UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-K

(Mark One)

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

For the fiscal year ended: December 31, 2023

or

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

For the transition period from to .
Commission File No.: 001-34705

Codexis, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**71-0872999**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
200 Penobscot Drive, Redwood City, California	**94063**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (650) 421-8100

Securities Registered Pursuant to Section 12(b) of the Act:

Title of Each Class:	**Trading Symbol(s):**	**Name of Each Exchange on which Registered:**
Common Stock, par value $0.0001 per share	CDXS	The Nasdaq Global Select Market

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 ☒
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 ☒
Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.			Yes	☒	No ☐
Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).			Yes	☒	No ☐
Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or emerging growth company. See the definitions of "large accelerated filer, "accelerated filer" and "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act:					
Large accelerated filer	☐	Accelerated filer			☒
Non-accelerated filer	☐	Smaller reporting company			☒
		Emerging growth company			☐
If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.					☐
Indicate by check mark whether the registrant 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. ☒					
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 ☒

The aggregate market value of voting and non-voting common stock held by non-affiliates of Codexis as of June 30, 2023 was approximately $122.4 million based upon the closing price reported for such date on the Nasdaq Global Select Market.

As of February 23, 2024, there were 70,303,639 shares of the registrant's Common Stock, par value $0.0001 per share, outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Definitive Proxy Statement to be filed with the Commission pursuant to Regulation 14A in connection with the registrant's 2024 Annual Meeting of Stockholders (the "2024 Proxy Statement"), to be filed subsequent to the date hereof, are incorporated by reference into Part III of this Report. Such Definitive Proxy Statement will be filed with the Securities and Exchange Commission not later than 120 days after the conclusion of the registrant's fiscal year ended December 31, 2023. Except with respect to information specifically incorporated by reference in this Form 10-K, the 2024 Proxy Statement is not deemed to be filed as part of this Form 10-K.

Codexis, Inc.
Annual Report on Form 10-K
For The Year Ended December 31, 2023
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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

The following discussion and analysis should be read in conjunction with our audited consolidated financial statements and the related Notes that appear elsewhere in this Annual Report on Form 10-K. This Annual Report on Form 10-K contains "forward-looking statements" within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended ("the Exchange Act"), particularly in Part I, Item 1: "Business," Part I, Item 1A: "Risk Factors" and Part 2, Item 7: "Management's Discussion and Analysis of Financial Condition and Results of Operations." These statements are often identified by the use of words such as "may," "will," "expect," "believe," "anticipate," "intend," "could," "should," "estimate" or "continue," and similar expressions or variations. All statements other than statements of historical fact could be deemed forward-looking, including, but not limited to: any projections of financial information or performance; any statements about historical results that may suggest trends for our business; any statements of the plans, strategies, and objectives of management for future operations; any statements of expectation or belief regarding future events, technology developments, our products and product candidates, product sales, revenues, expenses, liquidity, cash flow, commercial reach, market growth rates or enforceability of our intellectual property rights and related litigation expenses; and any statements of assumptions underlying any of the foregoing. Such forward-looking statements are subject to risks, uncertainties and other factors that could cause actual results and the timing of certain events to differ materially from future results expressed or implied by such forward-looking statements. Accordingly, we caution you not to place undue reliance on these statements. For a discussion of some of the factors that could cause actual results to differ materially from our forward-looking statements, see the discussion on risk factors that appear in Part I, Item 1A: "Risk Factors" of this Annual Report on Form 10-K and other risks and uncertainties detailed in this and our other reports and filings with the U.S. Securities and Exchange Commission ("SEC"). The forward-looking statements in this Annual Report on Form 10-K represent our views as of the date of this Annual Report on Form 10-K. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we have no current intention of doing so except to the extent required by applicable law. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this Annual Report on Form 10-K.

