governments, agencies, and other private and not-for-profit organizations. These grants are intended to be used to fund the Company's research collaborations partially or fully, including opportunities arising in connection with COVID-19 that the Company is pursuing with certain collaborators. However, most, if not all, of such potential grant revenues, if received, is expected to be earmarked for third parties to advance the research required, including preclinical and clinical trials for SARS-CoV-2 vaccines and/or antibodies candidates.

Revenue related to sublicensing agreements: If the sublicense to the Company's intellectual property is determined to be distinct from the other performance obligations identified in the arrangement, the Company recognizes revenue allocated to the license when technology is transferred to the customer and the customer can use and benefit from the license.

Customer options: If the sublicensing agreement includes customer options to purchase additional goods or services, the Company will evaluate if such options are considered material rights to be deemed as separate performance obligations at the inception of each arrangement.

Milestone payments: At the inception of each arrangement that includes development, commercialization, and regulatory milestone payments, the Company evaluates whether the achievement of the milestones is considered probable and estimates the amount to be included in the transaction price. If the milestone payment is in exchange for a sublicense and is based on the sublicensee's subsequent sale of product, the Company recognizes milestone payment by applying the accounting guidance for royalties. To date, the Company has not recognized any milestone payment revenue resulting from any of its sublicensing arrangements.

Royalties: With respect to licenses deemed to be the predominant item to which the sales-based royalties relate, including milestone payments based on the level of sales, the Company recognizes revenue at the later of (i) when the related sales occur or (ii) when the performance obligation to which some or all the royalty has been allocated has been satisfied (or partially satisfied). To date, the Company has not recognized any royalty revenue resulting from any of its sublicensing arrangements.

We invoice customers based on our contractual arrangements with each customer, which may not be consistent with the period that revenues are recognized. When there is a timing difference between when we invoice customers and when revenues are recognized, we record either a contract asset (unbilled accounts receivable) or a contract liability (deferred research and development obligations), as appropriate. If upfront fees or considerations related to sublicensing agreement are received prior to the technology transfer, the Company will record the amount received as deferred revenue from licensing agreement.

We are not required to disclose the value of unsatisfied performance obligations for (i) contracts with an original expected length of one year or less and (ii) contracts for which we recognize revenue at the amount to which we have the right to invoice for services performed.

The Company adopted a practical expedient to expense sales commissions when incurred because the amortization period would be one year or less.

Accrued Research and Development Expenses

In order to properly record services that have been rendered but not yet billed to the Company, we review open contracts and purchase orders, communicate with our personnel and we estimate the level of service performed and the associated cost incurred for the service when we have not yet been invoiced or otherwise notified of the actual cost. The majority of our service providers invoice us monthly or quarterly in arrears for services performed or when contractual milestones are met. We make estimates of our accrued expenses as of each balance sheet date in our consolidated financial statements based on facts and circumstances known to us at that time. We periodically confirm the accuracy of our estimates with the service providers and adjust if necessary. Examples of accrued research and development expenses include amounts owed to contract research organizations, to service providers in connection with research and development activities.

Stock-Based Compensation

We have granted stock options to employees, directors, and consultants. The fair value of each option award is estimated on the date of grant using the Black-Scholes option-pricing model. The Black-Scholes model considers volatility in the price of our stock, the risk-free interest rate, the estimated life of the option, the closing market price of our stock and the exercise price. For purposes of the calculation, we assumed that no dividends would be paid during the life of the options. We also used the weighted-average vesting period and contractual term of the option as the best estimate of the expected life of a new option, except for the options granted to the CEO (i.e., 5 or 10 years) and certain contractors (i.e., 1 or 3 years). The expected stock price volatility was calculated based on the Company's own volatility since the DuPont Transaction. The Company reviews its volatility assumption on an annual basis and has used the Company's historical volatilities since 2016, as the DuPont Transaction resulted in significant changes in the Company's business and capital structure.

The estimates utilized in the Black-Scholes calculation involve inherent uncertainties and the application of management judgment. These estimates are neither predictive nor indicative of the future performance of our stock. As a result, if other assumptions had been used, our recorded share-based compensation expense could have been materially different from that reported. In addition, because some of the performance-based options issued to employees, consultants, and other third-parties vest upon the achievement of certain milestones, the total ultimate expense of share-based compensation is uncertain.

