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

FORM 10-K

X **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the fiscal year ended December 31, 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)

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

Securities registered pursuant to Section 12(g) of the Act: None.

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No X

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No X

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 has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. Yes ☐ No X

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to § 240.10D-1(b). ☐

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

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant (20,592,720 shares) computed by reference to the closing price of $1.48 as reported on the NASDAQ Stock Market on June 28, 2024 (the last business day of the registrant's most recently completed second fiscal quarter) was approximately $30,477,226. Shares of the registrant's common stock held by executive officers, directors, and other affiliates have been excluded from this calculation. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

As of March 26, 2025, the registrant had 30,090,661 shares of common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

The information required by Part III of this Report, to the extent not set forth herein, is incorporated in this Report by reference to the Registrant's definitive proxy statement relating to the 2025 annual meeting of shareholders. The definitive proxy statement will be filed with the Securities and Exchange Commission within 120 days after the end of the 2024 fiscal year.

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS AND RISK FACTOR SUMMARY

Information (other than historical facts) set forth in this Annual Report on Form 10-K (the "Annual Report" or the "Form 10-K") contains forward-looking statements within the meaning of the Federal securities laws, which involve many risks and uncertainties that could cause our actual results to differ materially from those reflected in the forward-looking statements. 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. Such forward-looking statements are included under Item 7 "Management's Discussion and Analysis". 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, the items in the following list, which also summarizes some of our more principal risks:

Risks Related to Our Business and Financial Condition

- We may not succeed in implementing our business strategy.
- We have a history of net losses, and we may not achieve or maintain profitability.
- We may expend our resources to pursue particular product candidates and fail to capitalize on product candidates that may be more profitable or for which there is a greater likelihood of success.
- We could fail to manage our growth.
- Our revenue growth depends in part on market and regulatory acceptance of our microbial protein production platforms and other technologies to develop and manufacture animal and/or human biopharmaceutical products and non-pharmaceutical products.
- We may fail to commercialize our microbial protein production platforms or our other technologies for the expression of therapeutic proteins, antibodies, vaccines, and metabolites or other non-pharmaceutical biologic products.
- If our competitors develop technologies and products more quickly and market more effectively than our product candidates, our commercial opportunity will be reduced or eliminated.
- Alternative technologies may not require microbial or other cell produced proteins, such as our proprietary C1 cells and Dapibus™.
- The results of nonclinical studies and early-stage clinical trials may not be predictive of future results.
- We may need substantial additional capital in the future to fund our business.
- Changes in global economic and financial markets may have a negative effect on our business.
- We face risks related to widespread outbreaks of contagious disease or other biological threats, any of which could significantly disrupt our operations and have a material adverse effect on our business, employees, directors, consultants, collaborators and other third parties, including business development activities and research and development projects conducted by third party contract research organizations parties.
- Our sales and operations are subject to the risks of doing business internationally.
- If we lose key personnel, including key management or board members, or are unable to attract and retain additional personnel, it could delay our technology and product development programs and harm our R&D efforts, and we may be unable to pursue research funding, licenses and other forms of collaborations or develop our own products.
- Our product candidates may cause undesirable and unforeseen side effects or have other properties impacting safety that could halt their clinical development, delay or prevent their regulatory approval, limit their commercial potential or result in significant negative consequences.

- We may be sued for product liability.
- Foreign currency fluctuations could adversely affect our results.
- Our ability to use our net operating loss carryforwards to offset future taxable income may be subject to certain limitations.
- We may make acquisitions, investments and strategic alliances that may use significant resources, result in disruptions to our business or distractions of our management, may not proceed as planned, and could expose us to unforeseen liabilities.
- We rely significantly on information technology, including artificial intelligence and machine learning, and any failure, inadequacy, interruption or security lapse of that technology, including any cybersecurity incidents, could harm our ability to operate our business effectively.
- Information technology system failures, network disruptions or cyber security breaches could adversely affect our business.
- The use of new and evolving technologies, such as artificial intelligence ("AI"), in our business may result in reputational harm, competitive harm or legal liability.
- Changes to our outsourced software or infrastructure vendors as well as any sudden loss, breach of security, disruption or unexpected data or vendor loss associated with our information technology systems could have a material adverse effect on our business.

Risks Related to Dependence on Third Parties

- We are dependent on collaborations with third parties, and if we fail to maintain or successfully manage existing, or enter into new, strategic collaborations, we may not be able to develop and commercialize many of our technologies and products and achieve profitability.
- We have limited or no control over the resources that any collaborator or licensee may devote to our programs, and reductions in collaborators' R&D budgets may affect our businesses.
- We heavily rely on contracts with third-party contract research organizations ("CROs") and other third-party service providers to conduct our research and development, pre-clinical, CMC (Chemistry, Manufacturing, and Controls) and cGMP (current Good Manufacturing Practices) manufacturing, fill and finish, and potential clinical trials, which may not be available to the Company on commercially reasonable terms or at all.
- Conflicts with the CROs, other service providers, collaborators and/or licensees could harm our business.
- We rely on our collaborators and other third parties to deliver timely and accurate information in order to accurately report our financial results as required by law.
- Changes to our outsourced software or infrastructure vendors as well as any sudden loss, breach of security, disruption or unexpected data or vendor loss associated with our information technology systems could have a material adverse effect on our business.

Risks Related to Government Regulations and Environmental, Social, and Governance Issues

- Potential future regulations limiting our ability to sell genetically engineered products could harm our business.
- Our employees and independent contractors, including principal investigators, CROs, consultants and vendors, may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements.
- Public views on ethical and social issues may limit use of our technologies.
- Our results of operations may be adversely affected by environmental, health and safety laws, regulations and liabilities.
- Increasing scrutiny and changing expectations from customers, regulators, investors, and other stakeholders with respect to our environmental, social and governance practices may impose additional costs on us or expose us to new or additional risks.
- We have no experience submitting applications to the FDA or similar regulatory authorities in the past and may not be able to obtain regulatory approval or may be subject to lengthy and/or unfavorable regulatory proceedings.

Risks Relating to Intellectual Property

- Failure to protect our intellectual property and the intellectual property of certain third parties could harm our competitive position.
- Litigation or other proceedings or third-party claims of intellectual property infringement could require us to spend significant time and resources and could prevent us and our collaborators from commercializing our or their technologies and products or negatively impact our stock price.
- Confidentiality agreements with employees and others may not adequately prevent disclosures of trade secrets and other proprietary information.

Risks Related to Our Common Stock

- The price of our shares of common stock is likely to be volatile, and you could lose all or part of your investment.
- Our quarterly and annual operating results may be volatile.
- We do not expect to pay cash dividends in the future.
- Our anti-takeover defense provisions may deter potential acquirers and depress our stock price.
- Concentration of ownership among our existing officers, directors and principal stockholders may prevent other stockholders from influencing significant corporate decisions and depress our stock price.
- Future resales of shares of our common stock may negatively affect our stock price.
- The Company is exposed to credit risk and fluctuations in the values of its investment portfolio.
- We are a smaller reporting company, and the reduced disclosure requirements applicable to smaller reporting companies may make our common stock less attractive to investors.
- If securities or industry analysts do not publish research or reports about our business, or if they issue adverse or misleading research or reports regarding us, our business or our market, our stock price and trading volume could decline.

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. These statements are only predictions based upon our current expectations and projections about future events. There are important factors that could cause our actual results, level of activity, performance or achievements to differ materially from the results, level of activity, performance or achievements expressed or implied by the forward-looking statements. New risks emerge from time to time and it is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. Before investing in our common stock, investors should carefully read the information set forth under the caption "Item 1A. Risk Factors" and elsewhere in this Annual Report which could have a material adverse effect on our business, results of operations and financial condition.

You should not rely upon forward-looking statements as predictions of future events. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee that the future results, levels of activity, performance and events and circumstances reflected in the forward-looking statements will be achieved or occur. Except as required by law, we undertake no obligation to publicly update any forward-looking statements for any reason after the date of this Annual Report to conform these statements to actual results or to changes in our expectations.

We qualify all our forward-looking statements by these cautionary statements. In addition, with respect to all our forward-looking statements, we claim the protection of the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995.

PART I

Item 1. Business

Overview

Dyadic International, Inc. ("Dyadic", "we", "us", "our", or the "Company") is a global biotechnology platform 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 contract research organizations to carry out the Company's activities. Over the past two plus decades, the Company developed a gene expression platform for producing commercial quantities of industrial enzymes and other proteins, and 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.

For the past nine years since the Company sold its industrial technology business to Danisco USA ("Danisco"), the industrial biosciences business of DuPont (NYSE: DD) (the "DuPont Transaction"), the Company has been focused on building innovative microbial protein production 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. As part of the DuPont Transaction, Dyadic retained co-exclusive rights to its proprietary and patented C1 protein production platform (the "C1 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 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. 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 in licensed by Danisco.

After the DuPont Transaction, the Company has directed its efforts toward advancing the C1 platform to address the increasing global demand for the development and manufacturing of prophylactic and therapeutic biopharmaceuticals for human and animal health. The Company's biopharmaceutical development efforts have been centered on enhancing the capability of the C1 platform to produce stable, properly folded, and functional proteins for pharmaceutical applications, including vaccines and monoclonal antibodies. In addition to improving the quality and productivity of the C1 platform, the Company has sought to validate its platform for human use through a series of fully funded biopharmaceutical projects, extensive animal studies utilizing C1-produced proteins, and in 2024, the successful completion of a Phase 1 first-in-human study for a vaccine antigen produced using C1, which demonstrated its safety for human applications.

Recognizing the longer development timelines, clinical testing, and regulatory requirements associated with human and animal pharmaceutical products, the Company has refined its core business strategy to expand into recombinant (non-animal derived) alternative proteins for non-pharmaceutical applications in research, nutrition, and industrial markets. To address these opportunities, the Company has developed and launched the Dapibus™ Protein Production Platform ("Dapibus™"), which supports various applications within the alternative proteins field, namely in Life Sciences, Food & Nutrition, and Bioindustrial applications. Given the reduced developmental costs, shorter timelines, and fewer regulatory requirements associated with alternative proteins, Dapibus™ has enabled the Company to generate near-term recurring revenue while continuing to build long-term value through C1 for pharmaceutical applications. The Company anticipates achieving commercialization of certain alternative protein products in 2025 through a combination of existing collaborations and internal manufacturing efforts.

Dyadic Protein Production Technology

The Company is focused on utilizing its proprietary, highly productive, and scalable microbial fungal protein production platforms C1 and Dapibus™ to address the increasing global demand for non-animal-derived proteins in both pharmaceutical and non-pharmaceutical applications. By applying its industrially validated, efficient, and cost-effective bioproduction technology to high-value markets such as human therapeutics and alternative food and nutrition, the Company aims to facilitate the rapid development and large-scale manufacturing of proteins, enzymes, and other biologic products. Through targeting key products within its core business segments, the Company seeks to address global health and nutrition challenges by providing innovative, accessible, and economically viable solutions.

C1 is a versatile thermophilic filamentous fungal expression system customized for the development and production of biologic products including enzymes and other proteins for human and animal health that may offer potential competitive advantages compared to certain other legacy biopharmaceutical expression systems in the discovery, development, and cost-effective manufacturing of biologic medicines and vaccines. Potential applications to be produced from C1 include 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 participates in multiple funded research collaborations with certain leading animal and human pharmaceutical companies. These partnerships are strategically engaged to leverage the potential of C1 in the development of innovative vaccines and drugs, as well as biosimilars and/or biobetters, which we believe will contribute to advancements in medical science and healthcare.

The Company believes C1 possesses unique characteristics that distinguish it from conventional filamentous fungal cells. C1 offers potential competitive advantages in the discovery, development, and manufacturing of biologic medicines and vaccines compared to certain legacy biopharmaceutical expression systems. It allows for streamlined purification processes, retaining target secreted proteins efficiently through downstream processing without the need for viral (e.g., CHO (Chinese Hamster Ovary) and Baculovirus) or endotoxin (e.g., E. coli) removal. The platform also demonstrates high productivity, thriving under robust and versatile growth conditions while yielding large amounts of secreted protein with low viscosity due to C1's unique morphology. Its robustness has been proven across scales, from laboratory microtiter plates and shaker flasks to single-use and stainless-steel microbial fermenters, producing stable, correctly folded mAbs with properties comparable to CHO-produced mAbs.

Dapibus™ holds similar promise for cost-effective production of traditionally costly recombinant and animal derived proteins and enzymes such as serum albumin and dairy proteins. Dapibus™ is designed to enable the rapid development and large-scale manufacture of cost-effective enzymes, proteins, metabolites, and other biologic products for non-pharmaceutical applications, including food, nutrition, and wellness. This platform enables streamlined purification processes, ensuring strong retention of the target secreted protein through downstream processing, with no requirement for endotoxin (e.g., E. coli) removal. It also boasts high productivity, supporting robust and versatile growth conditions that yield large amounts of secreted protein, while its unique morphology maintains low viscosity at large scales. Additionally, Dapibus™ demonstrates exceptional robustness, with proven scalability from laboratory microtiter plates and shaker flasks to single-use and industrial-scale stainless-steel microbial bioreactors. Furthermore, it enables the production of glycosylated proteins, expanding its versatility for various biologic applications.

The Company believes that C1 and Dapibus™, have significant potential to become an alternative to several traditional production technologies currently used in pharmaceutical and non-pharmaceutical applications to produce antigens for use in vaccines, monoclonal antibodies, therapeutic proteins, reagents, food, and nutritional proteins The Company's platforms have some inherent benefits and potential competitive advantages compared to CHO cells, *E. coli*, *Pichia pastoris*, and Insect Cells (i.e., Baculovirus) as discussed below:

- Mammalian cells: Currently the preferred production host for most complex protein therapeutics due mainly to their ability to produce proteins with human-like glycosylation and regulatory acceptance. This market is dominated by CHO cells. Disadvantages include the longer duration required for cell line development, fermentation, and increased costs associated with production media and longer and more costly downstream processing steps.

- Bacterial: Bacteria such as *E. coli* are currently an easy, inexpensive, and rapid method for recombinant protein expression often used in laboratory settings as well as commercial production of certain non-glycosylated proteins. However, bacterial platforms produce toxic and pyrogenic cell wall components that may make them less suitable for the production of biopharmaceuticals or other alternative proteins. Moreover, insoluble expression, a frequent outcome in bacterial expression, is challenging with regard to cost of goods due to the need for refolding and its direct impact on reduced overall yields and resultant waste streams.
- Yeast: In contrast to bacteria, yeast, such as *Pichia pastoris*, do not produce potentially toxic and pyrogenic cell wall components. Moreover, the genetic tools for yeast production are advanced and enable continued engineering of new strains that may become more suitable than CHO cell lines. Disadvantages include lower protein production of select targets and traditional yeast cells have a greater number of higher N and O glycosylation structures.
- Insect cells: Insect cells (i.e., Baculovirus) offer protein expression with post-translational modifications like mammalian cells, ease of scale-up, and simplified cell growth readily adapted to high-density suspension culture for large-scale expression. Baculovirus expression systems are used for producing recombinant protein, especially for vaccine antigens. Disadvantages include lower protein titers when compared to other platforms and the need for an additional viral inactivation step.
- Trichoderma: One of the leading filamentous fungal platforms for bioindustrial and food protein production. Disadvantages may include a high level of extracellular proteases, which can degrade recombinant proteins and lower expression levels for heterologous proteins compared to other systems.

Competition

The biotechnology industry is intensely competitive. The continuous demand for innovation, efficiency, and speed creates opportunities for the advantages of Dyadic's C1 and Dapibus™ platforms, however, as the Company's target markets evolve, there is always the risk that a competitor may be able to develop other technologies that are able to achieve similar or better results. Currently, we are not aware of other companies pursuing a business model similar to what we are developing with our protein production platforms. However, our competitors using other protein production platforms who are significantly larger and better capitalized, could potentially adopt similar strategies and implement them at a faster pace. These potential competitors include multinational pharmaceutical companies, established biotechnology companies, specialty pharmaceutical companies, universities, governmental agencies, and other research institutions that are in the operating pharmaceutical sector. Moreover, smaller or early-stage companies may emerge as significant competitors, particularly through collaborative arrangements with large, established companies. In non-pharmaceutical applications, several other companies have and are actively engaged in utilizing filamentous fungal microorganisms for the development and manufacture of low-cost proteins, metabolites, and other biological products for use in food, nutrition, and wellness.

Our Industry and Potential Markets

Non-Pharmaceutical Applications

The demand for non-animal-derived enzymes and proteins is rapidly increasing across various industries, driven by advancements in biotechnology, sustainability initiatives, and evolving consumer preferences. In the reagents sector, non-animal derived proteins are being utilized in diagnostic applications, research tools, and industrial processes, offering a sustainable and ethically responsible alternative to traditional animal-derived proteins. Within the food industry, the shift toward plant-based and fermentation-derived proteins is accelerating as consumers seek sustainable, allergen-free, and ethically sourced protein alternatives. Additionally, the alternative protein market—including cell-cultured, microbial, and precision fermentation-derived proteins—is experiencing significant growth as companies strive to meet the rising demand for environmentally friendly scalable, and sustainable protein solutions. The Company believes that Dapibus™ is well-positioned to address these expanding markets by providing cost-effective, scalable, and high-quality non-animal proteins for use in reagents, food, and other alternative protein applications. Dapibus™ has begun to generate revenue within non-pharmaceutical applications and the Company has selectively focused on these rapidly growing markets and prioritized our commercial focus accordingly.

- Cell culture media products: A nutrient-rich solution designed to support the growth, maintenance, and proliferation of cells tailored to specific cell types within alternative protein, research or biopharmaceutical applications.
- DNA/RNA manipulation products: Reagents used in the modification, amplification, sequencing, and analysis of DNA and RNA for gene editing, MRNA, and other synthetic biology applications, serving research, diagnostics, biopharmaceutical, and agricultural biotechnology sectors.
- Non-Animal dairy protein and enzyme products: Proteins and enzymes produced through fermentation, precision fermentation, or plant-based processes to replicate the functional and nutritional properties of traditional dairy components catering to the sustainable and animal-free dairy alternatives market
- Bioindustrial protein and enzyme products: Proteins and enzymes used to enhance process efficiency, sustainability, product performance and reduce reliance on harsh chemicals for applications like food/feed additives, biomass conversion, fiber modification, and eco-friendly textile processing.

As demand for more sustainable products in the alternative proteins segment grows, we believe recombinant protein and enzyme products offer clear advantages in overcoming cost, purity, and consistency challenges. By enabling scalable and controlled production, recombinant technologies reduce reliance on animal-derived or chemically synthesized alternatives while improving efficiency and performance. These benefits position recombinant enzyme and protein solutions as key enablers in the expansion of sustainable reagent, food, nutrition, and industrial applications.:

- Reagents & Biotech – Affordable recombinant enzymes and proteins enhance molecular biology workflows, diagnostics, and biopharmaceutical research.

- Nutritional & Food Ingredients – Lower production costs enable widespread adoption of recombinant dairy proteins, alternative meats, and functional food enzymes, meeting the rising demand for non-animal and precision-fermented ingredients.
- Industrial Applications – Economically viable recombinant enzymes facilitate greener, more efficient bioprocessing in biofuels, biogas, textiles, pulp and paper, and waste management, displacing conventional chemical-intensive methods.
- Consistency & Purity – Recombinant production enables high batch-to-batch consistency with minimal variability, reducing impurities and contamination risks compared to animal-derived or chemically synthesized alternatives.

The Company believes Dapibus™ unlocks significant market opportunities within the alternative proteins segment by addressing key challenges related to cost, scalability, and quality. By leveraging the platform to produce cost-effective, high-quality non-animal derived proteins for non-pharmaceutical applications, the Company can capitalize on near-term revenue opportunities. These applications benefit from shorter commercialization timelines, lower development costs, and a more streamlined regulatory pathway compared to pharmaceutical products, accelerating market entry and adoption.

Pharmaceutical Applications

Based on feedback received from our collaborators and our ongoing discussions with leading pharmaceutical and biotechnology companies, contract manufacturing organizations, leading academic institutions, as well as U.S. and foreign governmental agencies, we believe that the biopharmaceutical market remains an attractive opportunity to apply C1. The Company continues to evaluate potential opportunities to expand the application of C1, and is currently focused on the following markets:

- Recombinant vaccines and drugs for animal and human health
- New innovative biotherapeutics
- Biosimilars / Biobetters non-Glycosylated/Glycosylated protein markets
- Drug formulation, research diagnostic and reagents

The demand for biologic medicines, including infectious disease vaccines and therapeutics, has grown significantly in the post-COVID-19 healthcare landscape. However, access to these medicines remains limited due to high costs for both patients and healthcare systems. The Company believes that these challenges are, in part, the result of key bottlenecks in the development and manufacturing of biologic medicines, including:

- Extended timelines for stable cell line development and manufacturing
- Insufficient titers and overall yields
- High production costs, due to expensive media and other consumables
- Long production cycles for stable mammalian and insect (i.e., baculovirus) cell lines
- Historically underfunded development of more efficient next-generation protein production systems

The Company believes that the biopharmaceutical industry would benefit from an innovative protein production platform that is safe, efficient, reliable, and cost-effective. Such a platform could enable the rapid and high-titer production of difficult-to-express proteins, improving patient access and reducing costs. The Company's C1 platform has the potential to serve as an alternative to CHO, insect cells (i.e. Baculovirus), yeast and other traditional expression systems for the production of proteins used in vaccines, therapeutics, diagnostics, and other biologic products.

Our Research Partners and CROs

Currently, the Company is conducting its C1 research and other internal and external third-party programs with several contract research organizations as follows:

(1) Research and Development Agreement with VTT Technical Research Centre of Finland, Ltd

Since September 2016, the Company has been working with VTT Technical Research Centre of Finland, Ltd. ("VTT"), a third-party contract research organization, to further modify and improve C1 to ensure a safe and efficient expression system for use in accelerating development and lowering the cost of manufacturing pharmaceutical and non-pharmaceutical products and processes. VTT is one of the leading research and technology organizations in Europe, and it has conducted research and development on fungi and other microorganisms for more than three decades. VTT is continuing their development work to further develop C1.

The Company has extended its research contract with VTT multiple times to continue developing C1 for therapeutic protein production, including C1 host system improvement, glycoengineering, protease deletion, and management of third-party target protein projects. A significant portion of the research and development activities at VTT are being funded by the Company's third-party collaborators.

(2) Other CROs and cGMP Manufacturers

The Company works with several other research providers, cGMP manufacturers, and contract research organizations from time to time, which are important to achieve the Company's scientific and business objectives. These entities include but are not limited to 53Biologics (Valladolid, Spain), Fermbox Bio (Bangalore, KA, India), and Eleszto Genetika (Budapest, Hungary).

These arrangements are typically work for hire on an as-needed basis; however, certain of these programs, if negatively impacted due to resource availability, disagreements, or other reasons could lead to delays or inability to realize our research and commercial objectives.

Our Research and Development ("R&D") Programs

(1) Internal Research Programs

Production Host Improvements:

The Company continued to invest in and advance Dapibus™. In conjunction with Eleszto Genetika ("EG"), our internal and third party research and development initiatives are focused on both enhancing the robustness, versatility, and efficiency of Dapibus™ and developing new Dapibus™ production strains for a range of non-pharmaceutical applications—including dairy, biofuels, biogas, biorefining enzymes, and alternative proteins. Key ongoing research and development projects include, but are not limited to, the following:

- Continued development and refinement of Dapibus™ to enhance overall robustness, versatility, and efficiency.
- Generation of Dapibus™ production strains specifically engineered for applications in dairy processing, biofuels, biogas, biorefining enzymes, and alternative protein production.
- Ongoing improvement of genetic engineering tools to accelerate strain development and optimize expression profiles.
- Identification and targeted deletion of background protease genes to further reduce proteolytic activity, thereby improving yield and product quality.
- Modification and refinement of both fermentation protocols and downstream purification processes to increase production efficiency and reduce cost of goods.
- Development of high expression Dapibus™ cell lines through precision engineering techniques to meet the growing demand for cost-effective protein production.
- Execution of a range of analytical methods and quality assessments to ensure that the developed strains and processes meet stringent performance and regulatory standards

The Company collaborates with VTT, Eleszto Genetika, and other CROs and technical service providers to enhance C1 for greater robustness, versatility, and efficiency in protein production. Key initiatives include improving C1 genetic tools, reducing background protease levels, precision engineering high-expression C1 cell lines, developing C1-expressed vaccine and drug candidates, and glycoengineering C1 cells for mammalian-like glycosylation.

Recent advancements demonstrate the platform's capability to produce properly folded, biologically active proteins:

- Expansion of the platform for human and bovine serum albumin and other recombinant proteins for therapeutic, drug formulation, research, and diagnostic applications.
- Further development of DYAI-100 (SARS-CoV-2 RBD) vaccine candidate, including multivalent antigen expression to align with FDA recommendations for annual SARS-CoV-2 vaccines.
- High-yield production of SARS-CoV-2 Full Spike Protein, hemagglutinin (HA), and neuraminidase (NA), with demonstrated safety and efficacy in animal trials, including an Oslo University challenge study for influenza.
- Expression of complex proteins, including conjugated antigens, scFv (MHCII), and trimerization domains to enhance efficacy.
- Successful monoclonal antibody (mAb) production, with C1produced mAbs showing binding kinetics virtually identical to CHO-produced mAbs.
- Glycoengineering of C1 cells to produce mAbs with human-like glycan structures and third-party validation of C1-produced mAbs' neutralizing and binding activity.
- Production of bi-specifics, tri-specifics, and Fc-fusion proteins at high yields and quality, with C1produced bi-specific antibodies demonstrating similar dose-response activity to CHO produced proteins.

Glycosylated Therapeutic Programs:

The Company aims to leverage its C1 platform for the large therapeutic glycoprotein market, requiring further investment in time and capital. Advances in genomics and synthetic biology support the engineering of C1's glycosylation pathways to: (i) produce therapeutic proteins with human-like glycoforms (G0, G2, G0F, G2F), (ii) reduce or eliminate O-glycosylation, and (iii) enhance immunogenicity in vaccine applications.

Glycoengineering efforts at VTT are progressing, with early results demonstrating the potential of C1 as a viable platform for glycoprotein production. The Company is refining approaches to optimize gene expression, aiming to develop stable C1 cell lines capable of producing human-like glycosylated therapeutic proteins at high yields.

Early results confirm that C1-produced Nivolumab exhibits similar glycosylation structures, reinforcing the platform's potential for manufacturing high-value monoclonal antibodies and glycoproteins for therapeutic and preventative applications.

(2) Non-pharmaceutical Programs

Dapibus™ was developed 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. We believe the Company's industrial heritage provides our partners with the ability to move from demonstration to commercial production quickly and efficiently. The Company is actively utilizing Dapibus™ and other technologies to address the unmet need to reduce the production cost in the global market for non-pharmaceutical recombinant proteins.

Cell Culture Media Products

- Recombinant Serum Albumin is a vital cell culture media component that supports cell growth, survival and function for use in cell culture media, diagnostics, and as a stabilizing agent for vaccine production. The Company's animal-free recombinant serum albumin projects were initiated in late 2022 using Dyadic pharmaceutical cell lines for use in potential therapeutic, product development, research, and/or diagnostic human and animal pharmaceutical applications. In June 2024, the Company announced a development and commercialization partnership for recombinant serum albumin with Proliant Health and Biologicals ("Proliant"), a leading supplier of purified proteins for diagnostic, nutrition, and cell culture markets. Prior to the agreement with Proliant, the Company completed initial testing of its recombinant albumin products with Certificates of Analysis issued demonstrating analytical comparability to reference standards. In addition, Dyadic's recombinant bovine albumin demonstrated comparable efficacy in cell proliferation of animal muscle cells to albumin products currently used in the cultured meat industry. Under the terms of the Proliant Agreement, Dyadic has received an initial upfront payment of $500,000, a second payment of $500,000 for completing the transfer of a Production Strain (as defined in the Proliant Agreement) and will receive a final payment of $500,000 upon the meeting of a certain productivity threshold. Upon commencing commercial sales of animal-free recombinant serum albumin products produced pursuant to the Proliant Agreement, the Company will receive royalties based on a certain percentage of the gross margin received by Proliant, as defined in the Proliant Agreement. Proliant is progressing toward an expected commercial launch in 2025 as a key component of cell culture media.
- In March 2024, the Company entered into a co-promotion agreement with Biftek Co. for the promotion of growth media supplement for cell culture.