PART I

ITEM 1. BUSINESS

COMPANY OVERVIEW

We are a leading enzyme engineering company leveraging our proprietary CodeEvolver® directed evolution technology platform to discover, develop, enhance, and commercialize novel, high-performance enzymes and other classes of proteins. Enzymes are naturally occurring biological molecules critical to almost all biochemical reactions that sustain life. They can be precisely engineered and optimized for specific functions, and to have particular characteristics, such as an ability to survive environments in which natural enzymes cannot, or to perform (bio)chemical transformations different than those for which they naturally evolved. We focus on leveraging our capacity to enhance the properties and performance of enzymes to drive pivotal improvements across two key focus areas: our foundational, revenue-generating biocatalysis pharmaceutical manufacturing business and our Enzyme-Catalyzed Oligonucleotide Synthesis™ ("ECO Synthesis™") manufacturing platform, which is currently in development to enable the commercial scale manufacture of RNA interference ("RNAi") therapeutics. In July 2023, we announced that we discontinued investment in certain development programs, primarily in our novel biotherapeutics business segment and that we are actively exploring options to drive value by potentially monetizing non-core life science assets, including in genomics and next generation sequencing ("NGS").

In our revenue-generating pharmaceutical manufacturing business, we utilize our CodeEvolver® technology platform to develop optimized enzymes that are used by some of the world's largest pharmaceutical companies to reduce their costs and improve the efficiency and productivity of their manufacturing processes for small molecule therapeutics. Our unique enzymes drive improvements such as higher yields, increased purity, reduced energy usage and waste generation, and improved efficiency in manufacturing. We also use the CodeEvolver® platform technology to develop enzymes for the synthesis of nucleic acids such as DNA/RNA, including enzymes utilized in our ECO Synthesis™ manufacturing platform, where our enzymes are poised to deliver many of the same benefits we offer in pharmaceutical manufacturing across purity, yield, and improved efficiency. We demonstrated gram-scale synthesis under process-like conditions with the ECO Synthesis™ manufacturing platform in December 2023 and expect to begin pre-commercial customer testing in 2024. We anticipate that this will be followed by early commercial licenses to the ECO Synthesis™ manufacturing platform in 2025 and a full commercial launch in 2026.

History and Core Technology

We are a pioneer in harnessing computational technologies to drive biology advancements. Since 2002, we have made substantial investments in the development of our proprietary CodeEvolver® technology platform, the primary source of our competitive advantage for our business. The CodeEvolver® technology platform has the power to transform the performance of an enzyme, tailoring it for a specific application and/or process. Using powerful machine learning tools and sophisticated molecular, cellular, and bioanalytical workflows, we design and screen libraries of thousands of variants in high throughput every two to four weeks on each project, sequencing every variant and correlating its sequence with its performance in a highly application-relevant screen. Content-rich libraries screened under real-world conditions can yield dense and valuable datasets, when data-mined effectively, and multiple parameters can be optimized in parallel. The resulting evolved variants often have a combination of enhanced properties, such as increased activity, specificity, and stability under desired conditions, or improved expression in the production host. These enhanced properties provide differentiated technical performance in the target application and can provide our customers increased value in the commercial deployment of their products.

Recent Changes to Business Strategy

In July 2023, we announced the restructuring of our business to focus resources on programs that we believe have the strongest probability of creating significant value in the near-term and beyond, including the advancement and commercialization of our ECO Synthesis™ manufacturing platform and growing our complementary pharmaceutical manufacturing business. As part of this enhanced strategic focus, we also streamlined operations, including the discontinuation of investment in certain development programs, primarily in our biotherapeutics business, consolidated operations to our Redwood City, California headquarters, and reduced headcount by approximately 25%.

Our biotherapeutic product candidates, which were in clinical and preclinical development, were discovered using our proprietary CodeEvolver® technology platform and ranged from orally delivered enzymes to engineered transgenes for delivery as gene therapies. The most advanced of our biotherapeutics programs was CDX-7108, a potent lipase intended for use as a potential treatment for exocrine pancreatic insufficiency ("EPI"), which was being developed under a Strategic Collaboration Agreement with Nestlé Health Science ("Nestlé") (the "Nestlé SCA"). As part of the Nestlé SCA, we and Nestlé completed a Phase 1 clinical trial of CDX-7108. In December 2023, we entered into an acquisition agreement with Nestlé (the "Acquisition Agreement"), pursuant to which we agreed to assign our interests in CDX-7108 (including associated agreements and intellectual property rights) to Nestlé and terminate the Nestlé SCA. Under the terms of the Acquisition Agreement, Nestlé will be solely responsible for the continued development and commercialization of CDX-7108, including all associated costs, with Codexis retaining an economic interest in the program through an upfront payment, future potential milestone payments and net-sales based royalties.