Accounting for Income Taxes

The Company accounts for income taxes under the asset and liability method in accordance with ASC Topic 740, "Income Taxes". Under this method, income tax expense /(benefit) is recognized for: (i) taxes payable or refundable for the current year and (ii) deferred tax consequences of temporary differences resulting from matters that have been recognized in an entity's financial statements or tax returns. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in the results of operations in the period that includes the enactment date. A valuation allowance is provided to reduce the deferred tax assets reported if based on the weight of the available positive and negative evidence, it is more likely than not some portion or all the deferred tax assets will not be realized.

In determining taxable income for the Company's consolidated financial statements, we are required to estimate income taxes in each of the jurisdictions in which we operate. This process requires the Company to make certain estimates of our actual current tax exposure and assessment of temporary differences between the tax and financial statement recognition of revenue and expense. In evaluating the Company's ability to recover its deferred tax assets, the Company must consider all available positive and negative evidence including its past operating results, the existence of cumulative losses in the most recent years and its forecast of future taxable income. Significant management judgment is required in determining our provision for income taxes, deferred tax assets and liabilities and any valuation allowance recorded against our net deferred tax assets.

The Company is required to evaluate the provisions of ASC 740 related to the accounting for uncertainty in income taxes recognized in a company's financial statements. ASC 740 prescribes a comprehensive model for how a company should recognize, present, and disclose uncertain positions that the company has taken or expects to take in its tax return. For those benefits to be recognized, a tax position must be more-likely-than-not to be sustained upon examination by taxing authorities. Differences between tax positions taken or expected to be taken in a tax return and the net benefit recognized and measured pursuant to the interpretation are referred to as "unrecognized benefits." A liability should be recognized (or amount of net operating loss carry forward or amount of tax refundable is reduced) for unrecognized tax benefits, because it represents a company's potential future obligation to the taxing authority for a tax position that was not recognized because of applying the provision of ASC 740.

The Company classifies accrued interest and penalties related to its tax positions as a component of income tax expense. The Company currently is not subject to U.S. federal, state, and local tax examinations by tax authorities for the years before 2017.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements.

Recent Accounting Pronouncements

See Note 1 to the Consolidated Financial Statements for information about recent accounting pronouncements.

Results of Operations

Three and Six Months Ended June 30, 2024 Compared to the Same Periods in 2023

Revenue and Cost of Research and Development Revenue

The following table summarizes the Company's revenue and cost of research and development revenue for the three and six months ended June 30, 2024 and 2023:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2024	2023	2024	2023
Research and development revenue	$ 385,896	$ 793,042	$ 720,513	$ 1,726,976
License revenue	—	44,117	—	88,235
Cost of research and development revenue	301,956	792,944	445,911	1,519,862

For the three and six months ended June 30, 2024, the decrease in research and development revenue and cost of research and development revenue was due to the winding down of several large research collaborations conducted in 2023. For the three months ended June 30, 2024, the Company's revenue was generated from ten collaborations compared to eight collaborations for the same period a year ago. For the six months ended June 30, 2024, the decrease in research and development revenue and cost of research and development revenue was due to the winding down of several large research collaborations conducted in 2023. For the six months ended June 30, 2024, the Company's revenue was generated from thirteen collaborations compared to eight collaborations for the same period a year ago.

The license revenue for the three and six months ended June 30, 2023, was related to the Janssen license agreement, which was completed in December 2023.

Research and Development Expenses

Research and development costs are expensed as incurred and include salary and benefits of research personnel, third-party contract research organization services and supply costs.

Research and development expenses for the three months ended June 30, 2024, decreased to $516,000 compared to $918,000 for the same period a year ago. The decrease reflected the winding down of activities related to the Company's Phase 1 clinical trial of DYAI-100 COVID-19 vaccine candidate as patient dosing was completed in February 2023 and a decrease in the amount of ongoing internal research projects.

Research and development expenses for the six months ended June 30, 2024, decreased to $1,038,000 compared to $1,728,000 for the same period a year ago. The decrease reflected the winding down of activities related to the Company's Phase 1 clinical trial of DYAI-100 COVID-19 vaccine candidate as patient dosing was completed in February 2023 and a decrease in the amount of ongoing internal research projects.

General and Administrative Expenses

General and administrative expenses for the three months ended June 30, 2024, increased by 14.6% to $1,608,000 compared to $1,403,000 for the same period a year ago. The increase reflected increases in share-based compensation expenses of $84,000, legal expenses of $81,000, business development and investor relations expenses of $60,000, and other increases of $22,000, offset by decreases in management incentives of $36,000, and insurance expenses of $6,000.