- In 2024, the Company began a development program to produce recombinant transferrin for use in cell culture media and other applications. Dyadic's recombinant transferrin is an animal-free alternative to serum-derived transferrin for use in cell culture media, diagnostic, research, and biopharmaceutical applications. The Company has completed the initial analysis of its recombinant transferrin product and has Certificates of Analysis for recombinant bovine transferrin that demonstrate comparability to reference standards used in the testing. In addition, the Company's recombinant transferrin demonstrated comparable performance to a recombinant reference standard, highlighting its potential as a high-quality, cost-effective non-animal alternative for research and commercial bioprocessing applications.
- In 2024, the Company conducted a development program to produce recombinant bovine fibroblast growth factor ("FGF") for use in cell culture media and biopharmaceutical applications. As a critical driver of cell growth and proliferation, recombinant FGF plays an essential role in biomanufacturing, regenerative medicine, and cell-based therapies, particularly in serum-free and chemically defined cell culture media. Initial testing of the Company's recombinant FGF demonstrated comparability to reference standard for use in cell culture media to proliferate animal muscle cells for the cultured meat industry. In addition to further characterization and validation efforts, sampling initiatives are expected to begin in Q2 2025.
- The Company is currently providing samples of its recombinant cell culture media products such as transferrin and FGF for application testing as growth media for the biopharmaceutical and cultured meat industries in conjunction with ongoing protein characterization testing.

Non-animal Dairy Products

- In September 2024, the Company received a milestone payment of $425,000 for achieving the specified target yield of a recombinant diary enzyme, which is expected to be commercialized in late 2025 or early 2026. This milestone is in addition to the upfront payment of $600,000 received in 2023 when the Company entered a development and exclusive license agreement to commercialize certain non-animal dairy enzymes used in the production of food products using Dapibus™.
- In late 2024, the Company developed an improved highly productive strain of recombinant bovine alpha-lactalbumin, a whey protein for the non-animal dairy industry. Further development has demonstrated Dyadic's alpha-lactalbumin product is comparable to other recombinant and animal derived products and a Certificate of Analysis has been issued. In addition to active sampling efforts to interested collaborators, the Company is conducting further characterization of its alpha-lactalbumin product through functional and analytical assays.
- In 2024, the Company initiated development of recombinant human alpha-lactalbumin for use in the pharmaceutical, nutraceutical, medical nutrition, and infant formula markets.
- In 2024, the Company commenced a recombinant lactoferrin development program and initiated sampling efforts in late 2024. The Company has developed a cell line to produce stable human recombinant lactoferrin protein for use in research and pharmaceutical applications as potential antimicrobial, anti-inflammatory, and immune-supportive products. Ongoing optimization and characterization efforts are underway, and the Company expects to begin sampling efforts in 2H 2025.
- The Company has produced four casein proteins and is in active discussions with potential collaborators.

Reagent Proteins & DNA/RNA Enzymes

- The Company's DNase-1 product is designed for use in molecular diagnostics, biopharma, and other industries is progressing toward commercial availability. The Company has completed its development of DNASe-1, and a Certificate of Analysis has been issued for the product. In addition to exploring licensing opportunities, Dyadic has partnered with an EU-based Contract Development and Manufacturing Organization ("CDMO") to validate the production process for DNase-1 (RNase-Free) and to produce a research grade DNase-1 product by mid-2025. Additionally, development efforts have begun to produce research grade DNA/RNA Polymerases, DNA Ligase, and RNase Inhibitor products. Cell lines have been developed with optimization and analysis ongoing.
- The Company has developed prototypes for four additional enzymes, including RNase Inhibitors and T7 RNA Polymerase, to support the growing demand for DNA/RNA manipulation tools. Development and optimization are ongoing with results expected by the end of 2025.

Bio Industrial Products and Other Products

- The Company has developed several enzymes that have the potential for use in multiple industries, such as nutrition, pulp and paper, biogas, biofuels and biorefining. The Company is actively sampling bio industrial companies.
- In 2023, the Company entered into a development and commercialization agreement with Fermbox Bio ("Fermbox"), a synthetic biology research and manufacturing company. In May 2024, Fermbox announced the launch of EN3ZYME, a cutting-edge enzyme cocktail designed to enhance both the efficiency and cost-effectiveness of transforming pre-treated agri-based residues into fermentable, cellulosic sugars produced using Dyadic's expression platforms.
- In 2024, the Company began development of hyaluronidase, an enzyme that breaks down hyaluronic acid (HA), a key component of the extracellular matrix in connective tissues. The Company is currently engaging and sampling hyaluronidase to interested parties for a variety of applications such as medical, aesthetic, reproductive, and infectious.

(3) Pharmaceutical Programs

On February 13, 2024, the Company announced a strategic partnership with Cygnus Technologies®, part of Maravai LifeSciences® (Nasdaq: MRVI), which has developed the C1 Host Cell Protein ELISA Kit for the quality release of products produced using Dyadic's C1 and Dapibus™ platforms. The C1 host cell kit is commercially available through Cygnus Technologies (C1 HCP ELISA Kit).

On February 21, 2024, the Company announced it has advanced its collaboration with the Israel Institute for Biological Research (IIBR) and its commercial arm Life Science Research Israel (LSRI), to target emerging disease solutions. This partnership aims to leverage Dyadic's expertise in microbial platforms for flexible scale protein bioproduction and the IIBR's antibodies and antigens discovery capabilities to develop and manufacture innovative solutions for addressing emerging diseases and potential bio-threats. Through this collaboration, both parties are working towards the development of effective treatments and vaccines to combat global health challenges with the intention of future commercialization (to date, the framework is non-binding and subject to the execution of a binding agreement to be negotiated by the parties) through collaborative out-licensing initiatives.

On February 28, 2024, the Company's Dutch subsidiary, Dyadic Nederland BV, entered into a strategic partnership agreement and collaboration with Rabian BV ("Rabian"), a Dutch innovative SME founded by experienced entrepreneurs and vaccine scientists. Awarded by Eurostars for the AVATAR project, a part of the European Partnership on Innovative SMEs, and co-funded by the European Union through Horizon Europe, Rabian will use the total funding leveraging its expertise in virology to develop a rabies vaccine using C1 to tackle the challenges posed by rabies, particularly in lower- and middle-income countries. Dyadic is expected to receive an equity stake in Rabian, fully funded research and development costs, and specified product milestones and royalties upon commercialization.

In March 2024, a peer-reviewed study on a C1-produced monoclonal antibody was published in Nature Communications. The study included preclinical trials in non-human primates and hamsters, demonstrating broad neutralization and protection against Omicron (BA.1, BA.2) and earlier COVID-19 variants. A non-human primate challenge study with the SARS-CoV-2 Delta variant showed promising protection, marking the first validation of a C1-produced monoclonal antibody's safety and efficacy in primates for infectious diseases..

In April 2024, the Clinical Study Report was issued from the Phase 1 study of DYAI-100, a C1-SARS-CoV-2 recombinant protein RBD vaccine candidate and first C1 produced protein tested in humans conducted in collaboration with the Company's commercialization partner, Rubic One Health. The study met its primary endpoint demonstrating both the low and high dose levels of the vaccine are safe and well tolerated among participants. Additionally, the vaccine induced immune responses at both dose levels, suggesting its potential efficacy in generating protective immunity against the target virus. As the coronavirus has rapidly mutated away from the original strain, Dyadic and its DYAI-100 partner Rubic One Health determined exploring future COVID variants to be more feasible than continuing development of DYAI-100.

Rubic One Health, South Africa

In April 2023, the Company expanded the license agreement with South Africa's Rubic One Health ("Rubic") to include vaccines and therapeutic proteins beyond COVID-19 for both human and animal health markets. This is a collaboration to develop end-to-end solutions to develop, manufacture, commercialize, and distribute affordable vaccines and biologics for human and animal health in underserved African countries. Tech transfer of the C1 platform has been completed. Under the license agreement, Dyadic is expected to receive certain marketing rights and other considerations, including milestones and royalty payments, from Rubic. In 2024, Rubic began development of several livestock animal vaccines for the African market.

Phibro/Abic Sublicense Agreement

On February 8, 2022, the Company entered into an exclusive sublicense agreement with Abic Biological Laboratories Ltd ("Abic"), an affiliate of Phibro Animal Health Corporation ("Phibro"), based on an existing July 1, 2020, non-exclusive sublicense and development agreement (the "Phibro/Abic Agreement"), to provide services for a targeted disease. On March 15, 2024, the Company expanded its collaboration with Phibro/Abic to develop vaccines and treatments for livestock animal diseases.

Fondazione Biotecnopolo di Siena (FBS)

In 2024, the Company entered a strategic collaboration with Fondazione Biotecnopolo di Siena (FBS), a non-profit foundation backed by the Italian government, including the Ministry of Health, Ministry of Economy and Finance, Ministry of Universities and Research, and Ministry of Enterprise and Made in Italy. On March 20, 2025, the Company announced that it has received a funding award from CEPI to use C1 to accelerate the development of protein-based vaccines through the partnership with FBS.

Gates Foundation

On November 21, 2024, the Company announced that it has been awarded an approximately $3.0 million grant from the Gates Foundation for the cell line development of mAbs targeting respiratory syncytial virus and malaria utilizing the C1 platform to provide globally accessible treatment options for underserved populations.

C1 produced Ferritin Nanoparticle Vaccines

- H5 Avian Influenza ("Bird Flu") Vaccine Candidate (in collaboration with ViroVax, LLC):
  - A C1-produced, self-assembling ferritin nanoparticle antigen is under evaluation for diagnostics and vaccines across poultry, cattle, humans, and companion animals to help address the ongoing Bird Flu outbreak.
  - Pre-commercial research and validation efforts are actively underway to support potential strategic partnerships and licensing opportunities.
- Mpox Vaccine Candidate (in collaboration with ViroVax): A C1-produced ferritin nanoparticle Mpox vaccine candidate is in the early stage of preclinical development. This project not only would expand our portfolio but also would reinforce the C1 platform's proven ability to rapidly develop and produce cost-effective recombinant protein vaccine antigens.

Diagnostics & Vaccine Advancements

- H5 Avian Influenza Cross-Protection: The C1-produced adjuvanted ferritin nanoparticle H5-2.3.4.4b A/Astrakhan vaccine candidate has demonstrated cross-protection against multiple H5 virus strains in early-stage research, indicating a broad protective potential.
- Poultry & Cattle Applications:
  - Poultry: Early trials show that the C1-produced H5-2.3.4.4b A/Astrakhan antigen generates neutralizing antibodies, supporting its potential commercial viability for vaccines and diagnostic tools.
  - Cattle: Preliminary diagnostic and vaccine development data suggest promising cross-protection, highlighting a significant opportunity in a broader market segment.

Government Regulation and Product Approval

As a small biotech company that operates in the United States, we are subject to extensive regulation. Government authorities in the United States (at the federal, state and local level) and in other countries extensively regulate, among other things, the research, development, testing, manufacturing, quality control, approval, labeling, packaging, storage, record-keeping, promotion, advertising, distribution, post-approval monitoring and reporting, marketing and export and import of drug products such as those we are developing. Product candidates that we develop must be approved by the FDA, before they may be legally marketed in the United States and by the appropriate foreign regulatory agency before they may be legally marketed in foreign countries. Generally, our activities in other countries will be subject to regulation that is similar in nature and scope as that imposed in the United States, although there can be important differences. For additional discussion on the effect of existing or probable governmental regulations on our business, see "Item 1A. Risk Factors—Risks Related to Government Regulations and Environmental, Social, and Governance Issues."

Employees

As of December 31, 2024, the Company had 6 full-time employees, all of whom are located in the United States.

Intellectual Property

Patents are important to developing and protecting our competitive position. Our general policy is to seek patent protection in the United States, major European countries, and other jurisdictions as appropriate for our compounds and methods. U.S. patents, as well as most foreign patents, are generally effective for 20 years from the date the earliest patent application was filed. In some cases, the patent term may be extended to recapture a portion of the term lost during the U.S. FDA regulatory review or because of U.S. Patent and Trademark Office ("USPTO") delays in prosecuting the application. The duration of foreign patents varies similarly, in accordance with local law.

Currently, Dyadic owns or has exclusive rights to seven (7) patent families, all of which have entered the national phase. There are currently two (2) patents and six (6) pending patent applications in the United States, one patent in South Africa, and twenty-nine (29) additional patent applications in a variety of jurisdictions including Europe and China.

Our success is significantly dependent on our ability to obtain and maintain patent protection for C1 and Dapibus™, both in the United States and abroad. Our patent position and proprietary rights are subject to various risks and uncertainties. Please read the "Item 1A. Risk Factors" of this Annual Report for information about certain risks and uncertainties that may affect our patent position and proprietary rights.

We also rely upon unpatented confidential information to remain competitive. We protect such information principally through confidentiality agreements with our employees, consultants, outside scientific collaborators, and other advisers. In the case of our employees, these agreements also provide, in compliance with relevant law, that inventions and other intellectual property conceived by such employees during their employment shall be our exclusive property.

Available Information

Information that we furnish to or file with the SEC, including the Company's annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and any amendments to, or exhibits included in, these reports are made available for download, free of charge, through the Company's website at www.dyadic.com as soon as reasonably practicable. The Company's SEC filings, including exhibits filed therewith, are also available directly on the SEC's website at www.sec.gov.

The Company may use its website as a distribution channel of material company information. Financial and other important information regarding the Company is routinely posted on and accessible through the Company's website. Accordingly, investors should monitor this channel, in addition to following the Company's press releases, SEC filings and public conference calls and webcasts. Information contained on the Company's website is not part of this report.

Item 1A. Risk Factors

Investing in our common stock involves a high degree of risk. You should carefully consider the following material risks, together with the other matters described in this Annual Report and in our financial statements and the related notes thereto in evaluating our current business and future performance. We cannot assure you that any of the events discussed in the risk factors below will or will not occur. If we are not able to successfully address any of the following risks, we could experience significant changes in our business, operations and financial performance. In such circumstances, the trading price of our common stock could decline, and in some cases, such declines could be significant, and you could lose part or all of your investment. In addition to the risks described below, other unforeseeable risks that we currently believe are immaterial may arise that adversely affect our operating results. Certain statements contained in this Annual Report (including certain statements used in the discussion of our risk factors) constitute forward-looking statements. Please refer to the section entitled "Cautionary Note Regarding Forward-Looking Statements" for important information regarding reliance on forward-looking statements.

Risks Related to Our Business and Financial Condition

We may not succeed in implementing our business strategy.

As we attempt to adapt our microbial protein production platforms, including C1 and Dapibus™ and our other technologies for use in the biopharmaceutical and other markets, our business is subject to the execution, integration, and research and development risks that early-stage companies customarily face with new technologies, products and markets. These risks relate to, among other things, our ability to successfully further develop our protein production platforms and our other technologies, products and processes, assemble and maintain adequate production and research and development ("R&D") capabilities, comply with regulatory requirements, construct effective channels of distribution and manage growth. We have encountered and will continue to encounter risks and difficulties frequently experienced by early-stage companies in expanding and upgrading our intellectual property, regulatory, marketing, sales and R&D capabilities, improving our accounting and financial reporting and internal controls infrastructure, and adapting to the rapidly evolving industries in which we operate. Additionally, we are subject to competition from much larger companies with more resources than we have. Also, the market for developing and manufacturing pharmaceutical proteins produced from a filamentous fungus, such as the C1 fungus, is a market that is not yet established and is subject to a high level of regulatory hurdles from the U.S. Food and Drug Administration (the "FDA") and other governmental bodies, and there is a risk that such technologies will not be adopted by the pharmaceutical industry or governmental agencies and therefore not succeed and/or not grow at the rates projected or at all.

We have not yet commercialized any products based on our platforms and technologies, and we may never be able to do so. We do not know when or if we and/or our current and/or future collaborators and licensees will complete any of our or their product development efforts, obtain regulatory approval for any product candidates incorporating our technologies or successfully commercialize any approved products. Even if we and/or our licensees and collaborators are successful in developing products that are approved for marketing, we and they will still require that these products gain regulatory approval and market acceptance. The biopharmaceutical industries in which we operate are high-risk industries in that even if we are successful at expressing certain proteins, these proteins may fail to be advanced or approved for use or sale for many reasons including their characteristics, biological activity, biological comparability, biological similarity, stability, glycosylation structures, containments, purity, performance, safety and regulatory reasons.

Because of the numerous risks and uncertainties associated with pharmaceutical and other product development, we are unable to predict the timing or amount of increased expenses or when, or if, we will be able to achieve certain technology, product and/or commercial milestones, access fees and royalties, launch products and/or processes, or achieve profitability. For instance, we cannot predict whether Danisco intends to or will pursue the use of the C1 platform to develop or manufacture pharmaceutical products or whether or when we might receive royalties from Danisco. In addition, our expenses could increase if we are required by the FDA or other domestic and foreign regulatory authorities to perform studies or trials in addition to those currently expected, or if there are delays in completing additional safety studies such as toxicology and pathogenicity studies, clinical trials, preclinical studies, animal or human studies or the development of any of our or our collaborators' product candidates.

A significant portion of our revenue is derived from a small number of customers.

For the years ended December 31, 2024 and 2023, the Company's revenue was generated from 19 and 16 customers, respectively. As of December 31, 2024 and 2023, the Company's accounts receivable was from nine and thirteen customers, respectively. Significant customers are those that account for greater than 10% of the Company's revenues. For the years ended December 31, 2024 and 2023, two significant customers accounted for approximately $1,915,000 or 54.8% and $1,503,000 or 51.9% of revenue, respectively. We cannot assure you that these customers will continue to contract with us on terms currently in effect or other terms which are favorable but not currently in effect, or whether they will elect to contract with our competitors or attempt to perform the services themselves. The loss of business from one or a combination of the Company's customers, if not offset by revenue from new or other existing customers, or any inability of any customer to pay amounts as and when due, could adversely affect its operations.

We have a history of net losses, and we may not achieve or maintain profitability.

As of December 31, 2024, we had an accumulated deficit of approximately $86.1 million. Our profitability has strongly relied on, and will be even more reliant going forward on, third-party industry and government research funding, licensing partnerships and other forms of collaborations. We believe that it is likely that if we do not sign license agreements or other forms of collaborations, we will incur losses because of our planned levels of R&D and additional general and administrative expenditures that we believe are necessary to operate our business and further develop our microbial protein production platforms and other technologies for use in the pharmaceutical and non-pharmaceutical industries. The amount of our future net losses will depend, in part, on the rate of increase in our expenses along with other potential costs of unforeseen circumstances, our ability to generate research funding, government grants, receipt of access fees, milestones, royalty and other payments, and whether we are able to generate revenues by entering into license agreements or other forms of collaborations, launch new products and/or processes from future licensees or collaborators, and our ability to raise additional capital. The net losses we anticipate incurring over the next several years will have an adverse effect on our working capital, financial condition, results of operations and prospects.

The R&D efforts needed to enhance and leverage our microbial protein production platforms, including C1 and Dapibus™, for use in developing and manufacturing human and animal biopharmaceuticals and other non-pharmaceutical products will require significant funding and increased staffing. Therefore, we expect near-term operating and research expenses to continue, and maybe even accelerate, as we further develop our research and business plans, and our goals and objectives. Consequently, we will require significant additional revenue to achieve profitability. We cannot provide assurance that we will be able to generate any revenues from our focus and efforts as we intend to apply our C1-cell and Dapibus™ into the biopharmaceutical and non-pharmaceutical industries. If we fail to enter into new license agreements or other forms of collaborations or generate revenues and profit from additional research projects and government grants, the market price of our common stock will likely decrease. Further regulatory complications, competition from other technologies, or delays in our research programs and the adoption and use of the C1-cell and Dapibus™ protein production platforms and our other technologies by the biopharmaceutical and non-pharmaceutical industries may force us to reduce our staffing and research and development efforts, which may further affect our ability to generate cash flow.

We may expend our resources to pursue particular product candidates and fail to capitalize on product candidates that may be more profitable or for which there is a greater likelihood of success.

As a result of our limited financial and managerial resources, we must make strategic decisions as to which targets and product candidates to pursue and may forego or delay pursuit of opportunities with other targets or product candidates that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. Failure to properly assess potential product candidates could result in our focus on product candidates with low market potential, which would harm our business, financial condition, results of operations and prospects. Our spending on current and future R&D programs and product candidates may not yield any commercially viable products. Our understanding and evaluation of biological targets for the discovery and development products expressed from C1 may fail to identify challenges encountered in subsequent preclinical and clinical development. If we do not accurately evaluate the likelihood of clinical trial success, commercial potential or target market for a particular product candidate, we may relinquish valuable rights to that product candidate through collaboration, licensing or other royalty arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights.

We could fail to manage our growth.

We will need to take the following steps, among others, to manage our growth. If we fail to achieve one or more of these, it could have a material adverse effect on our business, financial condition and results of operations.

- Balance our cash burn with technology and product development;
- Maintain and add additional CROs, other third-party service providers or other technology collaborators;
- Maintain and add additional collaborators, strategic partners technology licensees or other forms of structures
- Recruit, hire, and maintain the required employees necessary to maintain and grow our business and to advance our technologies and products;
- Achieve technical and commercial success in our research and product development programs;
- Manage our internal development and operational efforts effectively while carrying out our contractual obligations to third parties;
- Access required manufacturing capacity;
- Access additional capital;
- Recruit and maintain consultants, board members, and scientific advisory board members; and
- Manage scientific risks and uncertainties that may arise during our R&D and regulatory programs.

Our revenue growth depends in part on market and regulatory acceptance of our microbial protein production platforms and other technologies to develop and manufacture animal and/or human biopharmaceutical and non-pharmaceutical products.

The success of our business will depend on our ability to develop, register, and introduce similar, new and improved technologies and products in a timely manner, at significantly lower manufacturing costs that address the evolving requirements of the relevant industries and potential customers. There is no assurance that the C1 platform or any product expressed from C1, or our other technologies, will perform the same or better or save our customers money relative to existing gene expression technologies or those of our competitors, obtain governmental safety and regulatory approvals, be registered or gain market acceptance. If we fail to develop similar, new and better performing technologies, products and processes at significantly lower manufacturing costs, make fermentation yield improvements on our existing production processes, generate the necessary safety and regulatory data or gain registration and market acceptance of the C1-cell and Dapibus™ protein production platforms, or our other technologies, products or processes, we could fail to recoup our R&D investments and fail to capitalize on potential opportunities or gain market share from our competitors. Any failure, for technological, quality, safety, regulatory, or other reasons, to develop and launch improved technologies and new products, could negatively impact our business, financial condition and results of operation.

The dynamic and conservative nature of the industries in which we operate, the unpredictable nature of the product development process and the time and cost of new technology adoption in the industries in which we operate may affect our ability to meet the requirements of the marketplace or achieve market and/or regulatory acceptance.

The expenses or losses associated with unsuccessful technology and product development activities or lack of market acceptance of our new technologies and products could harm our business, financial condition and results of operations.

We may fail to commercialize our microbial protein production platforms or other technologies for the expression of therapeutic proteins, antibodies, vaccines, and metabolites or other non-pharmaceutical biologic products.

We have not yet completed the necessary safety, efficacy, cost and regulatory studies, or the commercialization of any therapeutic proteins, antibodies and vaccines, and metabolites or other non-pharmaceutical biologic products based on C1 or Dapibus™.

To date, drug companies have developed and commercialized only a small number of gene-based products in comparison to the total number of drug molecules available in the marketplace. Our biopharmaceutical business should be evaluated as having the same risks as those inherent to early-stage biotechnology companies because the application of the C1 platform for the expression of pre-clinical and clinical quantities of therapeutic proteins, antibodies and vaccines is still in early development.

Successful development of our microbial protein production platforms, including C1 and Dapibus™, for biopharmaceutical and non-pharmaceutical purposes will require significant research, development and capital investment, including testing, to prove its safety, efficacy and cost-effectiveness. In general, our experience has been that each step in the process has been longer and costlier than originally projected, and we anticipate that this is likely to remain the case with respect to the continuing development efforts of our biopharmaceutical and non-pharmaceutical business.

If our competitors develop technologies and products more quickly and market more effectively than our product candidates, our commercial opportunity will be reduced or eliminated.

The industries in which we operate are characterized by rapid technological change, and the area of gene and protein research and platform development is a rapidly evolving field. We believe that a significant number of products are currently under development, and may become commercially available in the future, for the issues and conditions for which we are developing product candidates. As such, any products we or our current collaborators or licensees develop through the C1 platform, or through our other technologies, will compete in highly competitive and regulated markets. For more information on our competition, see "Item 1. Business—Competition." Many of these competitors for such products have more capital resources, larger R&D and marketing staff, facilities and capabilities, and greater experience in research and development, regulatory approval, manufacturing and commercialization of technology and products. Accordingly, our competitors may be able to develop technologies and products more rapidly. Our future success will depend on our ability to maintain a competitive position with respect to technological advances in terms of product and process quality, stability, safety, productivity and cost. If a competitor develops superior technology or products, or more cost-effective alternatives to our and our collaborators' or licensees' technologies, products or processes, it could have a material adverse effect on our business, financial condition and results of operations. Well-known and highly competitive biotechnology companies offer comparable or alternative technologies for the same products and services as our biopharmaceutical and non-pharmaceutical business. We anticipate that we and our current or future collaborators and licensees will continue to encounter increased competition as new companies enter these markets and as the development of biological processes and products evolves, and there is no guarantee that our product candidates will be able to compete with potential future products being developed by competitors.

Alternative technologies may not require microbial or other cell produced proteins, such as our proprietary C1 cells.

Research is being conducted with cell or gene-based therapies and other technologies that offer a possible alternative to producing proteins as they are being produced today based on microbial, organic matter containing carbon, hydrogen, and oxygen or other organisms, such as our proprietary C1 cells or Dapibus™. Alternative methods may allow genes to be directly inserted into cells that can be implanted into animals and humans directly, displacing the need for the existing methods used for the development of biologic vaccines and drugs. If they are successful, these new methods may supplant or greatly reduce the need for microorganisms, carbon, hydrogen, and oxygen or other organisms, including our C1 cells and Dapibus™, to produce these proteins externally as the injected cells in animals and humans may be able to do so internally.

The results of nonclinical studies and early-stage clinical trials may not be predictive of future results.

The results of nonclinical studies may not be predictive of the results of clinical trials, and the results of any early-stage clinical trials we commence may not be predictive of the results of the later-stage clinical trials. Vaccine and drug candidates in later stages of clinical trials may fail to show the desired safety and efficacy despite having progressed through nonclinical studies and initial clinical trials. There is a high failure rate for drugs proceeding through clinical trials, and a number of companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in clinical development even after achieving promising results in earlier studies. There can be no assurance that any of our current or future clinical trials will ultimately be successful or support further clinical development of any of our vaccine and drug candidates. Even if our clinical trials are completed, the results may not be sufficient to obtain regulatory approval of any products. Any such setbacks in our clinical development could have a material adverse effect on our business and operating results.

We may need substantial additional capital in the future to fund our business.

Our future capital requirements may be substantial, particularly as we continue to further develop, engineer and optimize our microbial protein production platforms and other proprietary technologies, products and processes for licensing for research and development, and commercialization of potential animal and human pharmaceutical and other products.

We currently have very little leverage, and if our capital resources are insufficient to meet our capital requirements, we will have to raise additional funds to continue the development of our technologies and complete the development and commercialization of products, if any, resulting from our technologies. If the acquisition of additional funds is not possible or if we engage in future equity financings, dilution to our existing stockholders may result. If we raise capital through debt financing, we may be subject to restrictive covenants that limit our ability to conduct our business. Also, to the extent we raise additional capital through the issuance of equity or convertible debt securities in the future, there will be further dilution to investors and the terms of these securities may include liquidation or other preferences that adversely affect our stockholders' rights. We may not be able to raise funds on terms that are favorable to us, if at all. Our ability to raise additional funds when needed and on acceptable terms will depend on financial, economic and market conditions and other factors, over which we may have no or limited control. See, for example, "*—Changes in global economic and financial markets may have a negative effect on our business.*" If we fail to raise sufficient funds and incur losses, our ability to fund our operations, take advantage of strategic opportunities, develop products or technologies, or otherwise respond to competitive pressures could be significantly limited. If this happens, we may be forced to delay or terminate research or development programs or the commercialization of products resulting from our technologies, curtail or cease operations or obtain funds through collaborative and licensing arrangements that may require us to relinquish commercial rights, sell certain assets of the company which will limit future opportunities, or grant licenses on terms that are not favorable to us. Without sufficient funding or revenue, we may have to curtail, cease, or dispose of one or more of our operations, which would have a material adverse effect on our business, financial condition, and future prospects.

Changes in global economic and financial markets may have a negative effect on our business.

Our business is subject to a variety of market forces including, but not limited to, domestic and international economic, political and social conditions. Many of these forces are beyond our control, including generally weak or uncertain economic conditions, negative or uncertain political climates, changes in government and election results in the United States and other jurisdictions in which we operate. Any change in market conditions that negatively impacts our operations or the demand of our current or prospective customers could adversely affect our business operations. For example, economic uncertainty and volatility, including as a result of high-interest rates and inflation, have had and may continue to have a material adverse effect on our business.