In addition, we used our CodeEvolver® technology platform to engineer a series of transgenes that code for enzymes that may be used as gene therapies to treat rare lysosomal storage disorders, such as Fabry Disease and Pompe Disease, as well as a blood factor disorder, with Takeda Pharmaceutical Co. Ltd. ("Takeda"). Takeda announced in April 2023 the discontinuation of these development programs.

Performance Enzymes

Our performance enzymes business consists primarily of two complementary focus areas: pharmaceutical manufacturing and our ECO Synthesis™ manufacturing platform, which is currently in development to enable the commercial-scale manufacture of RNAi therapeutics. In addition to the overlap in technical enzyme engineering expertise required for operating our pharmaceutical manufacturing business and developing the ECO Synthesis™ manufacturing platform, we believe both areas include a similar set of potential customers. Many of our longstanding pharmaceutical manufacturing customers are currently investing in the development of RNAi therapeutics, providing us with an advantage in terms of commercial reach. Further, our pharmaceutical manufacturing business establishes credibility for the ECO Synthesis™ manufacturing platform by demonstrating our proven history of engineering technically complex enzymes for large pharmaceutical companies and effectively scaling up to multiple metric tons of manufactured product using our existing platforms.

Pharmaceutical Manufacturing

We believe the pharmaceutical industry represents a significant market opportunity for our performance enzymes as pharmaceutical companies are in constant search of new small molecule drugs and are under significant competitive pressure both to reduce costs and to increase the speed to market for their products. To address these pressures, pharmaceutical companies are driven to identify reliable, cost-effective, and sustainable manufacturing processes to produce both their new drug candidates and their existing products, while not impacting drug safety and efficacy. Cost reduction is increasingly important to drug developers (known as innovators) closer to their product launch and during the commercial stage of the product, which can last a decade or more. In addition, cost pressures further intensify as innovators lose their patent exclusivities and begin to experience competition from manufacturers of generic versions of their products.

Our pharmaceutical manufacturing customers, which include many large global pharmaceutical companies, partner with us to develop engineered enzymes for use as biocatalysts, meeting precisely defined criteria, with the goal of lowering costs and improving the efficiency, productivity and sustainability of their manufacturing processes by: improving productivity, yield and purity; using water as a primary solvent; eliminating hazardous inputs; enabling the use of simple equipment and reducing the need for capital expenditure; reducing energy requirements; reducing the generation of chemical byproducts or waste; and reducing the need for late-stage purifications.

As of December 31, 2023, we are selling biocatalysts to pharmaceutical manufacturers for 16 therapeutic drugs that are currently approved for commercial sales.

In July 2022, we announced that we and Pfizer Inc. "Pfizer") had entered into an agreement to supply Pfizer with CDX-616, a proprietary high-performance enzyme used to manufacture a critical intermediate for nirmatrelvir, an active pharmaceutical ingredient in PAXLOVID™, Pfizer's antiviral therapeutic, which is now approved in the United States for the treatment of mild-to-moderate COVID-19 in people at high risk of progression to severe illness, and also authorized or approved by other regulatory authorities across the globe. While we have generated significant revenue from supplying CDX-616 to Pfizer, particularly in 2021 and 2022, there is no future binding commitment for Pfizer to purchase any particular quantity or quantities of CDX-616 from us.

We regularly sell biocatalysts, at multi-kilograms to metric tons per annum scale, that have already been engineered, scaled up, and installed in a customer's commercial process. For example, in addition to Pfizer, we sell biocatalysts to Merck, Sharp & Dohme ("Merck") for their manufacture of sitagliptin, the active ingredient in JANUVIA®, to Urovant Sciences GmbH ("Urovant") and KYORIN Pharmaceutical Co., Ltd. ("Kyorin") for the manufacture of vibregon, the active ingredient in Urovant's GEMTESA™ and Kyorin's BEOVA® products for the treatment of overactive bladder, as well as supporting other products and customers for which public disclosures have not been made.