General and administrative expenses for the six months ended June 30, 2024, increased by 17.8% to $3,396,000 compared to $2,883,000 for the same period a year ago. The increase reflected increases in business development and investor relations expenses of $296,000, share-based compensation expenses of $87,000, legal expenses of $64,000, management incentives of $19,000, and other increases of $82,000, offset by decrease in insurance expenses of $35,000.

Loss from Operations

Loss from operations for the three months ended June 30, 2024 , decreased to $2,043,000 , compared to $ 2,290,000 for the same period a year ago. The decrease in loss from operations was due to a decrease in research and development expenses of $402,000, partially offset by an increase in general and administrative expenses of $205,000.

Loss from operations for the six months ended June 30, 2024 , decreased to $ 4,168,000 , compared to $ 4,341,000 for the same period a year ago. The decrease in loss from operations was due to a decrease in research and development expenses of $690,000, partially offset by an increase in general and administrative expenses of $514,000.

Other Income (Expenses), Net

For the three months ended June 30, 2024, total other income (expenses), net, was an expense of $3,000 compared to an income of $137,000 for the same period a year ago. The decrease in other income was due to interest expenses related to the Convertible Notes in 2024.

For the six months ended June 30, 2024, total other income (expenses), net, was $113,000 compared to $1,232,000 for the same period a year ago. The decrease in other income was due to the gain on sale of the Company’s equity interest in Alphazyme, LLC of $1,018,000 in 2023, and interest expenses related to the Convertible Notes in 2024.

Net Loss

Net loss for the three months ended June 30, 2024, was $2,045,000 compared to $2,153,000 for the same period a year ago. The decrease in net loss was due to a decrease in research and development expenses of $402,000, partially offset by increases in general and administrative expenses of $205,000 and interest expenses of $141,000 in 2024.

Net loss for the six months ended June 30, 2024, was $4,055,000 compared to $3,109,000 for the same period a year ago. The decrease in net loss was due to a decrease in the gain on sale of the Company’s equity interest in Alphazyme LLC of $957,000 and research and development expenses of $690,000, partially offset by increases in general and administrative expenses of $514,000 and interest expenses of $174,000.

Liquidity and Capital Resources

The Company expects to incur losses and have negative net cash flows from operating activities as it continues developing its microbial platforms and related products, and as it expands its pipelines and engages in further research and development activities for internal products as well as for its third-party collaborators and licensees. The success of the Company depends on its ability to develop its technologies and products to the point of regulatory approval and subsequent revenue generation or through the sublicensing of the Company’s technologies and products, and its ability to raise capital to finance these developmental efforts.

On March 8, 2024, the Company issued an aggregate principal amount of $6.0 million of its 8.0% Senior Secured Convertible Promissory Notes due March 8, 2027 (the "Convertible Notes”) in a private placement in reliance on the exemption from registration provided by Section 4(a)(2) of the Securities Act of 1933, as amended (the "Securities Act”). The purchasers of the Convertible Notes include immediate family members and family trusts related to Mark Emalfarb, our President and Chief Executive Officer and a member of our Board of Directors, including The Francisco Trust, an existing holder of more than 5% of the Company’s outstanding common stock, (collectively, the "Purchasers”). The net proceeds from the sale of the Convertible Notes, after deducting offering expenses, is $5,824,000. The Company intends to use the net proceeds from the offering of the Convertible Notes for working capital and general corporate purposes. This private placement funding is expected to support our near-term revenue growth and accelerate our strategic objective of commercialization opportunities for pharmaceutical and non-pharmaceutical applications.

The Convertible Notes are senior, secured obligations of Dyadic and its affiliates, and interest is payable quarterly in cash on the principal amount equal to 8% per annum. The Convertible Notes will mature on March 8, 2027 (the "Maturity Date”), unless earlier converted, repurchased, or redeemed in accordance with the terms of the Convertible Notes.

The Convertible Notes can be converted into shares of Dyadic's Class A common stock (the "Common Stock"), at the option of the holders of the Convertible Notes (the "Noteholders") at any time prior to the Maturity Date. The conversion price is $1.79 per share of the Common Stock, which is equal to 125% of the trailing 30-day VWAP of the Common Stock ending on the trading day immediately preceding the date of the securities purchase agreement. As of June 30, 2024, $400,000 of the Convertible Notes were converted into 223.463 shares of Common Stock. For more information regarding the Convertible Notes, see Note 4 to the Consolidated Financial Statements.