Changes in the global financial, pharmaceutical and biotech markets may make it difficult to accurately forecast operating results. These changes have had, and may continue to have, a negative effect on our business, results of operations, financial condition and liquidity. In the event of a downturn in global economic activity, current or potential business partners may go out of business, may be unable to fund purchases or determine to reduce purchases, all of which could lead to reduced demand for our products and increased payment delays or defaults. We are also limited in our ability to reduce costs to offset the results of a prolonged or severe economic downturn given certain fixed costs associated with our operations and difficulties if we over strained our resources. The timing and nature of a sustained recovery in the credit and financial markets remain uncertain, and there can be no assurance that market conditions will significantly improve in the near future or that our results will not continue to be materially and adversely affected.

In addition, geopolitical risks, including those arising from political turmoil, trade tension or the imposition of trade tariffs and/or sanctions, terrorist activity and acts of civil or international hostility, are increasing. For instance, the ongoing military conflict between Russia and Ukraine, as well as conflicts in the Middle East have had negative impacts on the global economy and is expected to have further global economic consequences. Any such events and responses, including regulatory developments, may cause significant volatility and declines in the global markets, disproportionate impacts to certain industries or sectors, disruptions to commerce (including to economic activity, travel and supply chains), loss of life and property damage, and may materially and adversely affect the global economy or capital markets, as well as our business and results of operations. Should an economic slowdown occur in the U.S. or globally, our business and results of operations may be materially adversely affected.

We face risks related to widespread outbreaks of contagious disease or other biological threats, any of which could significantly disrupt our operations and have a material adverse effect on our business, employees, directors, consultants, collaborators and other third parties, including business development activities and research and development projects conducted by third party contract research organizations parties.

Significant outbreaks of contagious diseases, and other adverse public health developments, have had and could have a material impact on our business operations, financial condition, and operating results. Pandemics and other outbreaks of contagious disease have in the past and could in the future significantly impact the operation of our business. For example, pandemics have in the past adversely affected our ability to carry on certain business development activities, including as a result of restrictions in business-related travel, delays or disruptions in our on-going research projects, and unavailability of the employees of the Company or third-party contract research organizations with whom we conduct business, due to illness or quarantines. In addition, pandemics and other outbreaks of contagious disease have in the past and may in the future exacerbate other risks disclosed in this Annual Report. See, for example, "-*Changes in global economic and financial markets may have a negative effect on our business.*" Whether and to what extent future pandemics and other outbreaks of contagious diseases may impact our financial and operational performance will depend on developments that include the duration, spread and severity of the outbreak, the timetable for administering and efficacy of vaccines, the duration and geographic scope of related travel advisories and restrictions and the extent of the impact of the pandemic or outbreak on overall demand for our products, technologies and services, and other factors beyond our control, all of which are highly uncertain and cannot be predicted.

Our sales and operations are subject to the risks of doing business internationally.

Our sales and operations are subject to the risks of doing business internationally, as we have customers and partners located outside of the United States. Conducting business internationally exposes us to a variety of risks, including:

- Changes in or interpretations of foreign regulations that may adversely affect our ability to sell our products, repatriate profits to the United States or operate our foreign-located facilities;
- The imposition of tariffs;
- The imposition of limitations on, or increase of, withholding and other taxes on remittances and other payments by our foreign subsidiary or joint ventures;
- Uncertainties relating to foreign laws, regulations and legal proceedings including tax, import/export, anti-corruption and exchange control laws;
- The availability of government subsidies or other incentives that benefit competitors in their local markets that are not available to us;
- Increased demands on our limited resources created by our operations may constrain the capabilities of our administrative and operational resources and restrict our ability to attract, train, manage and retain qualified management, technicians, scientists and other personnel;
- Economic or political instability in foreign countries;
- Difficulties associated with staffing and managing foreign operations; and
- The need to comply with a variety of United States and foreign laws applicable to the conduct of international business, including import and export control laws and anti-corruption laws.

Any violations of international laws and regulations may result in substantial civil and criminal fines and penalties, imprisonment, the loss of export or import privileges, debarment, tax reassessments, breach of contract and fraud litigation, reputational harm and other consequences.

If we lose key personnel, including key management or board members, or are unable to attract and retain additional personnel, it could delay our technology and product development programs and harm our R&D efforts, and we may be unable to pursue research funding, licenses and other forms of collaborations or develop our own products.

Our planned activities will require retention, and ongoing recruiting of additional expertise in specific areas applicable to our industries, technologies and products being developed. These activities will not only require the development of additional expertise by existing management personnel, but also the addition of new research and scientific, regulatory, licensing, sales, marketing, management, accounting and finance and other personnel. The inability to acquire or develop this expertise or the loss of principal members of our management, board of directors, consultants, accounting and finance, sales, and scientific staff could impair the growth, if any, of our business. However, competition for qualified personnel in the pharmaceutical, biopharmaceutical and biotechnology field is intense due to the limited number of individuals who possess the skills and experience required by our industry. As such, competition for experienced personnel from numerous companies, academic institutions and other research facilities may limit our ability to attract and retain qualified management, directors, consultants, and scientific personnel on acceptable terms. Failure to attract and retain qualified personnel would inhibit our ability to maintain and pursue collaborations and develop our products and core technologies.

Personnel changes may disrupt our operations. Hiring and training new personnel will entail costs and may divert our resources and attention from revenue-generating efforts. In addition, we periodically engage consultants to assist us in our business and operations. These consultants operate as independent contractors, and we therefore do not have as much control over their activities as we do over the activities of our employees. Our directors and consultants may be affiliated with or employed by other parties, and some may have consulting or other advisory arrangements with other entities that may conflict or compete with their obligations to us.

Our product candidates may cause undesirable and unforeseen side effects or have other properties impacting safety that could halt their clinical development, delay or prevent their regulatory approval, limit their commercial potential or result in significant negative consequences.

Undesirable side effects caused by our product candidates could cause us or regulatory authorities to interrupt, delay or halt product development and could result in a more restrictive label or the delay or denial of regulatory approval by the FDA or other regulatory authorities and potential product liability claims. Many compounds developed in the biopharmaceutical industry that initially showed promise in early stages have later been found to cause side effects that prevented their further development. Any of these occurrences may materially and adversely affect our business, financial condition, results of operations and prospects.

We may be sued for product liability.

We or our current and future collaborators and licenses may be held liable if any product we or they develop, or any product which is made with the use or incorporation of, any of our technologies, causes injury or is found otherwise unsuitable or unsafe during product testing, manufacturing, marketing or sale. These claims could be brought by various parties, including other companies who purchase products from our current and future collaborators and licenses or by end users of the products. If we cannot successfully defend ourselves against product liability claims, we may incur substantial liabilities or be required to limit commercialization of our product candidates. Even a successful defense would require significant financial and management resources. Regardless of the merits or eventual outcome, liability claims may result in:

- Decreased demand for our current or future product candidates;
- Injury to our reputation;
- Costs to defend the related litigation;
- Diversion of management's time and our resources;
- Regulatory investigations, product recalls, withdrawals or labeling, marketing or promotional restrictions;
- Loss of revenue; and
- The inability to commercialize our current or any future product candidates.

While we maintain product liability insurance, it may not fully cover all of our potential liabilities and our liability could in some cases exceed our total assets, which would have a material adverse effect on our business, results of operations, financial condition and cash flows, or cause us to go out of business. Further, insurance coverage is expensive and may be difficult to obtain and may not be available to us or to our collaborators and licensees in the future on acceptable terms, or at all. Inability to obtain sufficient insurance coverage at an acceptable cost to protect against potential product liability claims could prevent or inhibit the commercialization of products developed by us, or our collaborators and licensees.

Foreign currency fluctuations could adversely affect our results.

In the conduct of our business, in certain instances, we are required to receive payments or pay our obligations in currencies other than U.S. dollars. Especially since a large portion of our research and development is done in Europe, our CROs and certain consultants request payments in Euros. As a result, we are exposed to changes in currency exchange rates with respect to our business transactions denominated in non-US dollars. Fluctuations in currency exchange rates have in the past and may in the future negatively affect our revenue, expenses and our financial position and results of operations as expressed in U.S. dollars.

Our ability to use our net operating loss carryforwards ("NOLs") to offset future taxable income may be subject to certain limitations.

In general, under Section 382 of the Internal Revenue Code, a corporation that undergoes an "ownership change" is subject to limitations on its ability to utilize its NOLs, to offset future taxable income. If the Internal Revenue Service challenges our analysis that our existing NOLs are not subject to limitations arising from previous ownership changes, our ability to utilize NOLs could be limited by Section 382 of the Internal Revenue Code. Future changes in our stock ownership, some of which are outside of our control, could result in an ownership change under Section 382 of the Internal Revenue Code. Furthermore, our ability to utilize NOLs of companies that we may acquire in the future may be subject to limitations.

We may make acquisitions, investments and strategic alliances that may use significant resources, result in disruptions to our business or distractions of our management, may not proceed as planned, and could expose us to unforeseen liabilities.

We may seek to expand our business through the acquisition of, investment in and strategic alliances with companies, technologies, products, and services. If we are able to identify suitable acquisition, investment or strategic alliance targets, we may be unable to successfully negotiate their acquisition at a price or on terms and conditions acceptable to us.

We cannot assure you that, following an acquisition, investment or strategic alliance, we will achieve expected research and development results, anticipated synergies, revenues, specific net income or loss levels that justify such transaction or that the transaction will result in increased earnings, or reduced losses, for the combined company in any future period. Moreover, we may need to raise additional funds through public or private debt or equity financing to acquire any businesses or to provide funding for such business, which would result in dilution for stockholders or the incurrence of indebtedness and may not be available on terms which would otherwise be acceptable to us. We may not be able to oversee such investments nor operate acquired businesses profitably or otherwise implement our growth strategy successfully.

We rely significantly on information technology and any failure, inadequacy, interruption or security lapse of that technology, including any cybersecurity incidents, could harm our ability to operate our business effectively.

In the ordinary course of our business, we collect, store and transmit confidential information, including intellectual property, proprietary business information and personal information. Despite the implementation of security measures, our internal computer systems and those of third parties with which we contract are vulnerable to damage from cybersecurity attacks, ransomware attacks, breaches, intentional or accidental mistakes or errors, or other technological failures, which can include, among other things, computer viruses, malware, exploit of unpatched product or service vulnerabilities, unauthorized access attempts (including third parties gaining access to systems using stolen or inferred credentials), denial-of-service attacks, phishing attempts, service disruptions, natural disasters, fire, terrorism, war and telecommunication and electrical failures. As the cyber-threat landscape evolves, these attacks are growing in frequency, levels of persistence, sophistication and intensity, are becoming increasingly difficult to detect, and are being conducted by sophisticated groups and individuals with a wide range of motives and expertise. Furthermore, because the techniques used to obtain unauthorized access to, or to sabotage, systems change frequently and often are not recognized until launched against a target, we may be unable to anticipate these techniques or implement adequate preventative measures. We may also experience security breaches that may remain undetected for an extended period. Resulting system failures, accidents, or security breaches could cause interruptions in our operations and could result in a material disruption of our research activities and business operations, in addition to possibly requiring substantial expenditures of resources to remedy. While we have experienced and continue to experience system failures, accidents and security breaches from time to time, none has been material to date. To the extent that any disruption or security breach was to result in a loss of, or damage to, our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability and delays in our research efforts and financial reporting compliance, as well as a significant increase in costs to recover or reproduce the data.

Of special note is our risk when implementing new capabilities. The implementation of new systems and information technology could adversely impact our operations by requiring substantial capital expenditures, diverting management's attention, or causing delays or difficulties in transitioning to new systems. As we implement new systems, many times both new and old systems run in parallel until all processes have successfully transferred to the new system and thorough testing has been performed. These events could impact our customers, suppliers, subcontractors, employees, our financial reporting and our reputation and lead to financial losses from remediation actions, loss of business or potential liability, or an increase in expense, all of which may have a material adverse effect on our business. Our systems implementations may also not result in productivity improvements at the levels anticipated. In addition, the rapid evolution and increased adoption of artificial intelligence technologies may intensify our cybersecurity risks. See "*—The use of new and evolving technologies, such as artificial intelligence ("AI"), in our business may result in reputational harm, competitive harm or legal liability.*" Likewise, cyber incidents, including malicious cyber-attacks perpetrated on our employees and cyber incidents caused by third parties surreptitiously accessing our systems by other means, are an on-going risk to the security of the systems, networks, information and data of ours, our customers, subcontractors and suppliers. While we have security, internal control and technology measures in place to protect our systems and networks, confidential business information, personal data of ours, our customers, employees, suppliers and subcontractors, our information technology systems and those of our third-party service providers have been and may in the future be subject to system breaches. System breaches can lead to disclosure, modification and destruction of proprietary business data, personally identifiable information, other sensitive information, production downtime or loss of business, and damage to our reputation, competitiveness and operations. In addition, flexible working arrangements and remote working for overseas consultants may adversely impact our ability to maintain the security, proper function and availability of our information technology and systems since remote working by our employees and consultants could strain our technology resources and introduce operational risk, including heightened cybersecurity risk. Remote working environments may be less secure and more susceptible to hacking attacks, including phishing and social engineering attempts that have sought, and may seek, to exploit remote working environments. In addition, current and future laws and regulations governing data privacy and the unauthorized disclosure of confidential information, including, but not limited to rules implemented by the SEC in 2023, may pose complex compliance challenges and result in additional costs. A failure to comply with such laws and regulations could result in penalties or fines, legal liabilities or reputational harm. The continuing and evolving threat of cyber-attacks has also resulted in increased regulatory focus on risk management and prevention. New cyber-related regulations or other requirements could require significant additional resources and cause us to incur significant costs, which could have an adverse effect on our results of operations and cash flows.

The use of new and evolving technologies, such as artificial intelligence ("AI"), in our business may result in reputational harm, competitive harm or legal liability.

We have in the past and will in the future integrate new and evolving technologies, such as AI, into our business. As with many innovations, AI presents risks and challenges that could affect its adoption and, as a result, our business. Our implementation of AI in our business may have unintended consequences due to its inherent limitations or our failure to use it effectively. For example, AI algorithms may be flawed due to a lack of back-testing or datasets of poor quality or inappropriate bias, and analyses generated by AI may be deficient or inaccurate, subjecting us to competitive or reputational harm. Additionally, AI entails significant legal risks. The intellectual property ownership and license rights of new technologies such as AI have not been fully addressed by U.S. courts, and the use or adoption of such technologies in our business may expose us to potential intellectual property claims, breach of a data or software license, website terms of service claims, claimed violations of privacy rights or other tort claims. Governmental regulation and laws related to AI may also increase the burden and cost of research and development or require increased transparency that makes it more difficult to protect our intellectual property. Other jurisdictions may decide to adopt similar or more restrictive legislation rendering the use of such technologies challenging. Social and ethical issues relating to the use of new and evolving technologies such as AI in our business could also harm our competitive position and brand, or create legal liability, and may cause us to incur additional research and development costs to resolve such issues. Lastly, the rapid evolution and increased adoption of AI technologies may intensify our cybersecurity risks. For more information, see "*—We rely significantly on information technology and any failure, inadequacy, interruption or security lapse of that technology, including any cybersecurity incidents, could harm our ability to operate our business effectively.*"

Changes to our outsourced software or infrastructure vendors as well as any sudden loss, breach of security, disruption or unexpected data or vendor loss associated with our information technology systems could have a material adverse effect on our business.

We rely on third-party software and infrastructure to run critical accounting, project management and financial information systems. If software or infrastructure vendors decide to discontinue further development, integration or long-term maintenance support for our information systems, or there is any system interruption, delay, breach of security, loss of data or loss of a vendor, we may need to migrate some or all of our accounting, project management and financial information to other systems. These disruptions could increase our operational expense as well as impact the management of our business operations, which could have a material adverse effect on our financial position, results of operations, cash flows and liquidity.

Risks Related to Dependence on Third Parties

We are dependent on collaborations with third parties, and if we fail to maintain or successfully manage existing, or enter into new, strategic collaborations, we may not be able to develop and commercialize many of our technologies and products and achieve profitability.

Our R&D revenue is generated from a small number of research collaborations. These collaborations could be delayed or be discontinued, as they have in the past, at any time with little advance notice. If these research collaborations are lost or do not perform as expected, it could have a material adverse effect on our business, financial condition and operating results.

Our ability to enter into, maintain and manage collaborations in our target markets is fundamental to the success of our business. We currently rely on, and expect to continue to rely on, our current and future partners, in part, for research and development, manufacturing and distribution, sales and marketing services, and application and regulatory know how. In addition, we intend to enter into additional collaborations to conduct research, develop, produce, market, license and sell our technologies and products and processes we anticipate developing. However, we may not be successful in entering into collaborative arrangements with third parties. Any failure to enter into such arrangements on favorable terms could delay or hinder our ability to develop and commercialize our technologies, products and processes and could increase our costs of research and development and commercialization.

We have limited or no control over the resources that any collaborator or licensee may devote to our programs, and reductions in collaborators' R&D budgets may affect our businesses.

Any of our current or future collaborators or licensees may breach or terminate their agreements with us or otherwise fail to perform and conduct their required activities successfully and in a timely manner. Our collaborators or licensees may elect not to develop products arising out of our collaborative or license arrangements or may choose not to devote sufficient resources to the development, manufacture, market or sale of these products. If any of these events occur, we or our collaborators or licensees may not develop our technologies or commercialize our or their products.

Fluctuations in the R&D budgets of government agencies, our customers, licensees, collaborators and research partners could have a significant impact on the interest in and demand for our technology. Our businesses could be seriously damaged by significant decreases in life sciences and/or pharmaceutical R&D expenditures by government agencies and existing and potential partners.

We heavily rely on contracts with third-party CROs and other third-party service providers to conduct our research and development, pre-clinical, CMC and cGMP manufacturing, fill and finish, and potential clinical trials, which may not be available to the Company on commercially reasonable terms or at all.

We are dependent upon the performance and research capacity of a number of third-party CROs and other service providers to conduct our research and development projects, pre-clinical, CMC and cGMP manufacturing, fill and finish, and potential clinical trials, which include services and programs in connection with the modification and enhancement of the Company's C1 platform and to support our business development efforts for C1's use in biopharmaceutical and other applications. For the year ended December 31, 2024, two CROs accounted for approximately 93.0% total research services we purchased and 58.9% of accounts payable. For more information, see "Item 1. Business —Our Research Partners and CROs." The licensing and service arrangements with these third parties are not guaranteed to be obtained, renewed or continued on reasonable terms, if at all. The Company may be unable to obtain, maintain or expand its access to third party CROs and other service providers to conduct these services. Failure to obtain, maintain and expand access to certain third party CROs and other service providers could have a material adverse impact on the Company's research projects, financial condition and operating results. In addition, from time to time there are disagreements with such third parties that if not resolved can have a material adverse effect on our business, financial condition and operating results. In sum, the loss of business from one of these CROs or a combination of them could in certain cases make it difficult to find a replacement and in turn adversely affect our operations.

We are also heavily dependent upon the availability and performance of third-party research organizations. If we require research capacity and/or capabilities and are unable to obtain it in sufficient quantity, and quality or at terms and conditions that are acceptable to the Company or our third party collaborators, we may not be able to offer our technologies or products for license, or sale, or we may be required to make substantial capital investments to build out that capacity or to contract with other research organizations on terms that may be less favorable than our current arrangements. In addition, if we contract with other research organizations, we may experience delays of several months in qualifying them or in starting up research programs at these facilities, which could harm our relationships with our licensees, collaborators or customers, and we may be required to make a capital investment in connection with these arrangements. This could have a material adverse effect on our business, revenues or operating results.

Additionally, if we were to be unsuccessful in retaining a CRO with the requisite experience and skills we require and were required to build our own research facility, it could take a year or longer before such owned research facility were able to be brought online to carry out the necessary technology and product development efforts of the Company.

Conflicts with the CROs, other service providers, collaborators and/or licensees could harm our business.

An important part of our strategy includes involvement in proprietary research programs. We may pursue opportunities in the pharmaceutical and other fields that could conflict with those of our collaborators and licensees. Moreover, disagreements with Danisco, our current and/or future CROs, other service providers, collaborators or licensees could develop over rights to our intellectual property, over further licensing of our technologies to other parties in certain pharmaceutical and other fields, or for other reasons. Any conflict with Danisco, our current and/or future CROs, other service providers, collaborators or licensees could reduce our ability to obtain future collaboration agreements and negatively impact our relationship with existing collaborators or licensees, which could reduce our revenues and profits. For more information, see "Risk Factors—*We heavily rely on contracts with third-party CROs and other third-party service providers to conduct our research and development, pre-clinical, CMC and cGMP manufacturing, fill and finish, and potential clinical trials, which may not be available to the Company on commercially reasonable terms or at all.*"

Some of our current and/or future CROs, other service providers, collaborators and/or licensees could also become competitors in the future. Our current and/or future CROs, other service providers, collaborators and/or licensees could develop competing technologies or products, preclude us from entering into collaborations or license agreements with their customers, fail to obtain timely regulatory approvals, terminate their agreements with us prematurely or fail to devote sufficient resources to the development and commercialization of their technology and products and processes. Any of these developments could harm our technology development and value, product development efforts, revenue, profits and overall business.

We rely on our collaborators and other third parties to deliver timely and accurate information in order to accurately report our financial results as required by law.

We need to receive timely, accurate and complete information from a number of third parties in order to accurately and timely report our financial results. We rely on third parties to provide us with complete and accurate information regarding research developments and data, revenues, expenses and payments owed to or by us on a timely basis. We rely on the proper controls and procedures related to obtaining and reporting information from our CROs, licensees and collaborators related to research results and other data, when milestones are earned, if any, when royalties are earned, if any, as well as other types of potential revenues and expenses. If the information that we receive is not accurate, our consolidated financial statements may be materially incorrect and may require restatement. As a result, we may have difficulty in completing accurate and timely financial disclosures, which could have a material adverse effect on our business, financial condition and results of operations and the market price of our common stock.

Risks Related to Government Regulations and Environmental, Social, and Governance Issues

Potential future regulations limiting our ability to sell genetically engineered products could harm our business.

We, our current and future collaborators and licensees expect to develop biologic products using genetically engineered microorganisms ("GMOs"). Products derived from GMOs may in some instances be subject to bans or additional or changing regulation by federal, state, local and foreign government agencies. These agencies may not allow us or our collaborators and licensees to produce and market products derived from GMOs in a timely manner or under technically or commercially feasible conditions.

Compliance with FDA, Environmental Protection Agency ("EPA") and EU regulations could result in expenses, delays or other impediments to our product development programs or the commercialization of resulting products. The FDA currently applies the same regulatory standards to products made through genetic engineering as those applied to products developed through traditional methodologies. Regardless of GMO status, a product may be subject to lengthy FDA reviews and unfavorable FDA determinations due to safety concerns or changes in the FDA's regulatory policy. The EPA regulates biologically derived enzyme-related chemical substances not within the FDA's jurisdiction. An unfavorable EPA ruling could delay commercialization or require modification of the production process or product in question, resulting in higher manufacturing costs, thereby making the product uneconomical. The EU and other countries also have regulations regarding the development, production and marketing of products from GMOs, which may be as or more restrictive than U.S. regulations.

Further, we, Danisco, and our current and future collaborators and licensees are subject to regulations in the other countries in which we operate outside of the U.S. and EU, which may have different rules and regulations depending on the jurisdiction. Different countries have different rules regarding which products qualify as GMOs. If any of these countries expand the definition of GMO and increase the regulatory burden on GMO products, our business could be harmed.

Other changes in regulatory requirements, laws and policies, or evolving interpretations of existing regulatory requirements, laws and policies, may result in increased compliance costs, delays, capital expenditures and other financial obligations that could adversely affect our business or financial results.

Our employees and independent contractors, including principal investigators, CROs, consultants and vendors, may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements.

We are exposed to the risk that our employees and independent contractors, including principal investigators, CROs, consultants and vendors may violate (intentionally or unintentionally) our internal processes and procedures, or engage in misconduct or other illegal activity. Such actions could include intentional, reckless and/or negligent conduct or disclosure of unauthorized activities to us that violate: (1) the laws and regulations of the FDA and other similar regulatory requirements, including those laws that require the reporting of true, complete and accurate information to such authorities, (2) manufacturing standards, including cGMP requirements, (3) data privacy, security, fraud and abuse and other healthcare laws and regulations in the United States and abroad or (4) laws that require the true, complete and accurate reporting of financial information or data. Activities subject to these laws also involve the improper use or misrepresentation of information obtained in the course of clinical trials, the creation of fraudulent data in our preclinical studies or clinical trials, or illegal misappropriation of drug product, which could result in regulatory sanctions and cause serious harm to our reputation. It is not always possible to identify, prevent and deter these activities and/or misconduct by employees and other third parties, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such laws or regulations. In addition, we are subject to the risk that a person or government could allege such actions, including fraud or other misconduct, even if none occurred. If any such actions are instituted against us, we may incur significant costs to respond, and if we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business and financial results, including, without limitation, the imposition of significant civil, criminal and administrative penalties, damages, monetary fines, disgorgements, possible exclusion from participation in Medicare, Medicaid and other federal healthcare programs, individual imprisonment, contractual damages, reputational harm, diminished profits and future earnings, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, and curtailment of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

Public views on ethical and social issues may limit use of our technologies.

Our success will depend in part upon our ability, and our current and future collaborators' or licensees' ability, to develop pharmaceutical and non-pharmaceutical products discovered, developed and manufactured through the C1 platform, and our other technologies. Governmental authorities could, for social, ethical or other purposes, limit the use of genetic processes or prohibit the practice of using a modified C1 organism to produce biologic vaccines, drugs and other biologic products. Concerns about the C1 platform and our other technologies, and particularly about the expression of genes from C1 for pharmaceutical and non-pharmaceutical purposes, could adversely affect their market acceptance.

The commercial success of our current and future collaborations and our licensees' potential products will depend in part on public acceptance of the use of genetically engineered products including enzymes, vaccines, drugs and other protein products produced in this manner. Claims that genetically engineered products are unsafe for consumption or pose a danger to the environment, animals or humans may influence public attitudes. Our and our licensees' genetically engineered products may not gain public acceptance. Negative public reaction to GMOs and products could result in increased government regulation of genetic research and resulting products, including stricter labeling laws or other regulations, and could cause a decrease in the demand for our products. If we and/or our collaborators are not able to overcome the ethical, legal, and social concerns relating to genetic engineering, some or all of our products and processes may not gain public acceptance, which could have a material adverse effect on our business, financial condition and results of operations.

Our results of operations may be adversely affected by environmental, health and safety laws, regulations and liabilities.

We and the CROs, collaborators and licensees are subject to various federal, state and local environmental laws and regulations relating to the discharge of materials into the air, water and ground, the generation, storage, handling, use, transportation and disposal of hazardous materials, and the health and safety of our employees. These laws, regulations and permits can often require expensive pollution control equipment or operational changes to limit actual or potential impacts to the environment. Even then, we cannot eliminate the risk of contamination or injury from these materials. A violation of these laws and regulations or permit conditions could result in substantial fines, criminal sanctions, permit revocations and/or facility shutdowns.

In recent years, environmental, health and safety laws and regulations have become increasingly more stringent, although this may change under the new U.S. presidential administration. In addition, new laws, new interpretations of existing laws, increased government enforcement of environmental laws, or other developments could require us or our CROs or other service providers to make additional significant expenditures. Present and future environmental laws and regulations and interpretations thereof, more vigorous enforcement of policies and discovery of currently unknown conditions may impair our research, development or production efforts or require substantial expenditures that could have a material adverse effect on our results of operations and financial position. Additionally, any such developments may have a negative impact on our contract manufacturers, which could harm our business.

Increasing scrutiny and changing expectations from customers, regulators, investors, and other stakeholders with respect to our environmental, social and governance practices may impose additional costs on us or expose us to new or additional risks.

Companies are facing increasing scrutiny from customers, regulators, investors, and other stakeholders related to their environmental, social and governance practices. Investor advocacy groups, investment funds and influential investors are also increasingly focused on these practices, especially as they relate to the environment, health and safety, supply chain management, diversity and human rights. Failure to adapt to or comply with regulatory requirements or investor or stakeholder expectations and standards could negatively impact our reputation and the price of our common stock.

In addition, our customers may adopt policies that include social and environmental requirements or may seek to include such provisions in their contract terms and conditions. These social and environmental responsibility provisions and initiatives are subject to change and vary from jurisdiction to jurisdiction, and certain elements may be difficult and/or cost prohibitive for us to comply with given the inherent complexity and the global scope of our operations. In certain circumstances, in order to meet the requirements or standards of our customers, we may be obligated to modify our sourcing practices or make other operational choices which may require additional investments and increase our costs or result in inefficiencies.

Any of the factors mentioned above, or the perception that we or those with whom we conduct business have not responded appropriately to the growing concern for such issues, regardless of whether we are legally required to do so, may damage our reputation and have a material adverse effect on our business, financial condition, results of operations cash flows and/or the price of our common stock.