In addition to these larger volumes of biocatalysts that are sold for our customers' ongoing commercial requirements, we also sell lesser quantities of engineered enzymes for use in a customer's developmental, qualification or regulatory approval operations. As of December 31, 2023, Codexis is selling biocatalysts to pharmaceutical manufacturers for 12 drug candidates currently in Phase 2 and Phase 3 clinical trials, or to customers working to convert to an enzymatic manufacturing process for drugs that have been commercially approved. This pipeline reinforces our confidence in our ability to continue to grow this business over time.

Finally, we also sell even smaller quantities of enzymes (typically grams to multi-kilogram scale) to customers for experimental, testing, and qualification purposes, or as part of an enzyme engineering project.

In addition to the sale of biocatalysts, we also offer research and development partnerships to our customers. These research and development activities are typically governed by collaboration agreements, which often contain research fee payments and intellectual property provisions, under which we screen and/or engineer biocatalysts for customers in connection with their process development efforts. In these collaborations, we typically receive consideration in the form of one or more of the following: upfront payments, milestone payments, payments for screening and engineering, with other exclusive supply of enzyme or licensing fees and royalties as the customer's product commercializes.

We also have licensed our CodeEvolver® technology platform to pharmaceutical companies to help them develop custom-designed enzymes that are highly optimized for efficient manufacturing processes. To date, we have entered into platform technology licensing agreements with each of GlaxoSmithKline Intellectual Property Development Limited, a subsidiary of GlaxoSmithKline plc ("GSK"), Merck and Novartis Pharma AG ("Novartis").

ECO Synthesis™ Manufacturing Platform

ECO Synthesis™ Manufacturing Platform Overview

A key strategic priority for Codexis is the advancement and commercialization of our ECO Synthesis™ manufacturing platform, which is currently in development to enable the commercial scale manufacture of RNAi therapeutics. As of December 31, 2023, there are six approved small interfering ribonucleic acid ("siRNA") therapeutics on the market in the United Sates, primarily targeting rare orphan disease indications. However, there are more than 450 RNAi therapeutic assets in development, including over forty that are in Phase 2 and Phase 3 clinical trials, with more than 40 of these targeting large disease indications such as Alzheimer's, hyperlipidemia and hypertension. We expect worldwide demand for RNAi therapeutics to grow significantly as RNAi therapeutics progress through clinical development and are commercially approved.

The current industry standard for manufacturing RNAi therapeutics is a well-established, chemical-based method called phosphoramidite chemistry. This approach has existed for more than forty years and works effectively for small-scale manufacturing required during the discovery stage of clinical development. However, phosphoramidite chemistry faces multiple limitations in the context of commercial-scale manufacture of RNAi therapeutics. This approach requires significant infrastructure and capital investment in order to meet the anticipated future growth in demand for RNAi therapeutics. Phosphoramidite chemistry is also currently limited to single-digit kilogram batch sizes, which presents challenges around quality control and scalability. Further, chemical synthesis requires large volumes of acetonitrile to facilitate the reaction environment necessary to produce RNAi therapeutics. Acetonitrile is a toxic solvent with high waste disposal costs and future supply may face constraints and price volatility as demand for RNAi therapeutics grows. As additional RNAi therapeutic candidates are approved for large disease indications, we believe using traditional chemical synthesis for commercial scale production will become prohibitively expensive, time-intensive, and challenging for many drug developers and contract development and manufacturing organizations ("CDMOs").

We believe that the ECO Synthesis™ manufacturing platform presents several advantages to potentially address these limitations. First, this technology is being developed to integrate within existing manufacturing facilities, potentially eliminating much of the infrastructure investment required for commercial scale manufacturing of RNAi therapeutics with phosphoramidite chemistry. The ECO Synthesis™ manufacturing platform is also being designed to manufacture tens to hundreds of kilograms of high-purity RNA per batch, with a closed-loop system intended to increase volumetric reagent efficiency. Finally, our process is aqueous based, potentially mitigating the need for high volumes of acetonitrile, significantly decreasing chemical waste streams, and reducing heavy disposal and purification costs.