The Company expects its existing cash and cash equivalents and cash raised from the Convertible Notes, investments in debt securities, and operating cash flows from its existing and future license agreement(s) will be sufficient to meet its operational, business, and other liquidity requirements for at least the next twelve (12) months from the date of issuance of the financial statements contained in this Quarterly Report. However, the Company has based this estimate on assumptions that may prove to be wrong, and its operating plan may change as a result of many factors currently unknown to it. In the event our financing needs are not able to be met by our existing cash, cash equivalents and investments, we would seek to raise additional capital through strategic financial opportunities that could include, but are not limited to, future public or private equity offerings, collaboration agreements, and/or other means. Any amounts raised may be used for the further development and commercialization of product candidates, and for other working capital purposes. There is no guarantee that any of these strategic or financing opportunities will be executed or realized on favorable terms, if at all, and some could be dilutive to existing shareholders.

As of June 30, 2024, cash and cash equivalents were $6.1 million compared to $6.5 million as of December 31, 2023. The carrying value of investment grade securities, including accrued interest as of June 30, 2024, was $4.0 million compared to $0.8 million as of December 31, 2023.

Net cash used in operating activities for the six months ended June 30, 2024 was $3.1 million, which was principally attributable to a net loss of $4.0 million, partially offset by changes in operating assets and liabilities of $0.4 million and share-based compensation expenses of $0.6 million.

Net cash used in operating activities for the six months ended June 30, 2023, was $3.8 million, which was principally attributable to a net loss of $3.1 million, gain from the sale of investment in Alphazyme, LLC of approximately $1.0 million, and changes in operating assets and liabilities of $0.4 million, partially offset by share-based compensation expenses of approximately $0.7 million.

Net cash used in investing activities for the six months ended June 30, 2024 was $3.1 million, compared to a net cash provided by investing activities of $3.8 for the six months ended June 30, 2023. The increase in net cash used in investing activities was attributable to additional purchases of investment securities of $2.7 million, decreases in proceeds received from maturities of investment securities of $3.1 million, and proceeds from the sale of investment in Alphazyme of $1.3 million.

Net cash provided by financing activities for the six months ended June 30, 2024 was $5.8 million, which was related to net proceeds from issuance of convertible notes. For the six months ended June 30, 2023, there were no cash flows from financing activities.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

We are a smaller reporting company as defined by Rule 12b-2 of the Exchange Act and are not required to provide the information required under this item.

Item 4. Controls and procedures

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and our Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of the end of the period covered by this report. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended, or the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC rules and forms. Based on the evaluation of our disclosure controls and procedures as of the end of the period covered by this report, our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective.

Changes in Internal Controls Over Financial Reporting

There were no changes in our internal control over financial reporting identified in connection with the evaluation required by Rules 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during the three months ended June 30, 2024, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitation on Effectiveness of Controls

A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within our Company have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur because of a simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the controls. The design of any system of controls is also based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, controls may become inadequate because of changes in conditions, or the degree of compliance with policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

PART II

Item 1. Legal Proceedings

We are not currently involved in any litigation that we believe could have a materially adverse effect in our financial condition or results of operations. From time to time, we may become involved in various lawsuits and legal proceedings which arise in the ordinary course of business. Litigation is subject to inherent uncertainties, and an adverse result in these or other matters may arise from time to time that may harm our business. See Note 5 to the Consolidated Financial Statements for commitments and contingencies.

Item 1A. Risk Factors

There have been no changes to our risk factors from those disclosed in our Annual Report for the 2023 fiscal year filed on March 28, 2024.

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

None.

Item 3. Defaults Upon Senior Securities

Not applicable.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

(a) None.

(b) None.