We have no experience submitting applications to the FDA or similar regulatory authorities in the past and may not be able to obtain regulatory approval or may be subject to lengthy and/or unfavorable regulatory proceedings.

While we understand that many of our current and future collaborators or licensees may have a proven track record of experience submitting application to the FDA or other applicable regulatory authorities, we have no such experience in the past. Neither we nor any collaborator or licensee has yet submitted any application with the FDA or any other regulatory authority for any product candidate generated through the use of the C1 platform as it relates to the development and manufacture of pharmaceutical and other products. The FDA may not have substantial experience with technology similar to ours, which could result in delays or regulatory action against us. In addition, the new U.S. presidential administration has indicated it may institute significant changes to certain regulatory agencies, including the FDA, and it is difficult to predict the impact of these changes, if any. We and our current and future collaborators and licensees may not be able to able to obtain regulatory approval for C1 expressed products, which would harm our business.

The C1 platform has been tested for use in the manufacturing of an enzyme in the production of wine, beer and fruit juices, and has generated promising safety and toxicity data for that enzyme. The C1 platform could produce vaccines, antibodies, or therapeutic products and enzymes that have safety, toxicity, pathogenicity, immunogenicity and other issues associated with them. The C1 platform and our other technologies may be subject to lengthy regulatory reviews and unfavorable regulatory determinations if they raise safety questions which cannot be satisfactorily answered or if results from studies do not meet regulatory requirements. An unfavorable regulatory ruling could be difficult to resolve and could delay or possibly prevent a product from being commercialized, or even delay or prevent the use of the C1 platform or our other technologies to produce future products, which would have a material adverse effect on our growth and prospects. Additionally, future products produced by us or our current and future collaborators or licensees using the C1 platform, or our other technologies may not be approved by the FDA or other regulatory agencies in the U.S. or worldwide. There is no assurance that safety, toxicity, pathogenicity, immunogenicity and other issues will not arise in current or future product development and manufacturing programs due to media, fermentation, inherent properties or genetic changes in the C1 and other strains and fermentation processes.

If these therapeutic protein products, antibodies or vaccines or other non-pharmaceutical products are not approved by regulators, we or our current and future customers or collaborators and licensees will not be able to commercialize them, and we may not receive research funding, upfront license fees, milestone and royalty payments, which are based upon the successful advancement of these products through the drug development and approval process. Even after investing significant time and expense, any regulatory approval may also impose limitations on the uses for which we can market a product, and any marketed product and its manufacturer are subject to continual review. Discovery of previously unknown problems with a product or manufacturer may result in new restrictions on the product, manufacturer and manufacturing facility, including withdrawal of the product from the market. In certain countries, regulatory agencies also set or approve prices, which may result in low or unprofitable margins and would have a material adverse effect on our business, financial condition and results of operations.

Risks Relating to Intellectual Property

Failure to protect our intellectual property and the intellectual property of certain third parties could harm our competitive position.

Our success will depend in part on our ability to obtain patents and on our and Danisco's (as part of the DuPont Transaction, patents were assigned to Danisco) and our current and future collaborators' and licensees' ability to maintain adequate protection of our and their intellectual property. If we, Danisco, or our current and future collaborators and licensees do not adequately protect our intellectual property, competitors may be able to practice our technologies and erode our competitive advantage. The laws of some foreign countries do not protect proprietary rights to the same extent as the laws of the United States, and many companies have encountered significant problems in protecting their proprietary rights in these foreign countries.

However, the patent positions of biotechnology companies, including our patent position, are generally uncertain and involve complex legal and factual questions. We will be able to protect our proprietary rights from unauthorized use by third parties only to the extent that our, and in certain instances the C1 patents assigned to Danisco, and our current and future collaborators' and licensees' proprietary technologies, are covered by valid and enforceable patents or are effectively maintained as trade secrets. We intend, from time to time, to apply for patents covering both our technologies and our products, while at other times, we only maintain such knowledge as trade secrets without applying for patents, as we deem appropriate. However, existing and future patent applications may be challenged and are not guaranteed to result in the issuing of patents. Even if a patent is obtained, it may not be sufficiently broad to prevent others from practicing our technologies or from developing competing products. Others, including Danisco and our current and future collaborators and licensees, may independently develop similar or alternative technologies or design around our, Danisco's or our current and future collaborators' and licensees' patented technologies. In addition, Danisco, our current and future collaborators, licensees, or other third parties may challenge or invalidate our patents, or our patents may fail to provide us with any competitive advantages. If any third party is able to gain intellectual property protections for technology similar to our own, they may be successful in blocking us and our licensees from using the C1 platform or our other technologies and/or commercializing products derived from them.

We cannot ensure that any of our pending patent applications will result in issued patents, or even if issued, predict the breadth of the claims upheld in our and other companies' patents. Given that the degree of future protection for our proprietary rights is uncertain, we cannot ensure that we were the first to invent the inventions covered by our pending patent applications, or that we were the first to file patent applications for these inventions or the patents we have obtained.

In addition, Dyadic will continue to review its existing and potential patent positions and rights. Based on our analysis if and when the commercial opportunities and patent enforceability are questionable, we may abandon certain patents in some countries. There is a risk that we will abandon potentially valuable patents.

Litigation or other proceedings or third-party claims of intellectual property infringement could require us to spend significant time and resources and could prevent us and our collaborators from commercializing our or their technologies and products or negatively impact our stock price.

Our commercial success depends in part on neither infringing patents and proprietary rights of third parties, nor breaching any licenses that we have entered into with regard to our technologies and products. Others have filed, and in the future are likely to file, patent applications covering genes or gene fragments, genetic elements, screening, gene expression and fermentation processes and other intellectual property that we may wish to utilize with the C1 platform or our other technologies or products and systems that are similar to those developed with its use. If these patent applications result in issued patents and we wish to use the claimed technology, we may need to obtain a license from the appropriate third party.

Third parties do and may continue to assert that we and/or our current and future collaborators and licensees are employing their proprietary technology without authorization. In addition, third parties may obtain patents in the future and claim that use of our technologies infringes these patents. We could incur substantial costs and diversion of management and technical personnel in defending ourselves against any of these claims or enforcing our patents and other intellectual property rights. Parties making claims against us may be able to obtain injunctive or other equitable relief, which could effectively block our ability to further develop, commercialize and sell products, and could result in the award of substantial damages against us. If a claim of infringement against us is successful, we may be required to pay damages and obtain one or more licenses from third parties. In the event that we are unable to obtain these licenses at a reasonable cost, we and/or current and future collaborators and licensees could encounter delays in product commercialization while we attempt to develop alternative methods or products. Defense of any lawsuit or failure to obtain any of these licenses could prevent us from commercializing available products.

In addition, unauthorized parties may attempt to steal, copy or otherwise obtain and use our C1 microbial strains, genetic elements, development and manufacturing processes, other technology or products. Monitoring unauthorized use of our intellectual property is difficult, and we cannot be certain that the steps we have taken will prevent unauthorized use of our technologies, particularly in certain foreign countries where the local laws may not protect our proprietary rights as fully as in the United States. Moreover, third parties could practice our inventions in territories where we do not have patent protection. Such third parties may then try to import into the United States or other territories products, or information leading to potentially competing products, made using our inventions in countries where we do not have patent protection for those inventions. If competitors are able to use our technologies, our ability and our current and future collaborators' and licensees' ability to compete effectively could be harmed. Moreover, others may independently develop and obtain patents for technologies that are similar to or superior to our technologies. If that happens, we may need to license these technologies, and we may not be able to obtain licenses on reasonable terms, if at all, which could harm our business, financial condition and results of operations.

Confidentiality agreements with employees and others may not adequately prevent disclosures of trade secrets and other proprietary information.

We rely in part on trade secret protection to protect our confidential and proprietary information and processes. However, trade secrets are difficult to protect. We have taken measures to protect our trade secrets and proprietary information, but these measures may not be effective. We require employees and consultants to execute confidentiality agreements upon the commencement of an employment or consulting arrangement with us. These agreements generally require that all confidential information developed by the individual or made known to the individual by us during the course of the individual's relationship with us be kept confidential and not disclosed to third parties. These agreements also generally provide that inventions conceived by the individual in the course of rendering services to us shall be our exclusive property. Nevertheless, our proprietary information may be disclosed, third parties could reverse engineer our biocatalysts and others may independently develop substantially equivalent proprietary information and techniques or otherwise gain access to our trade secrets. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our proprietary rights, and failure to obtain or maintain trade secret protection could adversely affect our competitive business position.

Risks Related to Our Common Stock

The price of our shares of common stock is likely to be volatile, and you could lose all or part of your investment.

The trading price of our common stock has been, and is likely to continue to be, volatile. Biotechnology company stocks generally tend to experience extreme price fluctuations. The valuations of many biotechnology companies without consistent product sales and earnings are extraordinarily high based on conventional valuation standards such as price-to-earnings and price-to-sales ratios. These trading prices and valuations may not be sustained. Factors that may result in fluctuations in our stock price include, but are not limited to, the following:

- Changes in the public's perception of the prospects of biotechnology companies;
- Sales of our common stock in the public market by such stockholders or other significant stockholders, executive officers, or directors;
- Announcements of new technological innovations, patents or new products or processes by us, Danisco or our current or future collaborators, licensees and competitors;
- Announcements by us, Danisco or our collaborators and licensees relating to our relationships with third parties;
- Coverage of, or changes in financial estimates by us or securities and industry analysts;
- Conditions or trends in the biotechnology industry;
- Changes in investor interest in the areas in which we and/or our collaborators and licensees are applying our technologies, such as COVID-19;
- Changes in the market valuations of other biotechnology companies;
- Limitations or expanded uses in the areas within the biopharmaceutical or other industries into which we can apply our technologies and products;
- Actual or anticipated changes in our growth rate relative to our competitors;
- Developments in domestic and international governmental policy or regulations;
- Announcements by us, Danisco, our current and future collaborators and licensees, or our competitors of significant acquisitions, divestures, strategic partnerships, license agreements, joint ventures or capital commitments;
- The position of our cash, cash equivalents and marketable securities;
- Any changes in our debt position;
- Developments in patent or other proprietary rights held by us, Danisco or by others;
- Negative effects related to the stock or business performance of Danisco, our current and future collaborators and licensees, or the abandonment of projects using our technology by our collaborators and/or licensees;
- Scientific risks inherent to emerging technologies such as the C1 platform or our other technologies;
- Set-backs, and/or failures, and or delays in our or our current and future collaborators' and licensees' R&D and commercialization programs;
- Delays or failure to receive regulatory approvals by us, Danisco and/or our current and future collaborators and licensees;
- Loss or expiration of our or Danisco's intellectual property rights;
- Theft, misappropriation or expiration of owned or licensed proprietary and intellectual property, genetic and biological material owned by us and/or Danisco US, Inc., and VTT Technical Research Centre of Finland Ltd;
- Lawsuits initiated by or against us, Danisco, or our current and future collaborators and licensees;
- Period-to-period fluctuations in our operating results;
- Future royalties from product sales, if any, by Danisco, our current or future strategic partners, collaborators or licensees;
- Future royalties may be owed to Danisco by us, our collaborators, licenses, or sub-licensees under certain circumstances related to our Danisco Pharma License;
- Short positions taken in our common stock;
- Sales of our common stock or other securities in the open market;
- Stock buy-back programs;
- Stock splits; and
- Decisions made by the board related to potential registration of Dyadic's stock under the Securities Act of 1933, as amended (the "Securities Act"), and/or up listing to another stock exchange.

If we were to become party to a securities class action suit, we could incur substantial legal fees and our management's attention and resources could be diverted from operating our business to responding to litigation.

Our quarterly and annual operating results may be volatile.

Our quarterly and annual operating results have fluctuated in the past and are likely to do so in the future. These fluctuations could cause our stock price to vary significantly or decline. Some of the factors that could impact our operating results include:

- Expiration of or cancellations of our research contracts with current and future collaborators and/or licensees, which may not be renewed or replaced;
- Setbacks or failures in our and our current and future collaborators' and licensees' research, development and commercialization efforts;
- Setbacks, or delays in our research and development efforts to develop and produce biologics;
- Setbacks, or delays in our research and development efforts to re-engineer the C1 platform or our other technologies for their applications and use in developing and producing biologics;
- The speed, and success rate of our discovery and research and development efforts leading to potential licenses, or other forms of collaborations, access fees, milestones and royalties;
- The timing and willingness of current and future collaborators and licensees to utilize C1 to develop and commercialize their products which would result in potential upfront fees, milestones and royalties;
- General and industry specific economic conditions, which may affect our current and future collaborators' and licensees' R&D expenditures;
- The adoption and acceptance of the C1 platform and our other technologies by biopharmaceutical and non-pharmaceutical companies and regulatory agencies;
- The addition or loss of one or more of the collaborative partners, grants, research funding, or licensees we are working with to further develop and commercialize our technologies and products in the pharmaceutical industry;
- Our ability to file, maintain and defend our intellectual property and to protect our proprietary information and trade secrets;
- Our ability to develop technology, products and processes that do not infringe on the intellectual property of third parties;
- The improvement and advances made by our competitors to CHO, *E.coli*, yeast, inset cells, plant and other expression systems;
- The introduction by our competitors of new discovery and expression technologies competitive with the C1 platform;
- Our ability to enter into new research projects, grants, licenses or other forms of collaborations and generate revenue from such parties;
- Scientific risk associated with emerging technologies such as the C1 platform;
- Failure to bring on the necessary research and manufacturing capacity, e.g., CRO, CMO (contract manufacturing organization), and CDMO (contract development and manufacturing organization), if required;
- Uncertainty regarding the timing of research funding, grants or upfront license fees for new C1 platform, our other technologies, collaborations, license agreements or expanded license agreements; and
- Delays or failure to receive upfront fees, milestones and royalties and other payments.

Due to the possibility of fluctuations in our revenues and expenses, we believe that quarter-to-quarter comparisons of our operating results are not necessarily a good indication of our future performance. Our operating results in some quarters, or even in some years, may not meet the expectations of stock market analysts and investors, potentially causing our stock price to decline.

We do not expect to pay cash dividends in the future.

We have never paid cash dividends on our stock and do not anticipate paying any dividends for the foreseeable future. The payment of dividends on our stock, if ever, will depend on our earnings, financial condition and other business and economic factors deemed relevant for consideration by our board of directors. If we do not pay dividends, our stock may be less valuable because a return on investment will only occur if and to the extent that our stock price appreciates.

Our anti-takeover defense provisions may deter potential acquirers and depress our stock price.

Certain provisions of our certificate of incorporation, bylaws and Delaware law, as well as certain agreements we have with our executives, could make it substantially more difficult for a third party to acquire control of us. These provisions include the following:

- We may issue preferred stock with rights senior to those of our common stock;
- We have a classified board of directors;
- Action by written consent by stockholders is not permitted;
- Our board of directors has the exclusive right to fill vacancies and set the number of directors;
- Cumulative voting by our stockholders is not allowed; and
- We require advance notice for nomination of directors by our stockholders and for stockholder proposals.

These provisions may discourage certain types of transactions involving an actual or potential change in control. These provisions may also limit our stockholders' ability to approve transactions that they may deem to be in their best interests and discourage transactions in which our stockholders might otherwise receive a premium for their stock over the current market price.

Concentration of ownership among our existing officers, directors and principal stockholders may prevent other stockholders from influencing significant corporate decisions and depress our stock price.

Our executive officers, directors and principal stockholders (5% stockholders) together control approximately 34.7% of our 29,835,799 shares of outstanding common stock as of December 31, 2024.

Our Founder and Chief Executive Officer Mark Emalfarb, through the Mark A. Emalfarb Trust U/A/D October 1, 1987, as amended (the "MAE Trust") of which he is the trustee and beneficiary, owned approximately 15.6% of our outstanding common stock as of December 31, 2024. Further, the Francisco Trust U/A/D February 28, 1996 (the "Francisco Trust"), whose beneficiaries are the descendants and spouse of Mr. Emalfarb, owned approximately 11.4% of our outstanding common stock as of December 31, 2024. We have historically been partially controlled, managed and partially funded by Mr. Emalfarb, and affiliates of Mr. Emalfarb. Collectively, Mr. Emalfarb and stockholders affiliated with Mr. Emalfarb controlled approximately 27.0% of our outstanding common stock as of December 31, 2024.

Mr. Emalfarb may be able to control or significantly influence all matters requiring approval by our stockholders, including the election of directors and the approval of mergers or other business combination transactions. The interests of Mr. Emalfarb may not always coincide with the interests of other stockholders, and he may take actions that advance his personal interests and are contrary to the desires of our other stockholders.

If our existing officers, directors and principal stockholders act together, they will be able to exert a significant degree of influence over our management and affairs and over matters requiring stockholder approval, including the election of directors and approval of significant corporate transactions. In addition, this concentration of ownership may delay or prevent a change in control and might affect the market price of our stock, even when a change may be in the best interests of all stockholders. Certain of our principal stockholders may elect to increase their holdings of our common stock, which may have the impact of delaying or preventing a change of control. Moreover, the interests of this concentration of ownership may not always coincide with our interests or the interests of other stockholders, and, accordingly, they could cause us to enter into transactions or agreements, which we would not otherwise consider.

Future resales of shares of our common stock may negatively affect our stock price.

The resale of shares of our common stock, or the perception that such resales could occur, could harm the prevailing market price of shares of our common stock. These sales, or the possibility that these sales may occur, also might make it more difficult for us to sell equity securities in the future at a time and at a price that we deem appropriate.

As of December 31, 2024, there were 29,835,799 shares of our common stock outstanding. Approximately 34.7% of these outstanding common shares are beneficially owned or controlled by our executive officers, directors and principal stockholders.

Our common stock has a relatively small public float. As a result, sales of substantial amounts of shares of our common stock, or even the potential for such sales, may materially and adversely affect prevailing market prices for our common stock. In addition, any adverse effect on the market price of our common stock could make it difficult for us to raise additional capital through sales of equity securities.

The Company is exposed to credit risk and fluctuations in the values of its investment portfolio.

The Company's investments can be negatively affected by liquidity, credit deterioration, financial results, market and economic conditions, political risk, sovereign risk, interest rate fluctuations or other factors. As a result, the value and liquidity of the Company's cash, cash equivalents, and marketable and non-marketable securities may fluctuate substantially, which could result in significant losses and could have a material adverse impact on the Company's financial condition and operating results.

We are a smaller reporting company, and the reduced disclosure requirements applicable to smaller reporting companies may make our common stock less attractive to investors.

We are a smaller reporting company and are therefore entitled to rely on certain reduced disclosure requirements, such as an exemption from providing selected financial data and executive compensation information. We are also exempt from the requirement to obtain an external audit on the effectiveness of internal control over financial reporting provided in Section 404(b) of the Sarbanes-Oxley Act. These exemptions and reduced disclosures in our filings with the Securities and Exchange Commission due to our status as a smaller reporting company mean our auditors do not review our internal control over financial reporting and may make it harder for investors to analyze our results of operations and financial prospects. We cannot predict if investors will find our common stock less attractive because we may rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock, and our stock prices may be more volatile.

If securities or industry analysts do not publish research or reports about our business, or if they issue adverse or misleading research or reports regarding us, our business or our market, our stock price and trading volume could decline.

The trading market for our common stock is influenced by the research and reports that industry or securities analysts publish about us, our business or our market. We currently have two securities analysts publishing research about our stock. If no or few securities or industry analysts commence or maintain coverage of us, the trading price for our stock would be negatively impacted. If any of the analysts who cover us issue adverse or misleading research or reports regarding us, our business model, our intellectual property, our stock performance or our market, or if our operating results fail to meet the expectations of analysts, our stock price would likely decline. If one or more of these analysts cease coverage of us or fail to publish reports on us regularly, we could lose visibility in the financial markets, which in turn could cause our stock price or trading volume to decline.

Item 1B. Unresolved Staff Comments

Not applicable.

Item 1C. Cybersecurity

Cybersecurity Risk Management and Strategy

We recognize the importance of assessing, identifying, and managing material risks associated with cybersecurity threats, as such term is defined in Item 106(a) of Regulation S-K. These risks include, among other things, operational risks, the risk of intellectual property theft, fraud, harm to employees or third parties with which we conduct business and violation of data privacy or security laws.

Identifying and assessing cybersecurity risk is integrated into our overall risk management systems and processes. We have established policies and controls for assessing, identifying and managing material cybersecurity risks and responding to material cybersecurity incidents.

We routinely assess material cybersecurity risks, including potential unauthorized occurrences on, or conducted through, our information systems that may compromise the confidentiality, integrity or availability of those systems or information maintained in them. We conduct periodic risk assessments to identify cybersecurity threats, as well as assessments when there is a material change in our business practices that we believe could affect information systems that are vulnerable to cybersecurity threats. These risk assessments include identifying reasonably foreseeable internal and external risks and the potential harm if the risks were to materialize. We conduct these risk assessments directly and also periodically engage third-party providers to support these processes.

Following these risk assessments, we evaluate how to appropriately implement and maintain reasonable safeguards to mitigate identified risks; reasonably address any identified gaps in existing safeguards; and regularly monitor the effectiveness of our safeguards. We have implemented cybersecurity tools, conducted employee training, and monitored emerging laws and regulations related to data protection and information security. We may also obligate certain third-party business partners to certify that they can implement and maintain appropriate security measures, consistent with all applicable laws, in connection with their work for us, and to promptly report any suspected breach of their security measures that may affect the Company.

Cybersecurity events and data incidents are evaluated, assessed based on severity and prioritized for response and remediation. Under our incident response policies, incidents are evaluated to determine materiality as well as operational and business impact and reviewed for privacy impact.

We have not, to date, experienced a cybersecurity incident that was determined to be material, although, as a technology provider, we have experienced incidents in the past. Despite our cybersecurity efforts, we may not be successful in preventing or mitigating a cybersecurity incident that could have a material adverse effect on our business. For additional information regarding whether any risks from cybersecurity threats are reasonably likely to materially affect our company, including our business strategy, results of operations, or financial condition, please refer to "Item 1A, Risk Factors" in this Annual Report on Form 10-K.

Cybersecurity Governance

Cybersecurity is an important part of our risk management processes and an area of focus for our board of directors and management team. Our board of directors has delegated responsibility to the Audit Committee for the oversight of risks from cybersecurity threats. Members of the Audit Committee receive regular updates from senior management, including leaders from our information technology, legal and compliance teams regarding matters of cybersecurity. This includes existing and new cybersecurity risks, information on how management is addressing and/or mitigating those risks, cybersecurity incidents (if any) and the status on key information security initiatives.

Our Chief Executive Officer and Chief Financial Officer are principally responsible for overseeing the cybersecurity risk management program, in partnership with outside consultants, as well as managing and responding to material cyber incidents if any occur. Our CFO also serves as a board member at a cybersecurity and mobile IT solutions company. Although our CEO and CFO do not otherwise have cybersecurity expertise, their many years in Company management and risk oversight more generally position them well to oversee the cybersecurity risk management program, which they do in partnership with outside consultants. They provide periodic briefings to the Audit Committee and to the Board of Directors about our cybersecurity risks and activities, including cybersecurity incidents and responses, cybersecurity systems testing, third-party activities and related topics. In addition, our policies for managing and responding to cybersecurity incidents include procedures for appropriate escalations to our Audit Committee Chair.

Item 2. Properties

The Company maintains its corporate headquarters at 1044 N US 1, Jupiter, Florida under a lease expiring on August 31, 2026, with an option to extend for two (2) successive one (1) year terms. The Company occupies this space with an annual rental rate of approximately $59,000, excluding common maintenance expenses. Rent is subject to three percent (3%) annual increases, and the Company is responsible for certain common area maintenance charges and taxes throughout the life of the lease.

The Company maintains a small satellite office in Wageningen, The Netherlands under a lease with an annual rental rate of approximately $4,600. The lease expires on January 31, 2026, and thereafter, the Company intends to reevaluate the need for the leased space to align with the future operations of the Company.

We believe that our current office spaces are adequate to meet our needs for the immediate future, and that, should it be needed, suitable additional space is available to accommodate any expansion of our operations, but such space may not be available in the same building if and when such space is needed.

Item 3. Legal Proceedings

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. 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. We are not currently involved in any litigation that we believe could have a materially adverse effect on our financial condition or results of operations. For more information, see Note 4 to the Consolidated Financial Statements. There is no action, suit, proceeding, inquiry or investigation before or by any court, public board, government agency, self-regulatory organization or body pending or, to the knowledge of the executive officers of our Company or any of our subsidiaries, threatened against or affecting our Company, our common stock, any of our subsidiaries or of our Company's or our subsidiaries' officers or directors in their capacities as such, in which an adverse decision could have a material adverse effect.

Item 4. Mine Safety Disclosures

Not applicable for our operations.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchase of Equity Securities

Market Information

As of December 31, 2024, Dyadic had two classes of capital stock authorized, common stock and preferred stock. Effective April 17, 2019, our common stock began trading on the NASDAQ Stock Market LLC's NASDAQ Capital Market, under the symbol "DYAI". There were no shares of preferred stock outstanding for the reported period. The number of record holders of our common stock as of December 31, 2024 was 47, including The Depository Trust Company, which holds shares of our common stock on behalf of an indeterminate number of beneficial owners. We have never declared or paid any dividends in the past. Any future determination to pay dividends will be at the discretion of our Board of Directors (the "Board").

Securities Authorized for Issuance Under Equity Compensation Plans

See Part III, Item 12.

Equity Performance Graph

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.

Recent Sales of Unregistered Securities

None.

Issuer Purchases of Equity Securities

None.

Item 6. [Reserved]

Item 7. 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 Annual Report. Some of the information contained in this discussion and analysis or set forth elsewhere in this Annual 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 not limited to those set forth in "Item 1A. Risk Factors" in this Annual Report. All forward-looking statements included in this Annual Report are based on information available to us as of the time we file this Annual 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 platform 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 contract research organizations to carry out the Company's activities. Over the past two plus decades, the Company developed a gene expression platform for producing commercial quantities of industrial enzymes and other proteins, and 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.

For the past nine years since the Company sold its industrial technology business to Danisco USA ("Danisco"), the industrial biosciences business of DuPont (NYSE: DD) (the "DuPont Transaction"), the Company has been focused on building innovative microbial protein production 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. As part of the DuPont Transaction, Dyadic retained co-exclusive rights to its proprietary and patented C1 protein production platform (the "C1 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 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. 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 in licensed by Danisco.

After the DuPont Transaction, the Company has directed its efforts toward advancing the C1 platform to address the increasing global demand for the development and manufacturing of prophylactic and therapeutic biopharmaceuticals for human and animal health. The Company's biopharmaceutical development efforts have been centered on enhancing the capability of the C1 platform to produce stable, properly folded, and functional proteins for pharmaceutical applications, including vaccines and monoclonal antibodies. In addition to improving the quality and productivity of the C1 platform, the Company has sought to validate its platform for human use through a series of fully funded biopharmaceutical projects, extensive animal studies utilizing C1-produced proteins, and in 2024, the successful completion of a Phase 1 first-in-human study for a vaccine antigen produced using C1, which demonstrated its safety for human applications.

Recognizing the longer development timelines, clinical testing, and regulatory requirements associated with human and animal pharmaceutical products, the Company has refined its core business strategy to expand into recombinant (non-animal derived) alternative proteins for non-pharmaceutical applications in research, nutrition, and industrial markets. To address these opportunities, the Company has developed and launched the Dapibus™ Protein Production Platform ("Dapibus™"), which supports various applications within the alternative proteins field, namely in Life Sciences, Food & Nutrition, and Bioindustrial applications. Given the reduced developmental costs, shorter timelines, and fewer regulatory requirements associated with alternative proteins, Dapibus™ has enabled the Company to generate near-term recurring revenue while continuing to build long-term value through C1 for pharmaceutical applications. The Company anticipates achieving commercialization of certain alternative protein products in 2025 through a combination of existing collaborations and internal manufacturing efforts.

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 and projects 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 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.

Royalties: With respect to licenses deemed to be the predominant item to which thesales-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 of 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. 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. See Note 8 to the Consolidated Financial Statements.

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

Year Ended December 31, 2024 Compared to the Year Ended December 31, 2023

Revenue and Cost of Revenue

The following table summarizes the Company's revenue and cost of research and development revenue for the years ended December 31, 2024 and 2023:

	Year Ended December 31,	
	2024	**2023**
Research and development revenue	$ 1,605,220	$ 2,545,865
License revenue	$ 1,890,169	$ 352,941
Cost of research and development revenue	$ 1,194,624	$ 1,975,849

For the years ended December 31, 2024 and 2023, the Company's revenue was generated from 19 and 16 collaborations, respectively. The decrease in research and development revenue and cost of research and development revenue was due to higher individual contract amounts on certain research funding and related work performed during 2023. The license revenue for the year ended December 31, 2024 was in connection with the Inzymes and Proliant license agreements, and for the year ended December 31, 2023 was in connection with the Janssen license agreement.