ECO Synthesis™ Manufacturing Platform Potential Commercial Opportunity

We believe we have significant competitive advantages to successfully execute on the ECO Synthesis™ manufacturing platform opportunity, largely stemming from synergies with our pharmaceutical manufacturing business in terms of technical expertise and commercial reach. Many of our pharmaceutical manufacturing customers are developing RNAi therapeutics, and we believe that their familiarity with our ability to engineer and scale complex enzymes is a significant commercial advantage for our ECO Synthesis™ manufacturing platform. However, there are also key differences that make this platform a compelling opportunity as compared to our existing pharmaceutical manufacturing business. Pharmaceutical manufacturing generally requires one-to-one custom enzyme engineering projects, which involve significant time and resource investment from Codexis. Our top five selling pharmaceutical manufacturing enzymes in 2023, excluding sales of CDX-616 related to PAXLOVID™, generated on average between $2.0 million to $9.0 million annually per enzyme between 2021 and 2023. By contrast, the ECO Synthesis™ manufacturing platform could be applicable to many customers and has the potential to manufacture a range of siRNA. Further, the potential scalability of our solution is differentiated from phosphoramidite chemistry, which is limited in batch size and requires high volumes of toxic solvent. We believe that the ECO Synthesis™ manufacturing platform could enable CDMOs and drug developers to scale production of RNA therapeutics and as a result could potentially command significantly better economic terms than the current annual revenues for pharmaceutical manufacturing enzymes.

A critical component that is complimentary to the ECO Synthesis™ manufacturing platform is our engineered double stranded RNA ("dsRNA") ligase, which can stitch together fragments of chemically and/or, in the future, enzymatically synthesized RNA. We believe the dsRNA ligase has the potential to reduce the cost because the cost and impurity profile of phosphoramidite chemistry-built molecules has been shown to increase with the length of the oligonucleotide. Our capabilities in RNA ligase engineering have been in development throughout 2023 via customized evolution programs with medium and large pharmaceutical customers developing RNAi therapeutics. The dsRNA ligase is our early market entry into the RNAi therapeutics manufacturing market. In addition to potentially improving upon the wildtype ligation-based approaches currently available, our dsRNA ligase will serve as a way to introduce our ECO Synthesis™ manufacturing platform to customers who want to begin utilizing an enzymatic approach to the manufacture of RNAi therapeutics.

Other Differentiated Enzymes

In addition to DNA/RNA synthesis applications, we have also applied our CodeEvolver® technology platform to develop customized enzymes for customers using NGS and PCR/qPCR for *in vitro* molecular diagnostic and molecular biology research applications.

In December 2019, we entered into a license agreement to provide Roche Sequencing Solutions, Inc. ("Roche") with an evolved DNA ligase for NGS library prep. In February 2024, we entered into a new license agreement with Roche granting them rights to our newly engineered DNA ligase, superseding our prior agreement in December 2019 for our evolved T4 DNA ligase. We are eligible to receive an aggregate of mid-single digit millions in upfront and technical milestones payments. This is consistent with our business strategy to focus our resources on high-value opportunities in pharmaceutical manufacturing and the ECO Synthesis™ manufacturing platform while monetizing non-core assets within our Life Sciences portfolio.

In June 2020, we entered into a co-marketing and enzyme supply collaboration agreement with Alphazyme LLC ("Alphazyme") for the production and co-marketing of enzymes for life science applications. Since then, this collaboration has enabled the commercialization of Codex® HiFi DNA Polymerase, Codex® HiFi Hot Start DNA Polymerase, Codex® HiFi Hot Start 2X NGS Mix, Codex® HiCap RNA Polymerase, Codex® HiFi UL DNA Polymerase, and Codex® HiTemp Reverse Transcriptase.