(c) During the quarter ended June 30, 2024, the following individuals adopted Rule 10b5-1 trading arrangements, which are intended to satisfy the affirmative defense of Rule 10b5-1(c) under the Exchange Act: our President and Chief Executive Officer Mark Emalfarb (adopted on June 4, 2024); our director Jack Kaye (adopted on June 6, 2024); our Vice President of Research and Business Development Ronen Tchelet (adopted on June 7, 2024); and our Chief Financial Officer Ping Wang Rawson (adopted on June 12, 2024). Each trading arrangement includes the potential sale of up to a specified number of shares of our common stock owned by the applicable individual (for Mr. Emalfarb, 1 million; for Mr. Kaye, 292,367; for Mr. Tchelet, 250,000; and for Ms. Rawson, 282,485), and expires on a specified date (for Mr. Emalfarb, December 31, 2026; for Mr. Kaye, June 2, 2026; for Mr. Tchelet, June 10, 2025; and for Ms. Rawson, June 12, 2026), unless earlier terminated in accordance with the provisions of the arrangement.

Except as described above, for the quarter ended June 30, 2024, none of our directors or officers (as defined in Section 16 of the Exchange Act) adopted or terminated a "Rule 10b5-1 trading arrangement" or a "non-Rule 10b5-1 trading arrangement" (each as defined in Item 408(a) and (c), respectively, of Regulation S-K).

Item 6. Exhibits

The following Exhibits are filed as part of this report pursuant to Item 601 of Regulation S-K:

		Incorporated by Reference			
Exhibit No.	Description of Exhibit	Form	Original No.	Date Filed	Filed Herewith
3.1	Restated Certificate of Incorporation dated November 1, 2004	10-12G	3.1	January 14, 2019	
3.2	Third Amended and Restated Bylaws dated March 28, 2023	8-K	3.1	March 29, 2023	
10.1	License and Development Agreement between Dyadic International (USA), Inc. and Proliant Biologicals, LLC d/b/a Proliant Health and Biologicals, dated June 27, 2024(1)	8-K	10.1	July 2, 2024	
31.1	Certification of Principal Executive Officer of Dyadic Pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002				x
31.2	Certification of Principal Financial Officer of Dyadic Pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002				x
32.1	Certification of Principal Executive Officer of Dyadic Pursuant to 18 U.S.C Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (2)				
32.2	Certification of Principal Financial Officer of Dyadic Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (2)				
101.INS	Inline XBRL Instance Document				
101.SCH	Inline XBRL Taxonomy Extension Schema Document				
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document				
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document				
101.LAB	Inline XBRL Taxonomy Extension Labels Linkbase Document				
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document				
104	Cover Page Interactive Data File (embedded within the Inline XBRL and contained in Exhibit 101)				

(1) Portions of this exhibit have been omitted pursuant to Item 601(b)(10) of Regulation S-K.
(2) Furnished 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.

DYADIC INTERNATIONAL, INC.

August 13, 2024 By: /s/ Mark A. Emalfarb
Mark A. Emalfarb
President and Chief Executive Officer
(Principal Executive Officer)

August 13, 2024 By: /s/ Ping W. Rawson
Ping W. Rawson
Chief Financial Officer
(Principal Financial Officer and Principal Accounting Officer)

Exhibit 31.1

Certification of Principal Executive Officer
Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
and Securities and Exchange Commission Release 34-46427

I, Mark A. Emalfarb, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Dyadic International, 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 and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and we have:

    a. designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
    b. designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
    c. evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
    d. disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer 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: August 13, 2024
By: /s/ Mark A. Emalfarb

Name: Mark A. Emalfarb
Title: Chief Executive Officer

Exhibit 31.2

Certification of Principal Executive Officer
Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
and Securities and Exchange Commission Release 34-46427

I, Ping W. Rawson, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Dyadic International, 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 and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and we have:

    a. designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
    b. designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
    c. evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
    d. disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer 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: August 13, 2024
By: /s/ Ping W. Rawson

Name: Ping W. Rawson
Title: Chief Financial Officer

Exhibit 32.1

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

In connection with the Quarterly Report of Dyadic International, Inc. (the "Company") on Form 10-Q for the quarter ended June 30, 2024 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Mark A. Emalfarb, certify, pursuant to 18 U.S.C. ss. 1350, as adopted pursuant to ss. 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; 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: August 13, 2024
By: /s/ Mark A. Emalfarb

Name: Mark A. Emalfarb
Title: Chief Executive Officer

Exhibit 32.2

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

In connection with the Quarterly Report of Dyadic International, Inc. (the "Company") on Form 10-Q for the quarter ended June 30, 2024 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Ping W. Rawson, certify, pursuant to 18 U.S.C. ss. 1350, as adopted pursuant to ss. 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; 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: August 13, 2024
By: /s/ Ping W. Rawson

Name: Ping W. Rawson
Title: Chief Financial Officer