Research and Development Expenses

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

Research and development expenses for the year ended December 31, 2024 decreased to $2,044,000 compared to $3,297,000 for the year ended December 31, 2023. The decrease was due to the completion of activities related to the Company's Phase 1 clinical trial of DYAI-100 COVID-19 vaccine candidate.

General and Administrative Expenses

General and administrative expenses for the year ended December 31, 2024 increased to $6,135,000 compared to $5,817,000 for the year ended December 31, 2023. The increase reflected increases in business development and investor relations expenses of $294,000, share-based compensation expenses of $109,000, professional service expenses of $82,000, and other increases of $84,000, partially offset by decreases in management incentive expenses of $124,000, legal expenses of $65,000 and insurance expenses of $64,000.

Foreign Currency Exchange

Foreign currency exchange loss for the year ended December 31, 2024 was $23,000 compared to $38,000 for the year ended December 31, 2023. The decrease reflected the currency fluctuation of the Euro in comparison to the U.S. dollar.

Loss from Operations

Loss from operations for the year ended December 31, 2024, decreased to $5,901,000 compared to $8,230,000 for the year ended December 31, 2023. The decrease in loss from operations was largely due to an increase in licensing revenue of $1,000,000 from Proliant and $890,000 from Inzymes, including success fees in 2024 and the above-discussed decrease in research and development expenses associated with the completion of activities related to the Company's Phase 1 clinical trial of DYAI-100 COVID-19 vaccine candidate.

Other Income, Net

For the year ended December 31, 2024, the total other income, net, of $92,000 compared to $1,434,000 for the year ended December 31, 2023. The decrease was largely due to an increase in interest expenses of $428,000 related to the Convertible Notes in 2024 and a gain on the sale of the Company's equity interest in Alphazyme, LLC of $1,018,000 in 2023.

Income Taxes

The Company had net operating loss ("NOL") carryforwards available as of December 31, 2024 and 2023, in the amount of approximately $49,903,000 and $45,850,000, respectively. Approximately $46,965,000 of the NOL carryforwards will be carried forward indefinitely and will be available to offset 80% of taxable income. The remaining amount of the net operating loss carryforwards will expire at varying dates through 2038.

Net Loss

Net loss for the year ended December 31, 2024 was $5,809,000 compared to a net loss of $6,795,000 for the year ended December 31, 2023. The decrease in net loss of $986,000 was principally due to an increase in license revenue of $1,537,000 and a decrease in research and development expenses of $1,253,000, partially offset by an increase in general and administrative expenses of $318,000 and a decrease in other income of $1,343,000.

Liquidity and Capital Resources

In accordance with FASB Accounting Standards Codification ("ASC") 205-40, Presentation of Financial Statements – Going Concern ("Topic 205-40"), management is required to evaluate whether there are conditions and events, considered in the aggregate that raise substantial doubt about the Company's ability to continue as a going concern for at least 12 months from the issuance date of the Company's condensed interim financial statements. This evaluation does not take into consideration the potential mitigating effect of management's plans that have not been fully implemented or are not within control of the Company as of the date the financial statements are issued. When substantial doubt exists under this methodology, management evaluates whether the mitigating effect of its plans sufficiently alleviates substantial doubt about the Company's ability to continue as a going concern. The mitigating effect of management's plans, however, is only considered if both (1) it is probable that the plans will be effectively implemented within one year after the date that the financial statements are issued, and (2) it is probable that the plans, when implemented, will mitigate the relevant conditions or events that raise substantial doubt about the entity's ability to continue as a going concern within one year after the date that the financial statements are issued.

The Company expects to incur losses and have negative net cash flows from operating activities as it continues developing its microbial protein production 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. The purchasers of the Convertible Notes included 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, were $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.

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.

On October 4, 2024, the Company entered into an amendment (the "Amendment") to the Convertible Notes. Pursuant to the Amendment, (i) the conversion price upon which the Convertible Notes will be convertible into shares of the Company's common stock is $1.40 per share of common stock, and (ii) the Redemption Date (as defined in the Amendment) will fall on any of the 26, 29 and 32-month anniversaries of the original issue date of the Convertible Notes, which are May 8, 2026, August 8, 2026 and November 8, 2026.

The Convertible Notes contain customary covenants, and the Securities Purchase Agreement relating to the Convertible Notes also contains certain affirmative and negative covenants (including, without limitation, restrictions on our ability to incur indebtedness, permit liens, make dividends or certain debt payments or consummate certain affiliate transactions). The Company was in compliance with its covenants with respect to the Convertible Notes as of December 31, 2024.

As of December 31, 2024, $910,000 of the Convertible Notes were converted into 556,623 shares of Common Stock. For more information regarding the Convertible Notes, including the covenants related thereto, see Note 5 to the Consolidated Financial Statements.

In addition, on November 16, 2024, Dyadic entered into an agreement with the Bill & Melinda Gates Foundation (the "Gates Foundation") relating to a grant in the amount of $3,092,136 awarded from the Gates Foundation for the cell line development of monoclonal antibodies targeting respiratory syncytial virus and malaria utilizing the Company's C1 platform to provide globally accessible treatment options for underserved populations (the "Gates Foundation Grant").

The Company expects its existing cash and cash equivalents and cash raised from the Convertible Notes, the Gates Foundation Grant, 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 Annual 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, convertible notes or other debt instruments, 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

At December 31, 2024, cash and cash equivalents were $6,507,000 compared to $6,515,000 at December 31, 2023. The carrying value of investment grade securities, including accrued interest at December 31, 2024 was $2,781,000 compared to $758,000 at December 31, 2023.

Net cash used in operating activities for the year ended December 31, 2024 of $3,975,000 resulted from a net loss of $5,809,000 adjusted for share-based compensation expenses of $1,126,000, partially offset by changes in operating assets and liabilities of $755,000.

Net cash used in operating activities for the year ended December 31, 2023 of $6,727,000 resulted from a net loss of $6,795,000 adjusted for share-based compensation expenses of $1,244,000, partially offset by sale of our investment in Alphazyme of $1,018,000, and changes in operating assets and liabilities of $143,000.

Net cash used in investing activities for the year ended December 31, 2024 was $1,876,000 compared to net cash provided by investing activities of $7,450,000 for the year ended December 31, 2023. Cash flows from investing activities in 2024 and 2023 were primarily related to proceeds from maturities, net of purchases of investment grade debt securities, and proceeds from the sale of investment in Alphazyme.

Net cash provided by financing activities for the year ended December 31, 2024 was $5,849,000, which was related to net proceeds from issuance of convertible notes, and proceed from exercise of options. There were no cash flows from financing activities in 2023.

Item 7A. 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 8. Financial Statements and Supplementary Data

The Consolidated Financial Statements and supplementary data required by this item are presented elsewhere in this report beginning on page F-1, in the order shown below:

Report of Independent Registered Public Accounting Firm (PCAOB ID 173)

Consolidated Balance Sheets as of December 31, 2024 and 2023

Consolidated Statements of Operations for the years ended December 31, 2024, 2023

Consolidated Statements of Stockholders' Equity for the years ended December 31, 2024 and 2023

Consolidated Statements of Cash Flows for the years ended December 31, 2024 and 2023

Notes to Consolidated Financial Statements

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. 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 December 31, 2024. 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 (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 December 31, 2024, our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate "internal control over financial reporting," as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2024 based on the criteria set forth in the Internal Control-Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on the assessment, our management has concluded that our internal control over financial reporting was effective as of December 31, 2024. This Annual Report does not include an attestation report of our independent registered public accounting firm regarding internal control over financial reporting. Management's report was not subject to attestation by our independent registered public accounting firm pursuant to the rules of the SEC that permit us to provide only management's report in this Annual Report because we are a "smaller reporting company" and "non-accelerated filer."

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 year ended December 31, 2024 that 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 because 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.

Item 9B. Other Information

Insider Trading Arrangements

During the quarter ended December 31, 2024, none of our directors or officers (as defined in Rule 16a-1(f) under 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 9C. Disclosure Regarding Foreign Jurisdictions That Prevent Inspections

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this item is incorporated by reference to the Company's definitive proxy statement relating to the 2025 annual meeting of shareholders. The definitive proxy statement will be filed with the Securities and Exchange Commission within 120 days after the end of the 2024 fiscal year.

Item 11. Executive Compensation

The information required by this item is incorporated by reference to the Company's definitive proxy statement relating to the 2025 annual meeting of shareholders. The definitive proxy statement will be filed with the Securities and Exchange Commission within 120 days after the end of the 2024 fiscal year.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this item is incorporated by reference to the Company's definitive proxy statement relating to the 2025 annual meeting of shareholders. The definitive proxy statement will be filed with the Securities and Exchange Commission within 120 days after the end of the 2024 fiscal year.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this item is incorporated by reference to the Company's definitive proxy statement relating to the 2025 annual meeting of shareholders. The definitive proxy statement will be filed with the Securities and Exchange Commission within 120 days after the end of the 2024 fiscal year.

Item 14. Principal Accounting Fees and Services

The information required by this item is incorporated by reference to the Company's definitive proxy statement relating to the 2025 annual meeting of shareholders. The definitive proxy statement will be filed with the Securities and Exchange Commission within 120 days after the end of the 2024 fiscal year.

PART IV

Item 15. Financial Statement and Exhibits

(a) Financial Statement

Our financial statements and related notes thereto are listed and included in this Annual Report on Form 10-K beginning on page F-1.

(b) Exhibits

Exhibit No.	Description of Exhibit	Incorporated by Reference			Filed Herewith
		Form	Original No.	Date Filed	
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	
4.1#	Specimen Stock Certificate Evidencing Shares of Common Stock	10-12G	4.1	January 14, 2019	
4.2#	Description of Registered Securities	10-K	4.2	March 30, 2020	
4.3#	Senior Secured Convertible Promissory Note due March 8, 2027, dated March 8, 2024	8-K	4.1	March 11, 2024	
4.3.1#	Amendment, dated as of October 4, 2024, to Form of Senior Secured Convertible Promissory Note due March 8, 2027	8-K	4.1	October 8, 2024	
10.1**#	Dyadic International, Inc. 2011 Equity Incentive Plan	10-12G	10.2	January 14, 2019	
10.2**#	Dyadic International, Inc. 2021 Equity Incentive Plan	S-8	4.3	August 12, 2021	
10.2.1**#	Form of Stock Option Agreement Pursuant to the Dyadic International, Inc. 2021 Equity Incentive Plan	10-K	10.2.1	March 28, 2024	
10.2.2**#	Form of Restricted Stock Unit Agreement Pursuant to the Dyadic International, Inc. 2021 Equity Incentive Plan	10-K	10.2.2	March 28, 2024	
10.3**#	Form of Restricted Stock Unit Agreement Pursuant to the Dyadic International, Inc. 2011 Equity Incentive Plan	10-12G	10.3	January 14, 2019	
10.4**#	Form of Stock Option Agreement Pursuant to the Dyadic International, Inc. 2011 Equity Incentive Plan	10-12G	10.4	January 14, 2019	
10.5**#	Employment Agreement, dated June 16, 2016, and First Amendment dated January 23, 2017, by and between Dyadic International, Inc. and Mark A. Emalfarb	10-12G	10.5	January 14, 2019	
10.5.1**#	Second Amendment to Employment Agreement between Dyadic International, Inc. and Mark A. Emalfarb, dated as of November 12, 2019	8-K	10.1	November 13, 2019	
10.6**#	Consulting Agreement, dated January 1, 2016, by and between Dyadic Netherlands B.V. and Sky Blue Biotech kft on behalf of Ronen Tchelet	10-12G	10.7	January 14, 2019	
10.7**#	Employment Agreement dated November 8, 2024, between Dyadic International, Inc. and Ping Rawson	8-K	10.1	November 2024	
10.8**#	Employment Agreement between Dyadic International Inc. and Joseph Hazelton dated November 9, 2021	8-K	10.1	November 9, 2021	
10.9**#	Form of Director and Officer Indemnification Agreement	10-12G	10.10	January 14, 2019	

10.10#	Lease Agreement with Jupiter Harbour Office, LLC dated August 19, 2023	10-Q	10.1	November 8, 2023
10.11†#	Pharma License Agreement with Danisco US, Inc. dated December 31, 2015	10-12G	10.12	January 14, 2019
10.12†#	Commission Contract with VTT Technical Research Centre of Finland Ltd dated September 2, 2016	10-12G	10.13	January 14, 2019
10.12.1†#	Commission Contract with VTT Technical Research Centre of Finland Ltd dated June 28, 2019	8-K	10.1	July 5, 2019
10.13†#	Service Framework Agreement with Biotechnology Developments for Industry in Pharmaceuticals, S.L.U. dated June 30, 2017	10-Q	10.2	November 8, 2023
10.13.1†#	Amendment No. 1 dated July 26, 2021, to the Service Framework Agreement dated June 30, 2017	8-K	10.3	July 27, 2021
10.14†#	License Agreement with VTT Technical Research Centre of Finland Ltd dated July 17, 2017	10-12G	10.17	January 14, 2019
10.15†#	Joint Development Agreement with Leprino Foods Company, dated May 12, 2022	8-K	10.1	May 11, 2022
10.16†#	Non-Exclusive Sublicense Agreement among Dyadic International, Inc., Alphazyme, LLC, dated May 5, 2019	8-K	10.1	May 8, 2019
10.17†#	Amended and Restated Non-Exclusive Sublicense Agreement among Dyadic International, Inc., Alphazyme, LLC, dated June 24, 2020	8-K	10.1	June 29, 2020
10.18†#	Alphazyme Sale Agreement dated January 18, 2023	8-K	10.1	January 23, 2023
10.19†#	RUBIC License Agreement dated April 6, 2023	8-K	10.1	April 6, 2023
10.20†#	Inzyme Development and Exclusive License Agreement, effective September 18, 2023	8-K	10.1	September 19, 2023
10.21#	Securities Purchase Agreement Relating to the Senior Secured Convertible Promissory Note dated March 8, 2024	8-K	10.1	March 11, 2024
10.22#	Registration Rights Agreement Relating to the Senior Secured Convertible Promissory Note dated March 8, 2024	8-K	10.2	March 11, 2024
10.23#	Security Agreement Relating to the Senior Secured Convertible Promissory Note dated March 8, 2024	8-K	10.3	March 11, 2024
10.24#	Subsidiary Guarantee Relating to the Senior Secured Convertible Promissory Note dated March 8, 2024	8-K	10.4	March 11, 2024
10.25	License and Development Agreement between Dyadic International (USA), Inc. and Proliant Biologicals, LLC d/b/a Proliant Health and Biologicals, dated June 27, 2024	8-K	10.1	July 2, 2024
10.28†#	Grant Agreement between Dyadic International, Inc. and the Bill & Melinda Gates Foundation, dated as of November 16, 2024	8-K	10.1	November 26, 2024

19.1	Insider Trading Policy				x
21.1	Subsidiaries of the Registrant				x
23.1	Consent of Independent Registered Public Accounting Firm - Crowe LLP				x
24.1	Power of Attorney (included on signature page)				
31.1	Certification of Chief Executive Officer of Dyadic International, Inc, Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002				x
31.2	Certification of Chief Financial Officer of Dyadic International, Inc. Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002				x
32.1^	Certification of Chief Executive Officer of Dyadic International, Inc. Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002				
32.2^	Certification of Chief Financial Officer of Dyadic International, Inc. Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002				
97#	Policy Related to Recovery of Erroneously Awarded Compensation	10-K	97	March 28, 2024	
101.INS	Inline XBRL Instance Document				x
101.SCH	Inline XBRL Taxonomy Extension Schema Document				x
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document				x
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document				x
101.LAB	Inline XBRL Taxonomy Extension Labels Linkbase Document				x
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document				x
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)				

Legend:
** Identifies a management contract or compensatory plan or arrangement.
† Certain provisions of this exhibit have been omitted pursuant to Item 601(b)(10)(iv) of Regulation S-K.
# Previously filed with the SEC.
^ Furnished herewith.

Item 16. Form 10-K Summary

Not applicable.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) 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.

March 26, 2025	By:	/s/ Mark A. Emalfarb Mark A. Emalfarb President and Chief Executive Officer (Principal Executive Officer)
March 26, 2025	By:	/s/ Ping W. Rawson Ping W. Rawson Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Mark A. Emalfarb and Ping W. Rawson, jointly and severally, his or her attorneys-in-fact, each with the power of substitution, for him or her in any and all capacities, to sign any amendments to this Annual Report on Form 10-K, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that each of said attorneys-in-fact, or his substitute or substitutes, may do or cause to be done by virtue hereof.

Pursuant to the requirements of Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Mark A. Emalfarb Mark A. Emalfarb	Chief Executive Officer, Director (Principal Executive Officer)	March 26, 2025
/s/ Ping W. Rawson Ping W. Rawson	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	March 26, 2025
/s/ Patrick Lucy Patrick Lucy	Chairman, Director	March 26, 2025
/s/ Jack L. Kaye Jack L. Kaye	Director	March 26, 2025
/s/ Seth J. Herbst Seth J. Herbst, MD	Director	March 26, 2025
/s/Arindam Bose Arindam Bose, Ph.D.	Director	March 26, 2025
/s/ Michael P. Tarnok Michael P. Tarnok	Director	March 26, 2025

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Report of Independent Registered Public Accounting Firm

Shareholders and the Board of Directors of Dyadic International, Inc.
Jupiter, Florida

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Dyadic International, Inc. (the "Company") as of December 31, 2024 and 2023, the related consolidated statements of operations, stockholders' equity, and cash flows for the years ended December 31, 2024 and 2023, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2024 and 2023, and the results of its operations and its cash flows for the years ended December 31, 2024 and 2023, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

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

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

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

Critical Audit Matters

Critical audit matters are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. We determined that there are no critical audit matters

/s/Crowe LLP

We have served as the Company's auditor since 2023.

Livingston, New Jersey
March 26, 2025

DYADIC INTERNATIONAL, INC. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

	December 31,	
	2024	**2023**
Assets		
Current assets:		
Cash and cash equivalents	$ 6,506,750	$ 6,515,028
Short-term investment securities	2,756,577	748,290
Interest receivable	24,248	10,083
Accounts receivable	237,027	466,159
Prepaid expenses and other current assets	303,066	327,775
Total current assets	9,827,668	8,067,335
Non-current assets:		
Operating lease right-of-use asset, net	92,211	141,439
Other assets	10,396	10,462
Total assets	$ 9,930,275	$ 8,219,236
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 482,320	$ 656,445
Accrued expenses	970,462	1,057,164
Deferred research and development obligations	833,813	490,113
Operating lease liability, current portion	54,249	48,059
Accrued interest	80,000	—
Accrued interest- related party	27,173	—
Total current liabilities	2,448,017	2,251,781
Non-current liabilities:		
Convertible notes, net of issuance costs	3,911,471	—
Convertible notes, net of issuance costs - related party	1,065,876	—
Operating lease liability, net of current portion	34,621	88,870
Total liabilities	7,459,985	2,340,651
Commitments and contingencies (Note 4)		
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 - 42,089,301 and 41,064,563, outstanding shares - 29,835,799 and 28,811,061 as of December 31, 2024 and 2023, respectively	42,090	41,065
Additional paid-in capital	107,444,595	105,044,756
Treasury stock, shares held at cost - 12,253,502	(18,929,915)	(18,929,915)
Accumulated deficit	(86,086,480)	(80,277,321)
Total stockholders' equity	2,470,290	5,878,585
Total liabilities and stockholders' equity	$ 9,930,275	$ 8,219,236

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

DYADIC INTERNATIONAL, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF OPERATIONS

	Years Ended December 31,	
	2024	**2023**
Revenues:		
Research and development revenue	$ 1,605,220	$ 2,545,865
License revenue	1,890,169	352,941
Total revenue	3,495,389	2,898,806
Costs and expenses:		
Costs of research and development revenue	1,194,624	1,975,849
Research and development	2,044,253	3,297,266
General and administrative	6,134,773	5,817,013
Foreign currency exchange loss	22,561	38,417
Total costs and expenses	9,396,211	11,128,545
Loss from operations	(5,900,822)	(8,229,739)
Other income (expense):		
Interest income	456,992	416,686
Gain on sale of Alphazyme	62,642	1,017,592
Interest expense	(288,142)	—
Interest expense - related party	(139,829)	—
Total other income (expense), net	91,663	1,434,278
Net loss	$ (5,809,159)	$ (6,795,461)
Basic and diluted net loss per common share	$ (0.20)	$ (0.24)
Basic and diluted weighted-average common shares outstanding	29,318,123	28,798,833

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

DYADIC INTERNATIONAL, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

	Common Stock		Treasury Stock		Additional paid-in capital	Accumulated deficit	Total
	Shares	Amount	Shares	Amount			
Balance at December 31, 2022	40,816,602	$ 40,817	(12,253,502)	$ (18,929,915)	$ 103,458,697	$ (73,481,860)	$ 11,087,739
Stock-based compensation expenses	—	—	—	—	1,244,121	—	1,244,121
Issuance of common stock upon vesting of restricted stock units	247,961	248	—	—	341,938	—	342,186
Net loss	—	—	—	—	—	(6,795,461)	(6,795,461)
Balance at December 31, 2023	41,064,563	$ 41,065	(12,253,502)	$ (18,929,915)	$ 105,044,756	$ (80,277,321)	$ 5,878,585
Stock-based compensation expenses	—	—	—	—	1,126,279	—	1,126,279
Issuance of common stock upon vesting of restricted stock units	437,546	437	—	—	339,897	—	340,334
Issuance of common stock upon exercise of stock options	30,569	31	—	—	24,220	—	24,251
Issuance of common stock upon settlement of convertible debt	556,623	557	—	—	909,443	—	910,000
Net loss	—	—	—	—	—	(5,809,159)	(5,809,159)
Balance at December 31, 2024	42,089,301	$ 42,090	(12,253,502)	$ (18,929,915)	$ 107,444,595	$ (86,086,480)	$ 2,470,290

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

DYADIC INTERNATIONAL, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

	Years Ended December 31,	
	2024	**2023**
Cash flows from operating activities		
Net loss	$ (5,809,159)	$ (6,795,461)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation expense	1,126,279	1,244,121
Amortization of held-to-maturity securities, net	(71,057)	(53,032)
Amortization of debt issuance costs	63,021	—
Gain on investment in Alphazyme	(60,977)	(1,017,592)
Foreign currency exchange loss	22,561	38,418
Changes in operating assets and liabilities:		
Interest receivable	(14,165)	48,202
Accounts receivable	219,425	(141,332)
Prepaid expenses and other current assets	24,742	64,902
Operating lease assets and liabilities, net	1,169	(4,510)
Accounts payable	(180,182)	(651,168)
Accrued expenses	252,664	444,269
Accrued interest	80,000	—
Accrued interest - related party	27,173	—
Deferred license revenue	—	(352,942)
Deferred research and development obligations	343,700	449,370
Net cash used in operating activities	**(3,974,806)**	**(6,726,755)**
Cash flows from investing activities		
Purchases of held-to-maturity investment securities	(7,343,230)	(2,995,988)
Proceeds from maturities of investment securities	5,406,000	9,148,000
Proceeds from the sale of investment in Alphazyme	60,977	1,297,884
Net cash (used in) provided by investing activities	**(1,876,253)**	**7,449,896**
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	—
Proceeds from exercise of options	24,251	—
Net cash provided by financing activities	**5,848,577**	**—**
Effect of exchange rate changes on cash	(5,796)	(2,385)
Net (decrease) increase in cash and cash equivalents	**(8,278)**	**720,756**
Cash and cash equivalents at beginning of period	6,515,028	5,794,272
Cash and cash equivalents at end of period	$ **6,506,750**	$ **6,515,028**
Supplemental cash flow information		
Vesting of restricted stock units	$ 340,334	$ 342,186
Conversion of convertible notes	$ 910,000	—
Cash paid for interest	$ 257,778	—
Right-of-use asset obtained in exchange for lease obligations	—	$ 156,983

The accompanying notes are an integral part of these audited 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 platform 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 contract research organizations to carry out the Company's activities. Over the past two plus decades, the Company developed a gene expression platform for producing commercial quantities of industrial enzymes and other proteins, and 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.

For the past nine years since the Company sold its industrial technology business to Danisco USA ("Danisco"), the industrial biosciences business of DuPont (NYSE: DD) (the "DuPont Transaction"), the Company has been focused on building innovative microbial protein production 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. As part of the DuPont Transaction, Dyadic retained co-exclusive rights to its proprietary and patented C1 protein production platform (the "C1 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 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. 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 in licensed by Danisco.

After the DuPont Transaction, the Company has directed its efforts toward advancing the C1 platform to address the increasing global demand for the development and manufacturing of prophylactic and therapeutic biopharmaceuticals for human and animal health. The Company's biopharmaceutical development efforts have been centered on enhancing the capability of the C1 platform to produce stable, properly folded, and functional proteins for pharmaceutical applications, including vaccines and monoclonal antibodies. In addition to improving the quality and productivity of the C1 platform, the Company has sought to validate its platform for human use through a series of fully funded biopharmaceutical projects, extensive animal studies utilizing C1-produced proteins, and in 2024, the successful completion of a Phase 1 first-in-human study for a vaccine antigen produced using C1, which demonstrated its safety for human applications.

Recognizing the longer development timelines, clinical testing, and regulatory requirements associated with human and animal pharmaceutical products, the Company has refined its core business strategy to expand into recombinant (non-animal derived) alternative proteins for non-pharmaceutical applications in research, nutrition, and industrial markets. To address these opportunities, the Company has developed and launched the Dapibus™ Protein Production Platform ("Dapibus™"), which supports various applications within the alternative proteins field, namely in Life Sciences, Food & Nutrition, and Bioindustrial applications. Given the reduced developmental costs, shorter timelines, and fewer regulatory requirements associated with alternative proteins, Dapibus™ has enabled the Company to generate near-term recurring revenue while continuing to build long-term value through C1 for pharmaceutical applications. The Company anticipates achieving commercialization of certain alternative protein products in 2025 through a combination of existing collaborations and internal manufacturing efforts.

Liquidity, Capital Resources, and Going Concern

In accordance with FASB Accounting Standards Codification ("ASC") 205-40, Presentation of Financial Statements – Going Concern ("Topic 205-40"), management is required to evaluate whether there are conditions and events, considered in the aggregate that raise substantial doubt about the Company's ability to continue as a going concern for at least 12 months from the issuance date of the Company's condensed interim financial statements. This evaluation does not take into consideration the potential mitigating effect of management's plans that have not been fully implemented or are not within control of the Company as of the date the financial statements are issued. When substantial doubt exists under this methodology, management evaluates whether the mitigating effect of its plans sufficiently alleviates substantial doubt about the Company's ability to continue as a going concern. The mitigating effect of management's plans, however, is only considered if both (1) it is probable that the plans will be effectively implemented within one year after the date that the financial statements are issued, and (2) it is probable that the plans, when implemented, will mitigate the relevant conditions or events that raise substantial doubt about the entity's ability to continue as a going concern within one year after the date that the financial statements are issued.

The Company expects to incur losses and have negative net cash flows from operating activities as it continues developing its microbial protein production 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. The purchasers of the Convertible Notes included 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, were $5,824,326. 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. 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. On October 4, 2024, the Company entered into an amendment (the "Amendment") to the Convertible Notes. Pursuant to the Amendment, (i) the conversion price upon which the Convertible Notes will be convertible into shares of the Company's common stock is changed from $1.79 to $1.40 per share of common stock, and (ii) the Redemption Date (as defined in the Amendment) will fall on any of the 26, 29 and 32-month anniversaries of the original issue date of the Convertible Notes, which are May 8, 2026, August 8, 2026 and November 8, 2026.

The Convertible Notes contain customary covenants, and the Securities Purchase Agreement relating to the Convertible Notes also contains certain affirmative and negative covenants (including, without limitation, restrictions on our ability to incur indebtedness, permit liens, make dividends or certain debt payments or consummate certain affiliate transactions). The Company was in compliance with its covenants with respect to the Convertible Notes as of December 31, 2024.

As of December 31, 2024, $910,000 of the Convertible Notes have been converted into 556,623 shares of Common Stock. For more information regarding the Convertible Notes, including the covenants related thereto, see Note 5 to the Consolidated Financial Statements.

In addition, on November 16, 2024, Dyadic entered into an agreement with the Bill & Melinda Gates Foundation (the "Gates Foundation") relating to a grant in the amount of $3,092,136 awarded from the Gates Foundation for the cell line development of monoclonal antibodies targeting respiratory syncytial virus and malaria utilizing the Company's C1 platform to provide globally accessible treatment options for underserved populations (the "Gates Foundation Grant").

As of December 31, 2024, the Company had $6,506,750 cash and $2,780,825 short-term investment securities (including accrued interest) on its balance sheet, totaling $9,287,575.

The Company expects its existing cash and cash equivalents, and cash raised from the Convertible Notes, or other debt instruments, and or other means, the Gates Foundation Grant, 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 Annual 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, convertible notes and other debt instruments, 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.

Basis of Presentation

The accompanying audited consolidated financial statements include the accounts of the Company and its wholly owned subsidiaries. Dyadic consolidates entities in which we have a controlling financial interest. We consolidate our subsidiaries in which we hold and/or control, directly or indirectly, more than 50% of the voting rights. All significant intra-entity transactions and balances have been eliminated in consolidation. These consolidated financial statements have been prepared in conformity with U.S. generally accepted accounting principles ("GAAP").

Segment Information

Operating segments are defined as components of an entity about which separate discrete information is available for evaluation by the chief operating decision maker, or CODM, in deciding how to allocate resources and in assessing performance. The CODM is the Company's senior management team that includes the Chief Executive Officer, Chief Operating Officer, and Chief Financial Officer. The Company views its operations as and manages its business in one operating segment, which is the business of developing and commercializing synthetic protein products using the Company's proprietary microbial platforms, including C1 and Dapibus™. Segment information is further described in Note 9 to the consolidated financial statements included in this Annual Report on Form 10-K.

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 only deals with reputable financial institutions and has not experienced any losses in such accounts.

For the years ended December 31, 2024 and 2023, the Company's revenue was generated from 19 and 16 customers, respectively. As of December 31, 2024 and 2023, the Company's accounts receivable was from nine and thirteen customers, respectively. Significant customers are those that account for greater than 10% of the Company's revenues. For the years ended December 31, 2024 and 2023, two significant customers accounted for approximately $1,915,000 or 54.8% and $1,503,000 or 51.9% of revenue, 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 years ended December 31, 2024 and 2023, the Company had eleven and six customers outside of the United States (i.e., European and Asian customers) that accounted for approximately $1,526,000 or 43.7% and $537,000 or 18.5% of total revenue, respectively. As of December 31, 2024 and 2023, the Company had four and six customers outside of the United States (i.e., European and Asian customers) that accounted for approximately $146,000 or 61.5% and $213,000 or 45.6% of accounts receivable, respectively.

The Company uses CROs to conduct its research projects and manage its clinical trial. For the years ended December 31, 2024 and 2023, two and three CROs accounted for approximately $2,389,000 or 93.0% and $4,644,000 or 96.0% of total research services we purchased, respectively. As of December 31, 2024, two CROs accounted for approximately $284,000 or 58.9% of accounts payable. As of December 31, 2023, three CROs accounted for approximately $620,000 or 94.4% of accounts payable. The loss of business from one of these CROs or a combination of them could adversely affect the Company's 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. The Company has no restricted cash balances as of December 31, 2024 and 2023.

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.

As of December 31, 2024 and 2023, all of our money market funds were invested in U.S. Government money market funds. The Company did not have any investment securities classified as trading as of December 31, 2024 and 2023.

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 December 31, 2024 and 2023.

Accounts receivable consist of the following:

	December 31,	
	2024	2023
Billed receivable	$ 173,993	$ 410,617
Unbilled receivable	$ 63,034	55,542
	$ 237,027	$ 466,159

Prepaid Expenses and Other Current Assets

Prepaid expenses and other current assets consist of the following:

	December 31,	
	2024	2023
Prepaid insurance	$ 182,270	$ 209,888
Prepaid expenses - various	117,560	117,887
Prepaid taxes	3,236	—
	$ 303,066	$ 327,775

Accounts Payable

Accounts payable consist of the following:

	December 31,	
	2024	2023
Research and development expenses	$ 340,698	$ 575,436
Legal expenses	68,420	1,957
Other	73,202	79,052
	$ 482,320	$ 656,445

Accrued Expenses

Accrued expenses consist of the following:

	December 31,	
	2024	2023
Employee wages and benefits	$ 496,905	$ 561,720
Research and development expenses	437,196	274,080
Legal expenses	25,000	210,004
Other	11,360	11,360
	$ 970,462	$ 1,057,164

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 partially or fully fund the Company's research collaborations. However, most, if not all, of such potential grant revenues, when received, is expected to be earmarked for third parties to advance the research required, including preclinical and clinical trials.

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.

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.

Leases

The Company determines if an arrangement is, or contains, a lease at contract inception and during modifications or renewal of existing leases. The Company does not recognize leases with terms of twelve months or less on the balance sheet. Options to extend or terminate a lease are not included in the Company's initial lease term assessment, unless there is reasonable certainty that the Company will exercise any such option. Leases are classified as either finance leases or operating leases based on criteria in Accounting Standards Codification ("ASC") 842.

For operating leases, right-of-use assets and liabilities are recognized at lease commencement date based on the present value of lease payments over the lease term. In determining the net present value of lease payments, the Company uses an estimated rate of interest that they would have to pay to borrow equivalent funds on a collateralized basis at the lease commencement date. The operating lease right-of-use asset also includes any lease payments made and excludes any lease incentives. Lease expense is recognized on a straight-line basis over the expected lease term.

The Company's prior lease for its corporate headquarters located at 140 Intracoastal Pointe Dr. expired on August 31, 2023, and there was no right-of-use asset or lease liability recognized for this lease due to its short-term nature. In August 2023, the Company entered into a new lease ("1044 N Lease") for office space for its new corporate headquarters located at 1044 N US 1, Jupiter, Florida, commencing September 1, 2023 ("Commencement Date") and expiring on August 31, 2026. Rent is subject to three percent (3%) annual increases, and the Company is responsible for certain common area maintenance charges and taxes throughout the life of the 1044 N Lease. The 1044 N Lease has an initial term of three (3) years, following the Commencement Date with an option to extend for two (2) successive one (1) year terms. The options were not included in the lease term used in determining the right-of-use asset or lease liability as the Company did not consider it reasonably certain they would exercise the options.

For the years ended December 31, 2024 and 2023, the Company's total operating lease expense was $106,785 and $71,656, respectively. As of December 31, 2024, the Company's total operating lease liabilities was $88,870, which is presented net of imputed interest of $6,669, and the operating lease right-of-use asset was $92,211. As of December 31, 2023, the Company's total operating lease liabilities was $136,929, which is presented net of imputed interest of $16,770, and the operating lease right-of-use asset was $141,439.

As of December 31, 2024, the weighted average remaining lease term was 1.7 years, and the weighted average discount rate was 8.8%.

Research and Development Costs

Research and development ("R&D") costs are expensed as incurred. R&D costs are related to 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, during the years ended December 31, 2024 and 2023 were as follows:

	Years Ended December 31,	
	2024	**2023**
Outside contracted services	$ 1,503,397	$ 2,677,941
Personnel related costs	473,444	553,741
Facilities, overhead and other	67,412	65,584
	$ 2,044,253	$ 3,297,266

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 converted 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 and deposits. The carrying amount of these financial instruments, except for investment in debt securities, 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.

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 as a result of applying the provision of ASC 740.

Comprehensive Income (Loss)

Comprehensive income (loss) includes net income (loss) and other revenue, expenses, gains and losses that are recorded as an element of shareholders' equity but are excluded from net income (loss) under U.S. GAAP. The Company does not have any significant transactions that are required to be reported in other comprehensive income (loss), and therefore, does not separately present a statement of comprehensive income (loss) in its consolidated financial statements.

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 expense 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 shares outstanding during the reporting period. Diluted net loss per share adjusts the weighted average number of common stock outstanding for the potential dilution that could occur if common stock equivalents, such as stock options, warrants, restricted stock, restricted stock units and convertible debt, were exercised and converted into common stock, calculated by applying the treasury stock method.

For the years ended December 31, 2024 and 2023, the effect of the potential exercise of options to purchase 5,788,597 and 5,469,247 shares of common stock, respectively, were excluded from the computation of diluted net loss per share as their effect would have been anti-dilutive.

New and Recently Adopted Accounting Pronouncements

In November 2023, the Financial Accounting Standards Board (the "FASB") issued Accounting Standards Update (the "ASU") 2023-07 – Segment Reporting (Topic ASC 280), or ASU 2023-07, 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 after December 15, 2023, and interim periods within fiscal years beginning after December 15, 2024. The Company adopted ASU 2023-07 and applied the guidance retrospectively to all periods presented in the consolidated financial statements.

In December 2023, the FASB issued ASU 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 beginning with our 2025 fiscal year. We do not expect that this guidance will have a material impact on our financial position and our results of operations.

Note 2: Cash, Cash Equivalent, 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 December 31, 2024 and 2023:

	December 31, 2024				
	Level (1)	Fair Value	Gross Unrealized Holding Gains	Gross Unrealized Holding Losses	Adjusted Cost
Cash and Cash Equivalents					
Cash		$ 926,287	$ —	$ —	$ 926,287
Money Market Funds	1	5,580,463	—	—	5,580,463
Subtotal		6,506,750	—	—	6,506,750
Short-Term Investment Securities (2)					
Corporate Bonds (3)	2	2,756,428	—	(149)	2,756,577
Total		$ 9,263,178	$ —	$ (149)	$ 9,263,327

	December 31, 2023				
	Level (1)	Fair Value	Gross Unrealized Holding Gains	Gross Unrealized Holding Losses	Adjusted Cost
Cash and Cash Equivalents					
Cash		$ 25,775	$ —	$ —	$ 25,775
Money Market Funds	1	6,489,253	—	—	6,489,253
Subtotal		6,515,028	—	—	6,515,028
Short-Term Investment Securities (2)					
Corporate Bonds (3)	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) Short-term investment securities will mature within 12 months or less, from the applicable reporting date.
(3) For the years ended December 31, 2024 and 2023, the Company received discounts of$78,770 and $39,012 to purchase held-to-maturity investment securities, respectively.

The Company considers declines in market value of its investment portfolio to be temporary in nature. 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. 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. As of December 31, 2024, the Company does not consider any of its investments to be other-than-temporarily impaired.

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

Gates Foundation Grant

In November 2024, Bill & Melinda Gates Foundation (the "Gates Foundation") awarded the Company a grant in the amount of $3,092,136 for the cell line development of monoclonal antibodies targeting respiratory syncytial virus and malaria utilizing the Company's C1 platform to provide globally accessible treatment options for underserved populations (the "Gates Foundation Grant").

In December 2024, the Company received approximately $0.8 million of the Gates Foundation Grant, and the remaining award will be received in 2025 and 2026 in the amount of approximately $1.5 million and $0.7 million, respectively. For the year ended December 31, 2024, the Company has not recognized any research and development revenue, in connection with the Gates Foundation Grant.

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, for an initial period of 10 years with an option to extend for an additional 3 years under certain circumstances. Under the terms of the Proliant Agreement, Dyadic has received an initial upfront payment of $500,000, a second payment of $500,000 for completing the transfer of a Production Strain (as defined in the Proliant Agreement) and will receive a final payment of $500,000 upon the meeting of a certain productivity threshold. Upon commencing commercial sales of animal-free recombinant serum albumin products produced pursuant to the Proliant Agreement, the Company will receive royalties based on a certain percentage of the gross margin received by Proliant, as defined in the Proliant Agreement.

For the year ended December 31, 2024, the Company recognized a total of $1.0 million in license revenue related to the Proliant Agreement, as the performance obligations for the first and second payments have been satisfied.

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. In October 2023, the Company received an upfront payment of $0.6 million in accordance with the terms of the Inzymes Agreement.

On October 11, 2024, the Inzymes Agreement was amended ("the Amended Inzymes Agreement") to change the scope of research and development services required under the agreement as well as adjust the success fees upon the achievement of certain target yields, milestone payments upon first commercial sale of each product and royalties.

For the year ended December 31, 2024, the Company has completed all product research and development services and satisfied all related performance obligations under the Amended Inzymes Agreement, and recognized $890,169 in license revenues, including success fees upon the achievement of target yield of one related product. For the year ended December 31, 2024, the Company also recognized research and development revenues of $25,000 related to the Amended Inzymes Agreement.

The Company will continue evaluating the achievement of milestones related to target yields and product commercialization of each product when they are considered probable and estimable under 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. As of December 31, 2023, 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 conferring to decide whether or not, and if it is possible, to move forward to the next phase of the project. The Company is also considering other funding sources to continue the project.

For the years ended December 31, 2024 and 2023, the Company recorded research and development revenues, including milestone payments, of $0 and approximately $631,000, respectively, in connection with the JDA.

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 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 year ended December 31, 2024, there were no revenues related to the Janssen Agreement. For the year ended December 31, 2023, the Company recognized approximately $353,000 in license revenue and approximately $520,000 in research and development revenues in connection with the Janssen Agreement. As of December 31, 2024 and 2023, $0 and approximately $145,000 of accounts receivable were related to Janssen, respectively.

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 platform.

For the year ended December 31, 2024, there were no revenues related to Alphazyme. For the year ended December 31, 2023, the Company recognized a total revenue of approximately $1.3 million from the sale of its equity interest in Alphazyme, LLC.

Note 4: Commitments and Contingencies

Leases

Jupiter Florida Headquarters

In August 2023, the Company entered into a new lease comprising approximately 1,719 square feet of office space located at 1044 N US 1, Jupiter, Florida, commencing September 1, 2023, and will expire on August 31, 2026. The Company occupies this space for an annual rental rate of approximately $59,000, excluding common area maintenance expenses.

The Netherlands Office

The Company maintains a small satellite office in Wageningen, The Netherlands. The Company occupies a flexible office space for an annual rental rate of approximately $4,600. The lease expires on January 31, 2026, and thereafter, the Company will reconsider the leased space to align with the future operations of the Company.

As of December 31, 2024, the future minimum annual lease payments under the operating leases are below. There are no future minimum annual lease payments after 2026.

2025	$	59,901
2026		35,638
2027		—
Total	$	95,539

Purchase Obligations

Purchase obligations are primarily related to our contracts with the Company's contract research organizations to provide certain research services. The contracts set forth the Company's minimum purchase requirements that are subject to adjustments based on certain performance conditions.

As of December 31, 2024, the commitments related to agreements to purchase certain services in the ordinary course of business are below. All current contracts expire in or before 2026.

2025	$	2,134,460
2026		1,429,044
2027		—
Total	$	3,563,504

Legal Proceedings

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 is not currently involved in any litigation that it believes could have a materially adverse effect in our financial condition or results of operations. 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.

Note 5: Convertible Notes

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 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 $175,674 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.

On October 4, 2024, the Company entered into an amendment (the "Amendment") to the Convertible Notes. Under the Amendment, (i) the conversion price upon which the Convertible Notes will be convertible into shares of the Company's common stock is $1.40 per share of common stock, and (ii) the Redemption Date (as defined in the Amendment) will fall on any of the 26, 29 and 32-month anniversaries of the original issue date of the Convertible Notes which are May 8, 2026, August 8, 2026 and November 8, 2026.

The Company assessed the Amendment for a debt extinguishment or modification in accordance with ASC 470-50. As both the change in the present value of future cash flows of the modified Convertible Notes to that of the original Convertible Notes (including callable features) and the change in fair value of the embedded conversion option to that of the carrying value of the Convertible Notes immediately before modification resulted in a less than 10% change, the Amendment was deemed not substantial and is regarded as a note modification. The Company did not incur any gain or loss relating to the modification and any incremental costs related to the Amendment were expensed.

For the year ended December 31, 2024, $257,778 of interest was paid and debt issuance costs of $63,020 were amortized and recorded in interest expense in the consolidated statements of operations. As of December 31, 2024, accrued interest on the Convertible Notes to related parties and other third parties was $27,173 and $80,000, respectively. As of December 31, 2024, accumulated amortized debt issuance costs were $36,376.

As of December 31, 2024, $910,000 of the Convertible Notes were converted into 556,623 shares of the Company's common stock. As of December 31, 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	—	(500,000)	—
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**	$ —	**$ (910,000)**	**1,090,000**
Unamortized Debt Issuance Costs - Related Party							**(24,124)**
Net Carrying Amount							**$ 1,065,876**
Convertible Notes - Third Party	03/08/24	03/08/27	8%	**$ 4,000,000**	**$ —**	**$ —**	**4,000,000**
Unamortized Debt Issuance Costs - Third Party							**(88,529)**
Net Carrying Amount							**$ 3,911,471**

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 December 31, 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 year ended December 31, 2024, $500,000 of the Convertible Notes held by Mr. Bradley S. Emalfarb were converted into 294,891 shares of the Company's common stock. For the year ended December 31, 2024, $410,000 of the Convertible Notes held by Bradley Scott Emalfarb Irrevocable Trust were converted into 261,732 shares of the Company's common stock. As of December 31, 2024, the amount of accrued interest for Bradley Emalfarb and Bradley Scott Emalfarb Irrevocable Trust was $1,733 and $3,640, 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 December 31, 2024, is $1,800.

The Convertible Notes contain customary covenants, and the Securities Purchase Agreement relating to the Convertible Notes also contains certain affirmative and negative covenants (including, without limitation, restrictions on our ability to incur indebtedness, permit liens, make dividends or certain debt payments or consummate certain affiliate transactions). The Company was in compliance with its covenants with respect to the Convertible Notes as of December 31, 2024.

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 Plan.

As of December 31, 2024, the Company had 5,788,597 stock options outstanding and an additional 2,056,629 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 an additional 3,672,561 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 between two to 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. The Company reviews its volatility assumption on an annual basis and has used the Company's historical volatilities.

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.

The assumptions used in the Black-Scholes option pricing model for stock options granted for the years ended December 31, 2024 and 2023 are as follows:

	Years Ended December 31,	
	2024	**2023**
Risk-free interest rate	3.56% - 4.61%	3.90% -5.12%
Expected dividend yield	—%	—%
Expected stock price volatility	63.02-63.64%	62.22% - 64.27%
Expected life of options (in years)	2.63-6.25	1.13 -6.25

The following table summarizes the combined stock option activity under the Company's Equity Compensation Plans:

	Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value
Outstanding at December 31, 2022	5,031,097	$ 3.25	5.75	$ 13,000
Granted	805,350	1.45		
Exercised	—	—		
Expired	(351,520)	1.71		
Canceled	(15,680)	3.50		
Outstanding at December 31, 2023	5,469,247	$ 3.08	5.66	$ 322,738
Granted (1)	830,725	1.61		
Exercised (2)	(55,000)	1.18		
Expired (3)	(383,063)	2.16		
Canceled (4)	(73,312)	1.73		
Outstanding at December 31, 2024	5,788,597	$ 2.97	5.34	$ 655,578
Exercisable at December 31, 2024	4,438,810	$ 3.19	4.44	$ 436,263

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 13,125 stock options granted to a member of the Board of Directors, vesting upon one year anniversary.
- A one-time award on September 23, 2024, of 25,000 stock options granted to a consultant with an exercise price of $1.79, vesting in three months.

(2) Represents the following options exercised:

(a) 25,000 stock options exercised at $0.97, and (b) 30,000 stock options exercised at $1.36.

(3) 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) 25,563 stock options with a weighted average exercise price of $2.93 per share granted to employees.

(4) Represents the following options canceled:

(a) 50,000 stock options granted to a former member of the Board of Directors, (b) 13,125 stock options granted to the Company's former Chairman of the Board of Directors, and (c) 10,187 stock options granted to the Company's former employee.

The weighted average grant-date fair market value of stock options granted for the years ended December 31, 2024 and 2023 was $0.95 and $0.81, respectively, based on the Black-Scholes option pricing model. The intrinsic value of options exercised for the years ended December 31, 2024 and 2023 was $33,300 and $0, respectively.

As of December 31, 2024 and 2023, total unrecognized compensation cost related to non-vested stock options granted under the Company's equity compensation plans was $319,978 and $559,121, respectively, which is expected to be recognized over a weighted average period of 2.40 years and 2.68 years, respectively. The Company adjusts the unrecognized compensation cost for actual forfeitures as they occur.

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 units activity during the year ended December 31, 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 December 31, 2024	117,925	$ 1.59

Notes:

(1) On January 2, 2024, the Company granted 141,510 RSUs, vesting upon one year anniversary of the grant, to members of the Board of Directors. 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 of 2023. The fair value of the restricted stock unit is the Company's closing stock price on the grant date as reported on the Nasdaq Stock Exchange.

(2) Represents the vesting of 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 consultant.

(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, consultants, and our Board, as non-cash compensation expenses, 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 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. There was no performance-based award recognized during the years ended December 31, 2024 and 2023.

Total non-cash stock option compensation expense was allocated among the following expense categories:

	Years Ended December 31,	
	2024	2023
General and administrative	$ 1,067,750	$ 1,201,027
Research and development	58,529	43,094
Total	$ 1,126,279	$ 1,244,121

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

	Years Ended December 31,	
	2024	2023
Share-based compensation expenses- stock option	$ 861,999	$ 1,004,054
Share-based compensation expenses- restricted stock units	264,280	240,067
Total	$ 1,126,279	$ 1,244,121

Note 7: Shareholders' Equity

Issuances of Common Stock

For the year ended December 31, 2024, there were 556,623 shares of the Company's common stock issued resulting from the conversion of convertible notes with a weighted average issue price of $1.63 per share, 437,546 shares of the Company's common stock issued resulting from the vesting of restricted stock units with a weighted average issue price of $1.52 per share, and 30,569 shares of the Company's common stock issued resulting from the exercise of stock options, with a weighted average issue price of $1.04 per share. For the year ended December 31, 2023, there were 247,961 shares 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 December 31, 2024, and 2023, there were 12,253,502 shares of common stock held in treasury, at a cost of approximately $18.9 million, representing the purchase price on the date the shares were surrendered to the Company.

Note 8: Income Taxes

For the year ended December 31, 2024, there was no provision for income taxes or unrecognized tax benefits recorded.

The significant components of gain (loss) before income taxes are as follows:

	Years Ended December 31,	
	2024	2023
U.S. operations	$ (5,757,824)	$ (6,766,409)
Foreign operations	(51,335)	(29,052)
Total loss before provision for income taxes	$ (5,809,159)	$ (6,795,461)

The Company has no current or deferred income tax for the years ended December 31, 2024 and 2023.

The income tax provision differs from the expense amount that would result from applying the federal statutory rates to income before income taxes due to permanent differences, state income taxes and a change in the deferred tax valuation allowance.

The reconciliation between the statutory tax rate and the Company's actual effective tax rate is as follows:

	Years Ended December 31,	
	2024	2023
Tax at U.S. statutory rate	(21.00)%	(21.00)%
State taxes, net of federal benefit	(4.29)	(4.19)
Non-deductible items	0.26	0.76
Change in valuation allowance	20.59	14.54
True-up adjustment	4.44	10.00
Foreign operations	—	(0.11)
Change in tax rate	—	—
Other	—	—
Effective income tax rate	—%	—%

The significant components of the Company's net deferred income tax assets are as follows:

	December 31,	
	2024	2023
Section 174 - R&D expenses	$ 2,123,800	$ 1,769,000
Stock option expense	1,584,700	1,419,300
NOL carryforward	12,655,300	11,620,700
General Business credits	1,278,400	1,503,600
Operating lease liability	22,500	34,700
Right-of-use asset	(23,400)	(35,800)
Other	800	134,800
Deferred tax asset, net of deferred tax liabilities	17,642,100	16,446,300
Valuation allowance	(17,642,100)	(16,446,300)
Net deferred tax asset	$ —	$ —

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. In assessing the realizability of deferred tax assets, Management evaluates whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in making this assessment. Based on Management's evaluation, the net deferred tax asset, was offset by a full valuation allowance as of December 31, 2024 and 2023.

The Company had federal and state net operating loss ("NOL") carryforwards available as of December 31, 2024, and 2023, in the amount of approximately $49,903,000 and $45,850,000, respectively. Approximately $46,965,000 of the federal net operating loss carryforwards will be carried forward indefinitely and will be available to offset 80% of taxable income. The remaining amount of the net operating loss carryforwards will expire at varying dates through 2038.

The Tax Cuts and Jobs Act eliminated the current year deduction election for research and experimental expenditures. Instead, a taxpayer must charge such expenditures to a capital account and is allowed to amortize such expenditures ratably over a five-year period (or fifteen-year period for expenditures attributable to foreign research), beginning with the midpoint of the tax year in which such expenditures are paid or incurred.

Note 9: Segment

The Company operates and manages its business as one reportable segment and one operating segment, which is the business of developing and commercializing synthetic protein products using the Company's proprietary microbial platforms, including C1 and Dapibus™. The Company's chief operating decision maker, or CODM, is the Company's senior management team that includes the Chief Executive Officer, Chief Operating Officer and Chief Financial Officer. The CODM assesses performance for the segment and decides how to allocate resources based on consolidated net loss that is also reported on the consolidated statements of operations.

The measure of segment assets is reported on the consolidated balance sheets as total consolidated assets. The Company operates in the U.S. and Europe. All material long-lived assets of the Company reside in the U.S. For geographic information about the Company's product revenues, see Note 1, *Concentration*. Long-lived assets primarily consist of operating lease right-of-use assets.

The CODM uses consolidated net loss to evaluate the Company's spend and monitor budget versus actual results. The monitoring of budgeted versus actual results is used in assessing performance of the segment and in establishing resource allocation across the organization. Factors used in determining the reportable segment include the nature of the Company's operating activities, the organizational and reporting structure and the type of information reviewed by the CODM to allocate resources and evaluate financial performance. The accounting policies of the segment are the same as those described in Note 1 of the notes to the consolidated financial statements included in this Annual Report on Form 10-K.

The CODM reviews cash, cash equivalents and investment securities as a measure of segment assets. As of December 31, 2024 and 2023, the Company's cash, cash equivalents and investment securities were $9.3 million and $7.3 million, respectively.

The following table presents information about segment revenue, significant segment expenses and segment operating loss for the years ended December 31, 2024 and 2023:

	Years Ended December 31,	
	2024	2023
Revenues	$ 3,495,389	$ 2,898,806
Cost of revenues	1,194,624	1,975,849
Research and development expenses:		
Outside contracted services	1,503,397	2,677,941
Personnel related costs	414,916	510,647
Facilities, overhead, and other	67,411	65,584
General and administrative expenses:		-
Compensation and related expenses	2,308,566	2,200,914
Business consulting expenses	764,326	305,348
Legal and professional services	998,630	931,038
Other G&A expenses	995,501	1,244,121
Share-based compensation expenses	1,126,279	1,178,686
Foreign currency exchange loss	22,561	38,417
Other Income (expenses), net	91,663	1,434,278
Net loss	$ (5,809,159)	$ (6,795,461)

Note 10: Subsequent Events

For purpose of disclosure in the consolidated financial statements, the Company has evaluated subsequent events through March 26, 2025, the date the consolidated financial statements were available to be issued. Except for items mentioned in the notes, and as discussed below, management is not aware of any material events that have occurred subsequent to the balance sheet date that would require adjustment to, or disclosure in the accompanying financial statements.

On January 2, 2025, the Company granted an annual stock option award with an exercise price of $1.74, including: (a) 356,500 stock options granted to executives and key personnel, vesting upon one year anniversary, or annually in equal installments over four years, (b) 277,500 stock options granted to members of the Board of Directors, vesting upon one year anniversary, (c) 19,500 stock options granted to employees, vesting annually in equal installments over four years, and (d) 20,000 stock options granted to a consultant, vesting upon one year anniversary.

On January 2, 2025, the Company granted 96,984 restricted stock units, vesting upon one year anniversary, to the Board of Directors as a result of reduction in director cash compensation of 2025, and an aggregate of 133,039 restricted stock units, vested in full, to executives and key personnel in lieu of cash bonus earned for the year ended December 31, 2024.

On March 20, 2025, the Company announced that it has received a funding award from CEPI to use C1 to accelerate the development of protein-based vaccines through the partnership with Fondazione Biotecnopolo di Siena (FBS), a non-profit foundation backed by the Italian government.

DYADIC INTERNATIONAL, INC.
2021 EQUITY INCENTIVE AWARD PLAN

STOCK OPTION GRANT NOTICE

Dyadic International, Inc., a Delaware corporation, (the "Company"), pursuant to its 2021 Equity Incentive Award Plan, as amended from time to time (the "Plan"), hereby grants to the Holder listed below ("Participant"), an option to purchase the number of shares of the Company's common stock, par value $0.001 ("Stock"), set forth below (the "Option"). This Option is subject to all of the terms and conditions set forth herein and in the Stock Option Agreement attached hereto as Exhibit A (the "Stock Option Agreement") and the Plan, each of which are incorporated herein by reference. Unless otherwise defined herein, the terms defined in the Plan shall have the same defined meanings in this Grant Notice and the Stock Option Agreement.

Participant Name:
Participant ID:
Plan Name:
Award Number:
Shares Granted:
Award Type:
Award Date:
Award Price:
Vesting Schedule:
Expiration Date:

By signing the Stock Option Grant Notice below and the Stock Option Agreement attached hereto as Exhibit A, Participant agrees to be bound by the terms and conditions of the Plan, the Stock Option Agreement and this Grant Notice. Participant has reviewed the Stock Option Agreement, the Plan and this Grant Notice in their entirety, has had an opportunity to obtain the advice of counsel prior to executing this Grant Notice and the Stock Option Agreement and fully understands all provisions of this Grant Notice, the Stock Option Agreement and the Plan. Participant hereby agrees to accept as binding, conclusive and final all decisions or interpretations of the Administrator upon any questions arising under the Plan, this Grant Notice or the Stock Option Agreement.

DYADIC INTERNATIONAL, INC.:		**PARTICIPANT:**	
By:	_____	Signature:	_____
Print Name:	_____	Print Name:	_____
Title:	_____		

EXHIBIT A

DYADIC INTERNATIONAL, INC.

STOCK OPTION AGREEMENT

Pursuant to the Stock Option Grant Notice (the "Grant Notice") to which this Stock Option Agreement (this "Agreement") is attached, Dyadic International, Inc., a Delaware corporation (the "Company"), has granted to Participant an Option under the Company's 2021 Equity Incentive Award Plan, as amended from time to time (the " Plan"), to purchase the number of shares of Stock indicated in the Grant Notice.

ARTICLE 1.

GENERAL

1.1 Defined Terms. Wherever the following terms are used in this Agreement they shall have the meanings specified below, unless the context clearly indicates otherwise. Capitalized terms not specifically defined herein shall have the meanings specified in the Plan and the Grant Notice.

1.2 Incorporation of Terms of Plan. The Option is subject to the terms and conditions of the Plan which are incorporated herein by reference. In the event of any inconsistency between the Plan and this Agreement, the terms of the Plan shall control.

ARTICLE 2.

GRANT OF OPTION

2.1 Grant of Option. In consideration of Participant's past and/or continued employment with or service to the Company or a Subsidiary and for other good and valuable consideration, effective as of the Grant Date set forth in the Grant Notice (the "Grant Date"), the Company grants to Participant the Option to purchase any part or all of an aggregate of the number of shares of Stock set forth in the Grant Notice, upon the terms and conditions set forth in the Plan and this Agreement, subject to adjustments as provided in Section 14.2 of the Plan. Unless designated as a Nonstatutory Stock Option in the Grant Notice, the Option shall be an Incentive Stock Option to the maximum extent permitted by law.

2.2 Exercise Price. The exercise price of the shares of Stock subject to the Option shall be as set forth in the Grant Notice, without commission or other charge; *provided*, *however*, that the price per share of the shares of Stock subject to the Option shall not be less than 100% of the Fair Market Value of a share of Stock on the Grant Date. Notwithstanding the foregoing, if this Option is designated as an Incentive Stock Option and Participant owns (within the meaning of Section 424(d) of the Code) more than 10% of the total combined voting power of all classes of stock of the Company or any "subsidiary corporation" of the Company or any "parent corporation" of the Company (each within the meaning of Section 424 of the Code), the price per share of the shares of Stock subject to the Option shall not be less than 110% of the Fair Market Value of a share of Stock on the Grant Date.

2.3 Consideration to the Company. In consideration of the grant of the Option by the Company, Participant agrees to render faithful and efficient services to the Company or any Subsidiary. Nothing in the Plan or this Agreement shall confer upon Participant any right to continue in the employ or service of the Company or any Subsidiary or shall interfere with or restrict in any way the rights of the Company and its Subsidiaries, which rights are hereby expressly reserved, to discharge or terminate the services of Participant at any time for any reason whatsoever, with or without cause, except to the extent expressly provided otherwise in a written agreement between the Company or a Subsidiary and Participant.

ARTICLE 3.

PERIOD OF EXERCISABILITY

3.1 Commencement of Exercisability.

(a) Subject to Sections 3.2, 3.3, 5.10 and 5.16 hereof, the Option shall become vested and exercisable in such amounts and at such times as are set forth in the Grant Notice.

(b) No portion of the Option which has not become vested and exercisable at the date of Participant's Termination of Service shall thereafter become vested and exercisable, except as may be otherwise provided by the Administrator or as set forth in a written agreement between the Company and Participant.

(c) Notwithstanding Sections 3.1(a) hereof and the Grant Notice, but subject to Section 3.1(b) hereof, pursuant to Section 14.2 of the Plan, the Option shall become fully vested and exercisable with respect to all shares of Stock covered thereby in the event of a Change in Control, in connection with which the successor corporation does not assume the Option or substitute an equivalent right for the Option. Should the successor corporation assume the Option or substitute an equivalent right, then no such acceleration shall apply.

3.2 Duration of Exercisability. The installments provided for in the vesting schedule set forth in the Grant Notice are cumulative. Each such installment which becomes vested and exercisable pursuant to the vesting schedule set forth in the Grant Notice shall remain vested and exercisable until it becomes unexercisable under Section 3.3 hereof.

3.3 Expiration of Option. The Option may not be exercised to any extent by anyone after the first to occur of the following events:

(a) The Expiration Date set forth in the Grant Notice, which shall in no event be more than ten (10) years from the Grant Date;

(b) If this Option is designated as an Incentive Stock Option and Participant owned (within the meaning of Section 424(d) of the Code), at the time the Option was granted, more than 10% of the total combined voting power of all classes of stock of the Company or any "subsidiary corporation" of the Company or any "parent corporation" of the Company (each within the meaning of Section 424 of the Code), the expiration of five (5) years from the Grant Date;

(c) The expiration of three (3) months from the date of Participant's Termination of Service, unless such termination occurs by reason of Participant's death or disability; or

(d) The expiration of one (1) year from the date of Participant's Termination of Service by reason of Participant's death or disability.

3.4 Special Tax Consequences. Participant acknowledges that, to the extent that the aggregate Fair Market Value (determined as of the time the Option is granted) of all shares of Stock with respect to which Incentive Stock Options, including the Option (if applicable), are exercisable for the first time by Participant in any calendar year exceeds $100,000, the Option and such other options shall be Nonstatutory Stock Options to the extent necessary to comply with the limitations imposed by Section 422(d) of the Code. Participant further acknowledges that the rule set forth in the preceding sentence shall be applied by taking the Option and other "incentive stock options" into account in the order in which they were granted, as determined under Section 422(d) of the Code and the Treasury Regulations thereunder. Participant also acknowledges that an Incentive Stock Option exercised more than three (3) months after Participant's Termination of Employment, other than by reason of death or disability, will be taxed as a Nonstatutory Stock Option.

3.5 Tax Indemnity.

(a) The Participant agrees to indemnify and keep indemnified the Company, any Subsidiary and his/her employing company, if different, from and against any liability for or obligation to pay any Tax Liability (a "Tax Liability" being any liability for income tax, withholding tax and any other employment related taxes or social security contributions in any jurisdiction) that is attributable to (1) the grant or exercise of, or any benefit derived by the Participant from, the Option, (2) the acquisition by the Participant of the Stock on exercise of the Option, or (3) the disposal of any Stock.

(b) The Option cannot be exercised until the Participant has made such arrangements as the Company may require for the satisfaction of any Tax Liability that may arise in connection with the exercise of the Option and/or the acquisition of the Stock by the Participant. The Company shall not be required to issue, allot or transfer Stock until the Employee has satisfied this obligation.

ARTICLE 4.

EXERCISE OF OPTION

4.1 Person Eligible to Exercise. During the lifetime of Participant, only Participant may exercise the Option or any portion thereof. After the death of Participant, any exercisable portion of the Option may, prior to the time when the Option becomes unexercisable under Section 3.3 hereof, be exercised by Participant's personal representative or by any person empowered to do so under the deceased Participant's will or under the then applicable laws of descent and distribution.

4.2 Partial Exercise. Any exercisable portion of the Option or the entire Option, if then wholly exercisable, may be exercised in whole or in part at any time prior to the time when the Option or portion thereof becomes unexercisable under Section 3.3 hereof.

4.3 Manner of Exercise. The Option, or any exercisable portion thereof, may be exercised solely by delivery to the Secretary of the Company (or any third-party administrator or other person or entity designated by the Company), during regular business hours, of all of the following prior to the time when the Option or such portion thereof becomes unexercisable under Section 3.3 hereof:

(a) An exercise notice in a form specified by the Administrator, stating that the Option or portion thereof is thereby exercised, such notice complying with all applicable rules established by the Administrator;

(b) The receipt by the Company of full payment for the shares of Stock with respect to which the Option or portion thereof is exercised, including payment of any applicable withholding tax, which shall be made by deduction from other compensation payable to Participant or in such other form of consideration permitted under Section 4.4 hereof that is acceptable to the Company;

(c) Any other written representations as may be required in the Administrator's reasonable discretion to evidence compliance with the Securities Act or any other applicable law, rule or regulation; and

(d) In the event the Option or portion thereof shall be exercised pursuant to Section 4.1 hereof by any person or persons other than Participant, appropriate proof of the right of such person or persons to exercise the Option.

Notwithstanding any of the foregoing, the Company shall have the right to specify all conditions of the manner of exercise, which conditions may vary by country, and which may be subject to change from time to time.

4.4 Method of Payment. Payment of the exercise price shall be by any of the following, or a combination thereof, at the election of Participant:

(a) Cash or check;

(b) With the consent of the Administrator, surrender of shares of Stock (including, without limitation, shares of Stock otherwise issuable upon exercise of the Option) held for such period of time as may be required by the Administrator in order to avoid adverse accounting consequences and having a Fair Market Value on the date of delivery equal to the aggregate exercise price of the Option or exercised portion thereof; or

(c) Other property acceptable to the Administrator (including, without limitation, through the delivery of a notice that Participant has placed a market sell order with a broker with respect to shares of Stock then issuable upon exercise of the Option, and that the broker has been directed to pay a sufficient portion of the net proceeds of the sale to the Company in satisfaction of the Option exercise price; *provided* that payment of such proceeds is then made to the Company at such time as may be required by the Company, but in any event not later than the settlement of such sale).

4.5 Conditions to Issuance of Stock. The shares of Stock deliverable upon the exercise of the Option, or any portion thereof, may be either previously authorized but unissued shares of Stock or issued shares of Stock which have then been reacquired by the Company. Such shares of Stock shall be fully paid and nonassessable. The Company shall not be required to issue or deliver any shares of Stock purchased upon the exercise of the Option or portion thereof prior to fulfillment of all of the following conditions:

(a) The admission of such shares of Stock to listing on all stock exchanges on which such Stock is then listed;

(b) The completion of any registration or other qualification of such shares of Stock under any state or federal law or under rulings or regulations of the Securities and Exchange Commission or of any other governmental regulatory body, which the Administrator shall, in its absolute discretion, deem necessary or advisable;

(c) The obtaining of any approval or other clearance from any state or federal governmental agency which the Administrator shall, in its absolute discretion, determine to be necessary or advisable;

(d) The receipt by the Company of full payment for such shares of Stock, including payment of any applicable withholding tax, which may be in one or more of the forms of consideration permitted under Section 4.4 hereof; and

(e) The lapse of such reasonable period of time following the exercise of the Option as the Administrator may from time to time establish for reasons of administrative convenience.

4.6 Rights as Stockholder. The holder of the Option shall not be, nor have any of the rights or privileges of, a stockholder of the Company, including, without limitation, voting rights and rights to dividends, in respect of any shares of Stock purchasable upon the exercise of any part of the Option unless and until such shares of Stock shall have been issued by the Company and held of record by such holder (as evidenced by the appropriate entry on the books of the Company or of a duly authorized transfer agent of the Company). No adjustment will be made for a dividend or other right for which the record date is prior to the date the shares of Stock are issued, except as provided in Section 14.2 of the Plan.

ARTICLE 5.

OTHER PROVISIONS

5.1 Administration. The Administrator shall have the power to interpret the Plan and this Agreement and to adopt such rules for the administration, interpretation and application of the Plan as are consistent therewith and to interpret, amend or revoke any such rules. All actions taken and all interpretations and determinations made by the Administrator in good faith shall be final and binding upon Participant, the Company and all other interested persons. No member of the Committee or the Board shall be personally liable for any action, determination or interpretation made in good faith with respect to the Plan, this Agreement or the Option.

5.2 Whole Shares. The Option may only be exercised for whole shares of Stock.

5.3 Option Not Transferable. Subject to Section 4.1 hereof, the Option may not be sold, pledged, assigned or transferred in any manner other than by will or the laws of descent and distribution, unless and until the shares of Stock underlying the Option have been issued, and all restrictions applicable to such shares of Stock have lapsed. Neither the Option nor any interest or right therein shall be liable for the debts, contracts or engagements of Participant or his or her successors in interest or shall be subject to disposition by transfer, alienation, anticipation, pledge, encumbrance, assignment or any other means whether such disposition be voluntary or involuntary or by operation of law by judgment, levy, attachment, garnishment or any other legal or equitable proceedings (including bankruptcy), and any attempted disposition thereof shall be null and void and of no effect, except to the extent that such disposition is permitted by the preceding sentence.

5.4 Binding Agreement. Subject to the limitation on the transferability of the Option contained herein, this Agreement will be binding upon and inure to the benefit of the heirs, legatees, legal representatives, successors and assigns of the parties hereto.

5.5 Adjustments Upon Specified Events. The Administrator may accelerate the vesting of the Option in such circumstances as it, in its sole discretion, may determine. In addition, upon the occurrence of certain events relating to the Stock contemplated by Section 14.2 of the Plan (including, without limitation, an extraordinary cash dividend on such Stock), the Administrator shall make such adjustments the Administrator deems appropriate in the number of shares of Stock subject to the Option, the exercise price of the Option and the kind of securities that may be issued upon exercise of the Option. Participant acknowledges that the Option is subject to adjustment, modification and termination in certain events as provided in this Agreement and Section 14.2 of the Plan.

5.6 Notices. Any notice to be given under the terms of this Agreement to the Company shall be addressed to the Company in care of the Secretary of the Company at the Company's principal office, and any notice to be given to Participant shall be addressed to Participant at Participant's last address reflected on the Company's records. By a notice given pursuant to this Section 5.6, either party may hereafter designate a different address for notices to be given to that party. Any notice which is required to be given to Participant shall, if Participant is then deceased, be given to the person entitled to exercise his or her Option pursuant to Section 4.1 hereof by written notice under this Section 5.6. Any notice shall be deemed duly given when sent via email or when sent by certified mail (return receipt requested) and deposited (with postage prepaid) in a post office or branch post office regularly maintained by the United States Postal Service.

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

5.8 Governing Law. The laws of the State of Delaware shall govern the interpretation, validity, administration, enforcement and performance of the terms of this Agreement regardless of the law that might be applied under principles of conflicts of laws.

5.9 Conformity to Securities Laws. Participant acknowledges that the Plan and this Agreement are intended to conform to the extent necessary with all provisions of the Securities Act and the Exchange Act and any and all regulations and rules promulgated by the Securities and Exchange Commission thereunder, and state securities laws and regulations. Notwithstanding anything herein to the contrary, the Plan shall be administered, and the Option is granted and may be exercised, only in such a manner as to conform to such laws, rules and regulations. To the extent permitted by applicable law, the Plan and this Agreement shall be deemed amended to the extent necessary to conform to such laws, rules and regulations.

5.10 Amendments, Suspension and Termination. To the extent permitted by the Plan, this Agreement may be wholly or partially amended or otherwise modified, suspended or terminated at any time or from time to time by the Committee or the Board; *provided* that, except as may otherwise be provided by the Plan, no amendment, modification, suspension or termination of this Agreement shall adversely affect the Option in any material way without the prior written consent of Participant.

5.11 Successors and Assigns. The Company may assign any of its rights under this Agreement to single or multiple assignees, and this Agreement shall inure to the benefit of the successors and assigns of the Company. Subject to the restrictions on transfer herein set forth in Section 5.3 hereof, this Agreement shall be binding upon Participant and his or her heirs, executors, administrators, successors and assigns.

5.12 Notification of Disposition. If this Option is designated as an Incentive Stock Option, Participant shall give prompt notice to the Company of any disposition or other transfer of any shares of Stock acquired under this Agreement if such disposition or transfer is made (a) within two (2) years from the Grant Date with respect to such shares of Stock or (b) within one (1) year after the transfer of such shares of Stock to Participant. Such notice shall specify the date of such disposition or other transfer and the amount realized, in cash, other property, assumption of indebtedness or other consideration, by Participant in such disposition or other transfer.

5.13 Limitations Applicable to Section 16 Persons. Notwithstanding any other provision of the Plan or this Agreement, if Participant is subject to Section 16 of the Exchange Act, the Plan, the Option and this Agreement shall be subject to any additional limitations set forth in any applicable exemptive rule under Section 16 of the Exchange Act (including any amendment to Rule 16b-3 of the Exchange Act) that are requirements for the application of such exemptive rule. To the extent permitted by applicable law, this Agreement shall be deemed amended to the extent necessary to conform to such applicable exemptive rule.

5.14 Not a Contract of Employment. Nothing in this Agreement or in the Plan shall confer upon the Participant any right to continue to serve as an employee or other service provider of the Company or any of its Subsidiaries.

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

5.16 Section 409A. This Option is not intended to constitute "nonqualified deferred compensation" within the meaning of Section 409A of the Code (together with any Department of Treasury regulations and other interpretive guidance issued thereunder, including without limitation any such regulations or other guidance that may be issued after the date hereof, "Section 409A"). However, notwithstanding any other provision of the Plan, the Grant Notice or this Agreement, if at any time the Administrator determines that the Option (or any portion thereof) may be subject to Section 409A, the Administrator shall have the right in its sole discretion (without any obligation to do so or to indemnify Participant or any other person for failure to do so) to adopt such amendments to the Plan, the Grant Notice or this Agreement, or adopt other policies and procedures (including amendments, policies and procedures with retroactive effect), or take any other actions, as the Administrator determines are necessary or appropriate either for the Option to be exempt from the application of Section 409A or to comply with the requirements of Section 409A.

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

5.18 Award Subject to Company Clawback or Recoupment. To the extent permitted by applicable law, the Restricted Stock Units or any Common Stock issued in settlement thereof will be subject to clawback or recoupment pursuant to any compensation clawback or recoupment policy adopted by the Board or required by law during the term of your service with the Company or its affiliates.

IN WITNESS WHEREOF, the Company has caused a duly authorized officer to execute this Agreement, and Participant has executed this Agreement, effective as of the Grant Date.

THE COMPANY:

DYADIC INTERNATIONAL, INC.

By: _____
Print Name: _____
Title: _____

PARTICIPANT: _____
Print Name: _____

DYADIC INTERNATIONAL, INC.
2021 EQUITY INCENTIVE AWARD PLAN

Restricted Stock Unit Award Grant Notice

Dyadic International, Inc., a Delaware corporation, (the "**Company**"), pursuant to its 2021 Equity Incentive Plan (the "**Plan**"), hereby grants to the Holder named below a Restricted Stock Unit Award (the "**Award**") for the number of restricted stock units ("**Restricted Stock Units**") set forth below. The Award is subject to all of the terms and conditions as set forth in this Restricted Stock Unit Award Grant Notice (this "**Grant Notice**") and in the Restricted Stock Unit Award Agreement (the "**RSU Award Agreement**") and the Plan, both of which are attached hereto and hereby incorporated herein by reference. Capitalized terms used but not defined in this Grant Notice shall have the meanings set forth in the RSU Award Agreement or the Plan, as applicable.

Participant Name:
Participant ID:
Plan Name:
Award Number:
Shares Granted:
Award Type:
Award Date:
Vesting Schedule: Subject to the Participant not experiencing a Termination of Service prior to any's Continuous Service through the applicable vesting date, the unvested Restricted Stock Units will vest in accordance with the following vesting schedule

Additional Terms/Acknowledgements: The Participant acknowledges receipt of, and understands and agrees to, this Grant Notice, the RSU Award Agreement and the Plan. The Participant further acknowledges that, as of the Date of Grant, this Grant Notice, the RSU Award Agreement, the Plan and the Participant's written employment agreement (if any) with the Company set forth the entire understanding between the Participant and the Company regarding the Restricted Stock Units and supersede all prior oral and written agreements regarding the Restricted Stock Units. In the event Participant does not execute this Grant Notice within [60] days of the Award Date, this Award shall be deemed [void *ab initio*][to have been automatically duly executed and accepted, unless the Participant affirmatively notifies the Company that the Participant does not wish to accept this Award. Participant's acceptance of this Award constitutes his or her instruction and authorization to the Company or Employer and any brokerage firm determined acceptable to the Company or Employer for such purpose to sell on Participant's behalf shares of Common Stock from those shares issuable to Participant as the Company or Employer determines to be appropriate to generate cash proceeds sufficient to satisfy Participant's tax withholding obligation.

DYADIC INTERNATIONAL, INC.:		**PARTICIPANT:**	
By:	_____	Signature:	_____
Print Name:	_____	Print Name:	_____
Title:	_____		

Attachments: Restricted Stock Unit Award Agreement and 2021 Equity Incentive Plan

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ATTACHMENT I

Restricted Stock Unit Award Agreement

DYADIC INTERNATIONAL, Inc.
2021 Equity Incentive Plan

Pursuant to the attached Restricted Stock Unit Award Grant Notice (the "**Grant Notice**") and this Restricted Stock Unit Award Agreement (this "**Agreement**"), Dyadic International, Inc. (the "**Company**") has granted you a Restricted Stock Unit Award (the "**Award**") under its 2021 Equity Incentive Plan (the "**Plan**") for the number of restricted stock units ("**Restricted Stock Units**") indicated in the Grant Notice.

Capitalized terms not expressly defined in this Agreement or the Grant Notice but defined in the Plan shall have the same definitions as are set forth in the Plan.

The terms of your Award, in addition to those set forth in the Grant Notice, are as follows.

1. **GRANT OF THE AWARD**. Your Award represents the right to be issued on a future date one share of Common Stock (subject to any adjustment under Section 3 below) for each Restricted Stock Unit that vests in accordance with the Grant Notice and this Agreement. As of the Date of Grant, the Company shall credit to a bookkeeping account maintained by the Company for your benefit (the "**Account**") the number of Restricted Stock Units subject to your Award. This Award was granted in consideration of your services to the Company or an affiliate.

2. **VESTING; ACCELERATED VESTING UPON A CORPORATE TRANSACTION**. Subject to the limitations contained in this Agreement and unless otherwise provided in a written employment agreement between you and the Company, your Award shall vest, if at all, in accordance with the vesting schedule set forth in the Grant Notice. Unless otherwise provided in a written employment agreement between you and the Company, vesting shall cease upon your Termination of Service and the Restricted Stock Units credited to the Account that were not vested on the date of such termination shall be cancelled and you shall have no further right, title or interest in or to such Restricted Stock Units or the shares of Common Stock to be issued in respect of the Restricted Stock Units.

3. **CAPITALIZATION ADJUSTMENTS**. The number of Restricted Stock Units issuable is subject to the adjustment from time to time as provided in Section 14.2 of the Plan. Any additional Restricted Stock Units or shares of Common Stock that become subject to your Award pursuant to this Section 3 shall be subject, in a manner determined by the Board, to the same vesting restrictions, restrictions on transfer, and time and manner of delivery as applicable to the other Restricted Stock Units and shares of Common Stock covered by your Award. Notwithstanding the provisions of this Section 3, no fractional share or right for a fractional share of Common Stock shall be created pursuant to this Section 3. Any fraction of a share shall be rounded down to the nearest whole share.

4. **SECURITIES LAW COMPLIANCE**. You shall not be issued any shares of Common Stock under your Award unless the issuance of the shares of Common Stock issuable in respect of your Award is (a) then registered under the Securities Act or (b) the Company has determined that such issuance would be exempt from the registration requirements of the Securities Act. Your Award must also comply with other applicable laws and regulations governing your Award, and you shall not receive such shares of Common Stock if the Company determines that such receipt would not be in material compliance with such laws and regulations.

5. **TRANSFER RESTRICTIONS**. Prior to the time that shares of Common Stock have been delivered to you, you may not transfer, pledge, sell or otherwise dispose of your Award or the shares of Common Stock issuable in respect of your Award, except as expressly provided in this Section 5. For example, you may not pledge shares of Common Stock that may be issued in respect of your Restricted Stock Units as security for a loan. The restrictions on transfer set forth herein shall lapse upon delivery to you of shares of Common Stock in respect of your vested Restricted Stock Units.

   (a) **Death**. Your Award and the shares of Common Stock issuable in respect of your Award are transferable by the laws of descent and distribution. At your death, vesting of your Award shall cease and your executor or administrator of your estate shall be entitled to receive, on behalf of your estate, any shares of Common Stock or other consideration issuable in respect of your Award that vested but were not issued before your death.

   (b) **Domestic Relations Orders**. Upon receiving written permission from the Board or its duly authorized designee, and provided that you and the designated transferee enter into transfer and other agreements required by the Company, you may transfer your right to receive the distribution of shares of Common Stock or other consideration hereunder, pursuant to a domestic relations order that contains the information required by the Company to effectuate the transfer. You are encouraged to discuss the proposed terms of any division of your Award with the Company prior to finalizing the domestic relations order to verify that you may make such transfer, and if so, to help ensure the required information is contained within the domestic relations order.

6. **DATE OF ISSUANCE OF COMMON STOCK**. Subject to the satisfaction of the tax withholding obligation set forth in Section 11 of this Agreement, promptly following the vesting date, and in any event no later than March 15 of the calendar year following the calendar year in which such vesting occurs, the Company shall issue and deliver to you one share of Common Stock (subject to any adjustment under Section 3 above) for each Restricted Stock Unit that vests on the applicable vesting date. The form of delivery (e.g., a stock certificate or electronic entry evidencing such shares) shall be determined by the Company. The issuance of shares of Common Stock in respect of the Restricted Stock Units is intended to comply with Treasury Regulation Section 1.409A-1(b)(4) and shall be construed and administered in such a manner.

7. **DIVIDENDS**. You shall receive no benefit or adjustment to your Award with respect to any cash dividend, stock dividend or other distribution that does not result from an Equity Restructuring or other adjustment pursuant to Section 14.2 of the Plan ; provided, however, that this sentence shall not apply with respect to any shares of Common Stock that are delivered to you in connection with your Award after such shares have been delivered to you.

8. **RESTRICTIVE LEGENDS**. The shares of Common Stock issued in respect of your Award shall be endorsed with any appropriate securities law legends as determined by the Company.

9. **EMPLOYMENT AGREEMENT**. If you have entered into a written employment agreement with the Company, then in the event of any inconsistency between a provision contained in your employment agreement and a provision contained in this Agreement, the Grant Notice or the Plan, the provision that is more favorable to you shall prevail.

10. **AWARD NOT A SERVICE CONTRACT**. Your Award is not an employment or service contract, and nothing in your Award shall be deemed to create in any way whatsoever any obligation on your part to continue in the employ of the Company or an affiliate, or of the Company or an affiliate to continue your employment. In addition, nothing in your Award shall obligate the Company or an affiliate, their respective stockholders, Boards of Directors, officers or Employees to continue any relationship that you might have as a Director or Consultant for the Company or an affiliate.

11. **RESPONSIBILITY FOR TAXES.** You acknowledges that, to the extent permitted by applicable law, regardless of any action taken by the Company or, if different, any affiliate employing or retaining you (the "**Employer**"), the ultimate liability for all income tax, social insurance, payroll tax, fringe benefits tax, payment on account or other tax-related items related to your participation in the Plan and legally applicable to you ("**Tax-Related Items**") is and remains your responsibility and may exceed any amount actually withheld by the Company or the Employer. You further acknowledges that the Company and/or the Employer (i) make no representations or undertakings regarding the treatment of any Tax-Related Items in connection with any aspect of the Restricted Stock Units, including, but not limited to, the grant, vesting or settlement of the Restricted Stock Units and the subsequent sale of Common Stock acquired pursuant to such settlement and the receipt of any dividends, and (ii) do not commit to and are under no obligation to structure the terms of the grant or any aspect of the Restricted Stock Units to reduce or eliminate your liability for Tax- Related Items or achieve any particular tax result.

12. **WITHHOLDING OBLIGATION**. In the event your Restricted Stock Units are subject to the withholding obligation of the Company or the Employer, prior to any relevant taxable or tax withholding event, to the extent permitted by applicable law and as applicable, you agree to make arrangements satisfactory to the Company and/or the Employer to satisfy all Tax-Related Items. In this regard, you authorize the Company and/or the Employer, or their respective agents, at their discretion, to satisfy any withholding obligations for Tax-Related Items by one or a combination of the following:

    (a) withholding from Participant's wages or other cash compensation paid to Participant by the Company and/or the Employer; or

    (b) instructing a broker on Participant's behalf to sell Shares otherwise issuable to Participant upon vesting of the RSUs sufficient to generate net proceeds sufficient to satisfy the Company's minimum statutory withholding obligations with respect to the income recognized by Participant upon the vesting of the RSUs (based on minimum statutory withholding rates for all tax purposes, including payroll and social security taxes, that are applicable to such income) and the net proceeds of such sale shall be submitted to the Company;

    (c) withholding Shares to be issued upon settlement of the RSUs, provided the Company only withholds the number of Shares necessary to satisfy no more than the maximum applicable statutory withholding amounts;

    (d) Participant's payment of a cash amount (including by check representing readily available funds or a wire transfer); or

    (e) any other arrangement approved by the Committee and permitted under applicable law;

    all under such rules as may be established by the Committee and in compliance with the Company's Security Trading Policy and 10b5-1 Trading Plan Policy. Until determined otherwise by the Company, clause (ii) will be the method by which such withholding obligations are satisfied.

    Depending on the withholding method, the Company may withhold or account for Tax-Related Items by considering applicable statutory withholding rates or other applicable withholding rates, including up to the maximum permissible statutory rate for your tax jurisdiction(s) in which case you will have no entitlement to the equivalent amount in Common Shares and will receive a refund of any over-withheld amount in cash in accordance with applicable law. If the obligation for Tax-Related Items is satisfied by withholding in Common Stock, for tax purposes, you will be deemed to have been issued the full number of shares of Common Stock subject to the vested Restricted Stock Units, notwithstanding that a number of the shares of Common Stock are held back solely for the purpose of satisfying the withholding obligation for Tax-Related Items.

    You agree to pay to the Company and/or the Employer any amount of Tax-Related Items that the Company and/or the Employer may be required to withhold or account for as a result of your participation in the Plan that cannot be satisfied by the means previously described. The Company has no obligation to deliver shares of Common Stock or proceeds from the sale of such shares of Common Stock to you until you have satisfied the obligations in connection with the Tax-Related Items as described in this Section.

13. **UNSECURED OBLIGATION**. Your Award is unfunded, and as the holder of your Award you shall be considered an unsecured creditor of the Company with respect to the Company's obligation, if any, to issue shares of Common Stock or other property pursuant to this Agreement. You shall not have voting or any other rights as a stockholder of the Company with respect to the shares of Common Stock issuable in respect of the Restricted Stock Units. Upon and following the settlement of the Restricted Stock Units, you shall be the record owner of the shares of Common Stock underlying the Restricted Stock Units unless and until such shares are sold or otherwise disposed of, and as record owner you shall be entitled to all rights of a stockholder of the Company (including voting rights). Nothing contained in this Agreement, and no action taken pursuant to its provisions, shall create or be construed to create a trust of any kind or a fiduciary relationship between you and the Company or any other person.

14. **NOTICES**. Any notices provided for in your Award, this Agreement or the Plan shall be given in writing and shall be deemed effectively given upon receipt or, in the case of notices delivered by mail by the Company to you, five days after deposit in the United States mail, postage prepaid, addressed to you at the last address you provided to the Company. Notwithstanding the foregoing, the Company may, in its sole discretion, decide to deliver any documents related to participation in the Plan and your Award by electronic means or to request your consent to participate in the Plan by electronic means. You hereby consent to receive such documents by electronic delivery and, if requested, to agree to participate in the Plan through an on-line or electronic system established and maintained by the Company or another third party designated by the Company.

15. **APPLICABILITY OF THE PLAN.** Your Award and this Agreement are subject to all of the provisions of the Plan, the provisions of which are hereby made a part of your Award and are further subject to all interpretations and amendments of the Plan which may from time to time be promulgated and adopted pursuant to the Plan. In the event of any conflict between the provisions of this Agreement and those of the Plan, the provisions of the Plan shall control.

16. **SEVERABILITY.** If all or any part of this Agreement or the Plan is declared by any court or governmental authority to be unlawful or invalid, such unlawfulness or invalidity shall not invalidate any portion of this Agreement or the Plan not declared to be unlawful or invalid. Any Section of this Agreement or the Plan (or part of such a Section) so declared to be unlawful or invalid shall, if possible, be construed in a manner which will give effect to the terms of such Section or part of a Section to the fullest extent possible while remaining lawful and valid.

17. **EFFECT ON OTHER EMPLOYEE BENEFIT PLANS.** The value of your Award subject to this Agreement shall not be included as compensation, earnings, salaries or other similar terms used when calculating your benefits under any employee benefit plan sponsored by the Company or any affiliate, except as such plan otherwise expressly provides. The Company expressly reserves its right to amend, modify or terminate any of the Company's or any affiliate's employee benefit plans.

18. **AMENDMENT.** This Agreement may not be modified or amended except by an instrument in writing, signed by a duly authorized representative of the Company, provided that no such amendment materially adversely affecting your rights hereunder may be made without your written consent. However, the Board reserves the right to change, by written notice to you, the provisions of this Agreement in any way it may deem necessary or advisable to carry out the purpose of the Award as a result of any change in applicable laws or regulations or any future law, regulation, ruling or judicial decision, provided that any such change shall be applicable only to rights relating to that portion of your Award which is then subject to restrictions as provided herein.

19. **COMPLIANCE WITH SECTION 409A OF THE CODE.** Your Award is intended to be exempt from the application of Section 409A of the Code, including but not limited to, by reason of complying with the "short-term deferral" rule set forth in Treasury Regulation Section 1.409A-1(b)(4) and any ambiguities herein shall be interpreted accordingly. Notwithstanding the foregoing, if it is determined that your Award fails to satisfy the requirements of the short-term deferral rule and is otherwise not exempt from and determined to be deferred compensation subject to Section 409A of the Code, your Award shall comply with Section 409A to the extent necessary to avoid adverse personal tax consequences and any ambiguities herein shall be interpreted accordingly. If it is determined that your Award is deferred compensation subject to Section 409A and you are a "specified employee" (within the meaning set forth in Section 409A(a)(2)(B)(i) of the Code) as of the date of your "separation from service" (as defined in Section 409A), then the issuance of any shares of Common Stock that would otherwise be made upon the date of your separation from service or within the first six months thereafter shall not be made on the originally scheduled date and shall instead be issued in a lump sum on the date that is six months and one day after the date of the separation from service, with the balance of such shares issued thereafter in accordance with the original vesting and issuance schedule set forth above, but if and only if such delay in the issuance of such shares is necessary to avoid the imposition of adverse taxation on you in respect of such shares under Section 409A of the Code. Each installment of shares of Common Stock that vests is intended to constitute a "separate payment" for purposes of Treasury Regulation Section 1.409A-2(b)(2).

20. **AWARD SUBJECT TO COMPANY CLAWBACK OR RECOUPMENT**. To the extent permitted by applicable law, the Restricted Stock Units or any Common Stock issued in settlement thereof will be subject to clawback or recoupment pursuant to any compensation clawback or recoupment policy adopted by the Board or required by law during the term of your service with the Company or its affiliates.

21. **MISCELLANEOUS.**
    (a) The Company may assign any of its rights under the Grant Notice, this Agreement and the Plan to one or more assignees, and all covenants contained in the Grant Notice, this Agreement and the Plan shall inure to the benefit of, and be enforceable by, the Company's successors and assigns. All obligations of the Company under the Grant Notice, this Agreement and the Plan shall be binding on any successor to the Company, whether the existence of such successor is the result of a direct or indirect purchase, merger, consolidation or otherwise, of all or substantially all of the business and/or assets of the Company. Your rights and obligations under your Award may only be assigned with the prior written consent of the Company.
    (b) You agree upon request to execute any further documents or instruments necessary or desirable in the sole determination of the Company to carry out the purposes or intent of your Award.
    (c) You acknowledge and agree that you have reviewed this Agreement, the Grant Notice and the Plan in their entirety, have had an opportunity to obtain the advice of counsel prior to executing and accepting your Award, and fully understand all provisions of your Award.
    (d) This Agreement shall be subject to all applicable laws, rules and regulations, and to such approvals by any governmental agencies or national securities exchanges as may be required.

ATTACHMENT II

2021 EQUITY INCENTIVE PLAN



DYADIC INTERNATIONAL, INC.
Procedures And Guidelines Governing Insider Trading And Tipping

I. Purpose

In order to comply with federal and state securities laws governing (a) trading in Company securities while in the possession of "material non-public information" concerning the Company, and (b) tipping or disclosing material non-public information to outsiders, and in order to, among other things, prevent even the appearance of improper insider trading or tipping, protect the Company from controlling person liability and protect the reputation of the Company, its directors, officers and employees, the Company has adopted this policy for all of its directors, officers and employees, their family members, and specially designated outsiders, such as consultants, who may have access to the Company's material non-public information.

II. Scope

A. This policy covers all directors, officers and employees of the Company, their family members and any corporations, partnerships, trusts or other entities owned or controlled by the foregoing persons and any trusts in which such persons are trustees or beneficiaries ("Applicable Trusts") or any corporation in which such persons hold more than 20% of the equity or voting rights ("Applicable Corporations") (collectively referred to as "Insiders"), and any outsiders, including consultants, whom the Insider Trading Compliance Officer may designate as Insiders because they have or may gain access to material non-public information concerning the Company.

B. The policy applies to any and all transactions in the Company's securities, including (unless specifically excluded herein) its common stock and options to purchase common stock, and any other type of securities that the Company may issue, such as preferred stock, convertible debentures, warrants and exchange-traded options or other derivative securities. Transactions subject to this policy include, but are not necessarily limited to, purchases and sales (including short-selling), whether in the open market or with the Company; transfers to anyone or any entity, whether with or without consideration; gifts; pledging of shares of options; and the granting of an option to acquire an Insider's interest in Company securities.

C. The policy will be delivered to all directors, officers, employees and designated outsiders upon its adoption by the Company, and to all new directors, officers, employees and designated outsiders at the start of their employment or relationship with the Company. Upon first receiving a copy of the policy or any revised versions, each Insider must sign an acknowledgement that he or she has received a copy and agrees to comply with the policy's terms. Officers, employees, directors and certain designated Insiders and outsiders may be required to certify compliance with the policy on an annual basis.

III. Insider Trading Compliance Officer and Compliance Committee

The Company has designated **Ping Rawson**, Chief Accounting Officer, as its Insider Trading Compliance Officer (the "Compliance Officer"). The Insider Trading Compliance Committee (the "Committee") will consist of the Compliance Officer , and **Mark Emalfarb**, Chief Executive Officer. The Committee will review and either approve or prohibit all proposed trades by Insiders and designated outsiders in accordance with the procedures set forth in Section V.C., below.

In addition to the trading approval duties described in Section V.C., below, the duties of the Compliance Officer will include the following:

A. Administering this policy and monitoring and enforcing compliance with all policy provisions and procedures.

B. Responding to all inquiries relating to this policy and its procedures.

C. Designating and announcing Special Blackout Periods, as defined below.

D. Providing copies of this policy and other appropriate materials to all current and new directors, officers and employees, and such outsiders who the Compliance Officer determines have or may gain access to material non-public information concerning the Company.

E. Administering, monitoring and enforcing compliance with all federal and state insider trading laws and regulations, including without limitation Sections 10(b), 15, 20A and 21A of the Securities Exchange Act of 1934, as amended (the "Exchange Act") and the rules and regulations promulgated thereunder, and Rule 144 under the Securities Act of 1933, as amended (the "Securities Act") and related regulations of the Financial Industry Regulatory Authority, Inc. ("FINRA") or The Nasdaq Stock Market Inc. ("Nasdaq"); and assisting in the preparation and filing of all required reports with the U.S. Securities and Exchange Commission ("SEC") relating to insider trading in the Company's securities, including without limitation Forms 3, 4, 5 and 144 and Schedules 13D and 13G.

F. Revising the policy as necessary to reflect changes in federal or state insider trading laws and regulations or the regulations of FINRA or Nasdaq.

G. Maintaining as Company records originals or copies of all documents required by the provisions of this policy or the procedures set forth herein, and copies of all required SEC reports relating to insider trading, including without limitation Forms 3, 4, 5 and 144 and Schedules 13D and 13G.

The Compliance Officer may designate one or more individuals who may perform his duties or the duties of the other member of the Committee in the event that he or the other Committee member is unable to or unavailable to perform such duties.

IV. Definition of "Material Nonpublic Information"

A. "Material" Information

There is no bright-line rule as to what constitutes "material" information. Generally speaking, information about the Company is "material" if there is a substantial likelihood that a reasonable stockholder would consider the information important in making a decision to buy or sell the Company's securities, or, stated another way, if the disclosure of the information would be expected to significantly alter the total mix of the information in the marketplace about the Company. In simple terms, material information is any type of information that could reasonably be expected to affect the price of Company securities, beyond normal daily fluctuations. While it is not possible to identify all information that would be deemed "material," the following types of information ordinarily would be considered material:

- Financial performance, especially quarterly and year-end earnings, and significant changes in financial performance or liquidity.
- Company projections and strategic plans.
- Clinical results of the Company's drug candidates.
- Potential mergers and acquisitions or the sale of Company assets or subsidiaries.
- Partnership agreements for the Company's clinical-stage drug candidates.

- New major contracts, order, suppliers, customer, or finance sources, or the loss thereof.
- Major discoveries or significant changes or developments in products or product lines, clinical trial results, research or technologies.
- Significant changes or developments in supplies or inventory, including significant product defects, recalls or product returns.
- Significant pricing changes.
- Stock splits, public or private securities/debt offerings, or changes in Company dividend policies or amounts.
- Sales of the Company's securities by the Named Executive Officers (identified as such in the Company's Annual Meeting Proxy Statement filed each year with the SEC (the "NEO's")) or by members of the Company's Board of Directors.
- Significant changes in senior management.
- Significant labor disputes or negotiations.
- Actual or threatened major litigation, or the resolution of such litigation.
- Content of material formal FDA responses to the Company
- Impending bankruptcy or the existence of severe liquidity problems;
- The imposition of a ban on trading in Company Securities or the securities of another company.

When doubt exists, the information should be presumed to be material. **If you are unsure whether information of which you are aware is material or non-public, you should consult with the Compliance Officer.**

B. "Non-public" Information

Material information is "non-public" if it has not been widely disseminated to the public in a manner making it available to investors generally, including, without limitation, through major newswire services, national news services and financial news services or the filing of public documents as required with the SEC. For the purposes of this policy, information will be considered public, i.e., no longer "non-public," after the close of trading on the second full trading day following the company's widespread public release of the information.

V. Statement of Company Policy and Procedures

A. Prohibited Activities

1. No Insider may trade in Company securities while possessing material non-public information concerning the Company.

2. No Insider may trade in Company securities during any Special Blackout Periods designated by the Compliance Officer.

3. No Insider may trade in Company securities unless the trade(s) have been approved by the Committee in accordance with the procedures set forth in Section V.C., below, and, if required for such trade, a Form 144 filing with the SEC was also approved by the Committee. Insiders who wish to sell Company securities in order to realize their profits are strongly encouraged to sell their securities pursuant to a predetermined written plan meeting the requirements of Rule 10b5-1 of the Exchange Act ("Rule 10b5-1") which is approved by the Committee. To the extent possible, Insiders should retain all records and documents that support their reasons for making each trade.

4. No member of the Committee may trade in Company securities unless the trade(s) and, if required, a Form 144, have been approved by the other members of the Committee and the Company's outside legal counsel in accordance with the procedures set forth in Section V.C., below.

5. No Insider may "tip" or disclose material non-public information concerning the Company to any outside person (including family members, analysts, individual investors and members of the investment community and news media), unless required as part of that Insider's regular duties for the Company. In any instance in which such information is disclosed to outsiders, the Company shall take such steps as are necessary to preserve the confidentiality of the information, including requiring the outsider to agree in writing to comply with the terms of this policy and/or to sign a confidentiality agreement. All inquiries from outsiders regarding material non-public information about the Company must be forwarded to the Compliance Officer.

6. No Insider may give trading advice of any kind about the Company to anyone while possessing material non-public information about the Company, except that Insiders should advise others not to trade if doing so might violate the law or this policy. The Company strongly discourages all Insiders from giving trading advice concerning the Company to third parties even when the Insiders do not possess material non-public information about the Company.

7. No Insider may trade in any interest or position relating to the future price of Company securities, such as a put, call or short sale.

B. Blackout Periods

1. The period beginning fourteen days prior to the end of each quarter and ending two trading days following the date of public disclosure of the financial results for that quarter (the "Blackout Period") is a particularly sensitive period of time for transactions in the Company's stock from the perspective of compliance with applicable securities laws. This sensitivity is due to the fact that officers, directors and certain other employees and consultants will, during that period, often possess material non-public information about the expected financial results for the quarter. Except as set forth in Section V.D., no Insider may trade in Company Securities during a Blackout Period, although the Committee may waive the restriction if it determines such person does not possess material non-public information.

2. The Compliance Officer, in consultation with Company management, may, from time to time, designate special blackout periods ("Special Blackout Periods") during which trading in Company securities by all Insiders shall be prohibited.

3. No Insiders may disclose to any outside third party that a Special Blackout Period has been designated.

C. Procedures Relating to Trades by Insiders and Regulatory Filings

1. Regardless of the proposed timing or type of trade, no Insider may trade in Company securities until:

a. The person trading has notified the Compliance Officer in writing of the amount and nature of the proposed trade(s);

b. The person trading has certified to the Compliance Officer in writing at the time of such proposed trade(s) that (i) he or she is not in possession of material non-public information concerning the Company and (ii) the proposed trade(s) do not violate the trading restrictions of Section 16 of the Exchange Act or Rule 144 of the Securities Act;

c. The person trading has notified and received approval from the Committee for the filing of a Form 144 with the SEC; and

d. The Committee has approved the trade(s), and the Compliance Officer has certified such approval in writing.

2. Trades made pursuant to Rule 10b5-1 Plans

a. The Company must pre-approve any plan, arrangement or trading instructions, etc. prepared pursuant to Rule 10b5-1 involving potential sales (or purchases) of stock or option exercises and sales, etc. (any such plan prepared in accordance with Rule 10b5-1, a "10b5-1 Plan").

b. In reviewing any 10b5-1 Plan, the Company shall:

i. Verify that at the time a 10b5-1 Plan is entered into, there is no non-public material information about the Company (even if the Insider proposing the 10b5-1 Plan is not aware of such information).
ii. Ensure that the first trade authorized by any 10b5-1 Plan does not occur until a time following the release of the Company's next quarterly filing with the SEC subsequent to the 10b5-1 Plan going into effect;
iii. Ensure that the 10b5-1 Plan provides, where appropriate, for compliance with the restrictions set forth in Section V.B. above;
iv. Consider whether a public announcement of the 10b5-1 Plan should be made; and
v. Ensure that the 10b5-1 Plan includes a procedure with whomever is handling the transactions pursuant to the 10b5-1 Plan that will guarantee:

1. Prompt filings of Forms 4 and 5 with the SEC after each transaction;
2. Compliance with Rule 144 and/or Rule 145, if appropriate, at the time any sale; and
3. Cessation of any transactions during any Special Blackout Periods imposed on Insiders.

3. The existence of the foregoing approval processes does not in any way obligate the Compliance Officer or the Committee to approve any particular trades or 10b5-1 Plans proposed by Insiders. The Compliance Officer or the Committee may reject any trading requests or 10b5-1 Plans at their sole reasonable discretion.

4. Regardless of whether an NEO or a member of the Company's Board of Directors has plans to trade in the Company's securities, any Form 144 filing by such an Insider with the SEC must be pre-approved by the Committee prior to any filing. In addition, such an Insider must also provide notice to the chair of the Compensation Committee of the Company's Board of Directors of his or her intention to file a Form 144 with the SEC or to effect any trading in the securities of the Company.

D. Exceptions to Trading Prohibitions

The prohibition on trading in Company securities during Blackout Periods, during Special Blackout Periods, or while otherwise in possession of material non-public information does not apply to:

a. purchases made under an employee stock purchase plan operated by the Company; provided, however, that the securities so acquired may not be sold during a Blackout Period or any Special Blackout Period;

b. exercises of stock options or the surrender of shares to the Company in payment of the exercise price or in satisfaction of any tax withholding obligation, in each case in a manner permitted by the applicable stock option; provided, however, that the securities so acquired may not be sold (either outright or in connection with a "cashless" exercise transaction through a broker) during a Blackout Period or Special Blackout Period or, if outside a Blackout Period or Special Blackout Period, without receiving the approval of the Committee

c. automatic sales of shares of the Company's common stock through a Company-contracted service provider or broker to cover any taxes due as a result of the vesting of restricted stock or restricted stock units, where the amount of shares sold is based on the Insider's taxable income, the market price of the common stock on the date that the restricted stock or restricted stock units vest (the "Vesting Date") and the market price on the date of the sale, which date shall be as soon as possible after the Vesting Date;

d. acquisitions or dispositions of Company common stock under the Company's 401(k) plan, which are made pursuant to standing instructions not entered into or modified during a Blackout Period or Special Blackout Period or while otherwise in possession of material non-public information; and

e. purchases or sales made pursuant to a 10b5-1 Plan.

E. Priority of Statutory or Regulatory Trading Restrictions

The trading prohibitions and restrictions set forth in this policy will be superseded by any greater prohibitions or restrictions prescribed by federal or state securities laws and regulations, e.g., short swing trading by officer and directors or restrictions on the sale of securities subject to Rule 144 under the Securities Act. Any Insider who is uncertain whether other prohibitions or restrictions apply should ask the Compliance Officer.

F. Notification of Approved Trades After Execution

Any Insider who is permitted to trade Company securities pursuant to any provision of this Section V must notify the Compliance Officer, by email and/or facsimile transmission, promptly upon the execution of such trade, but in no event later than next business day after the execution of such trade. Such notice shall include all relevant details of such trade, including, but not limited to:

a. the name of the entity in whose name the trade was made;
b. the type and amount of securities subject to the trade;
c. the price at which the securities were traded; and
d. the new number of securities owned, directly or indirectly, by the Insider subsequent to the execution of the trade.

VI. Potential Civil, Criminal and Disciplinary Sanctions

A. Civil and Criminal Penalties

The consequences of prohibited insider trading or tipping can be severe. Under US law, persons violating insider trading or tipping rules may be required to disgorge the profit made or the loss avoided by the trading, pay the loss suffered by the person who purchased securities from or sold securities to the insider, pay civil penalties up to three times the profit made or loss avoided, pay a criminal penalty of up to $1 million, and serve a jail term of up to ten years. The Company and/or the supervisors of the person violating the rules may also face major civil and/or criminal penalties.

B. Company Discipline

Violation of this policy or federal or state insider trading or tipping laws by any director, officer or employee, or their family members, or by any corporation, partnerships, trust or other entity owned or controlled by any of the foregoing persons or any Applicable Trust or Applicable Company, may subject the director to dismissal proceedings and the officer or employee to disciplinary action by the Company up to and including termination for cause.

C. Reporting of Violations

Any Insider who violates this policy or any federal or state laws governing insider trading or tipping, or knows of such violation by any other Insiders, must report the violation immediately to the Compliance Officer. Upon learning of any such violation, the Compliance Officer, in consultation with the other Committee member and the Company's outside legal counsel, will determine whether the Company should release any material non-public information, or whether the Company should report the violation to the SEC, Nasdaq, or other appropriate governmental authority.

VII. Inquiries

Please direct all inquiries regarding this policy to the Compliance Officer.

ACKNOWLEDGEMENT OF RECEIPT

I hereby acknowledge that I have received a copy of the "Procedures and Guidelines Governing Insider Trading and Tipping" and agree to comply with its terms. I understand that violation of insider trading or tipping laws or regulations may subject me to severe civil and/or criminal penalties and that violation of the terms of this policy may subject me to discipline by Dyadic International, Inc.. and its subsidiaries up to and including termination for cause.

Signed: _____

Name (please print): _____

Date: _____

NOTIFICATION OF PROPOSED TRADE

To: The Insider Trading Compliance Committee (the "Compliance Committee") of Dyadic International, Inc. ("Dyadic ")

From: _____ (Name of Insider)

Date: _____

(Please fill out that which is applicable)

I hereby notify the Compliance Committee that I intend to exercise _____ (number) of options/warrants (cross out the inapplicable word) of Dyadic common stock on _____ (date), on behalf of _____ (indicate in whose name the shares will be registered).

I hereby notify the Compliance Committee that I intend to buy/sell (cross out the inapplicable word) _____ (number) of shares of Dyadic common stock on _____ (date), on behalf of _____ (indicate in whose name the shares will be registered).

In connection with this proposed trade, I hereby certify that:

1. I am not in possession of any "material non-public information" concerning Dyadic , as defined in Dyadic 's "Procedures and Guidelines Governing Insider Trading and Tipping" (the "Policy").

2. To the best of my knowledge, the proposed trade does not violate the trading restrictions of Section 16 of the Securities Exchange Act of 1934 or Rule 144 of the Securities Act of 1933, as amended.

I understand that if I trade while possessing such information or in violation of such trading restrictions, I may be subject to severe civil and/or criminal penalties, and may be subject to sanctions by Dyadic as set forth in the Policy.

Submitted by

_____
(Signature)

_____
(Name)

_____
(Title if signing on behalf of a corporation, partnership or other such entity)

Reviewed and approved/disapproved on behalf of the Compliance Committee:

_____
Mark Emalfarb
Compliance Officer

_____
Ping Rawson
Compliance Officer

Date: _____

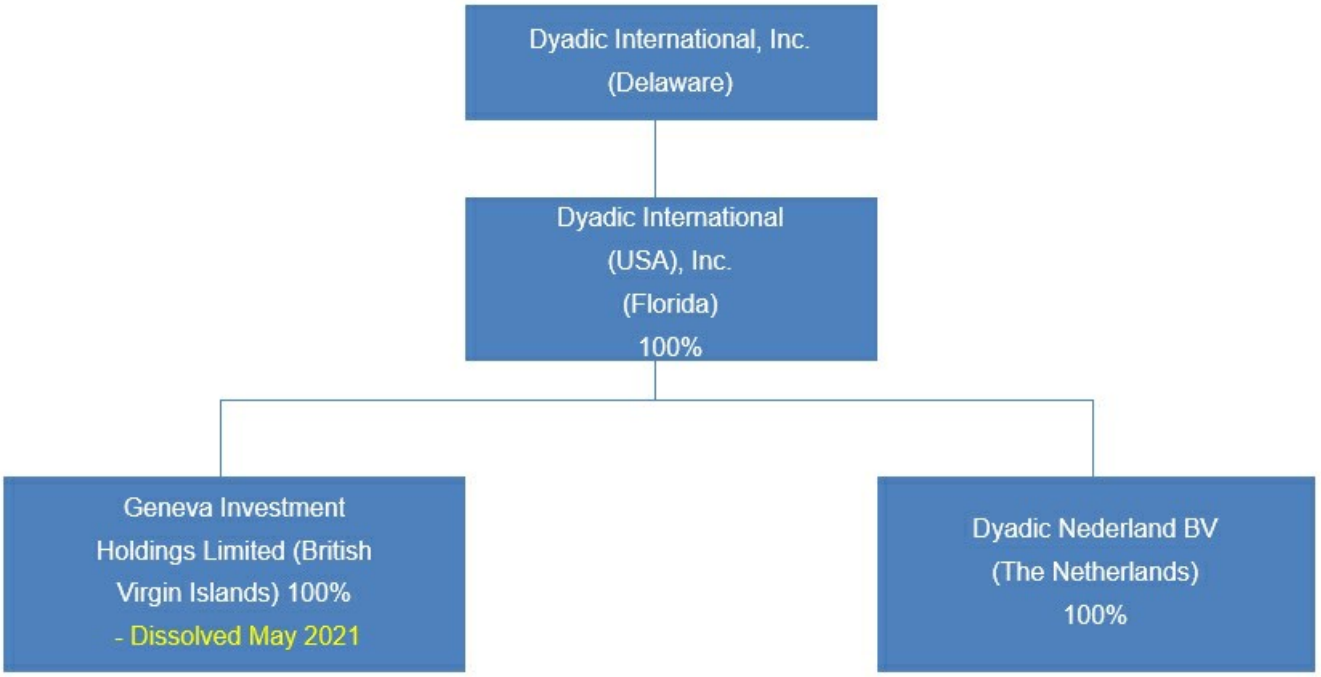
Dyadic International, Inc.
(Delaware)
Dyadic International
(USA), Inc.
(Florida)
100%
Geneva Investment
Holdings Limited (British
Virgin Islands) 100%
- Dissolved May 2021
Dyadic Nederland BV
(The Netherlands)
100%

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statements No. 333-258755 and 333-231712 on Form S-8, and 333-273829 and 333-278916 on Form S-3 of Dyadic International, Inc. of our report dated March 26, 2025, relating to the financial statements, appearing in this Annual Report on Form 10-K.

/s/ Crowe LLP

Livingston, New Jersey
March 26, 2025

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 annual report on Form 10-K 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: March 26, 2025
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 annual report on Form 10-K 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: March 26, 2025
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 Annual Report of Dyadic International Inc. (the "Company") on Form 10-K for the year ended December 31, 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:	March 26, 2025
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 Annual Report of Dyadic International Inc. (the "Company") on Form 10-K for the year ended December 31, 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:	March 26, 2025
By:	/s/ Ping W. Rawson
Name:	Ping W. Rawson
Title:	Chief Financial Officer