In June 2020, we entered into a Master Collaboration and Research Agreement with Molecular Assemblies, Inc. ("MAI") (the "MAI Agreement"), and between June 2020 and April 2022, we leveraged our CodeEvolver® technology platform to improve the DNA polymerase enzymes that are critical for enzymatic DNA synthesis. At the time we entered into the MAI Agreement, we purchased $1.0 million in MAI's Series A financing. In April 2021, Codexis invested an additional $0.6 million in MAI's Series A financing and, in September 2021, Codexis invested an additional $7.0 million in MAI's Series B financing. In April 2022, we and MAI announced that, using our CodeEvolver® technology platform, we had developed a novel, engineered terminal deoxynucleotidyl transferase ("TdT") enzyme which would enable MAI's Fully Enzymatic Synthesis™ ("FES™") technology that produces highly pure, sequence-specific DNA on demand. In August 2022, we and MAI announced that we had entered into a Commercial License and Enzyme Supply Agreement with MAI (the "MAI Supply Agreement") under which Codexis shall manufacture and sell the TdT enzyme to MAI for use in native DNA synthesis. In connection with the execution of the MAI Supply Agreement, we received a milestone payment of $1.0 million in the form of an additional 1,587,049 shares of MAI Series B preferred stock pursuant to the MAI Agreement. In March 2023, we purchased an additional 985,545 shares of MAI Series B preferred stock for $0.8 million. As of December 31, 2023, we held 5,443,734 shares of MAI Series A preferred stock and 13,834,180 shares of MAI Series B preferred stock, for an aggregate of 19,277,914 shares of MAI's Series A and B preferred stock earned or purchased from MAI.

In March 2022, we entered into a Stock Purchase Agreement with seqWell, Inc. ("seqWell"), a privately held life sciences company, pursuant to which we purchased 1,000,000 shares of seqWell's Series C preferred stock for $5.0 million. In March 2023, we entered into a Master Collaboration Agreement and Research Agreement with seqWell (the "seqWell Agreement"), pursuant to which we are providing research and experimental screening and protein engineering activities in exchange for compensation in the form of additional shares of seqWell's common stock. We received 205,279 shares of seqWell's common stock from research and development services with seqWell n the year ended December 31, 2023. In addition to our initial equity investment and the shares we have received under the seqWell Agreement, in September 2023, we purchased an additional 88,256 shares of seqWell's Series C-1 preferred stock and 44,128 common stock warrants for $0.4 million.

In December 2023, we announced that we have entered into an exclusive licensing agreement with Aldevron LLC "Aldevron"), a global leader in the custom development and manufacture of plasmid DNA, RNA and proteins for the biotech industry, whereby Aldevron licensed our Codex® HiCap RNA Polymerase. Under the terms of the deal, Aldevron received global manufacturing and commercialization rights to the Codex® HiCap RNA Polymerase in exchange for payments for near-term technical milestones, along with commercial milestones and sales-based royalties for research use only material as well as good manufacturing practices ("GMP") material.

OUR STRATEGY

Our strategy is to grow our revenues, profits, and stockholder value by leveraging our CodeEvolver® directed evolution technology platform in the following ways:

- *Growing our foundational revenue-generating pharmaceutical manufacturing business.* We intend to continue to pursue opportunities in the pharmaceutical market to use our enzymes to reduce the costs for manufacturing small molecule drugs. We intend to increase the number of pharmaceutical customers and processes that utilize and benefit from our novel, cost-saving enzyme biocatalyst solutions.

- *Developing and commercializing high-performance enzymes for use in nucleic acid synthesis, including our dsRNA Ligase and our proprietary ECO Synthesis™ manufacturing platform*. We intend to enable fully enzymatic nucleic acid synthesis, which includes the development of our proprietary ECO Synthesis™ manufacturing platform to manufacture RNAi therapeutics at commercial scale through an enzymatic route, including enabling enzymes to manufacture the building blocks, starter materials, and targeting moieties.

- *Monetizing non-core assets and leveraging channel partners with strong commercial reach to drive penetration of other developed, non-core enzymes.* Consistent with our strategy to focus on programs that we believe have the strongest probability of creating significant value in the near-term and beyond, we continue to look for opportunities to monetize non-core assets and to leverage channel partners with stronger commercial reach to drive penetration of other developed, non-core life sciences enzymes. Recent examples of this strategy include monetizing CDX-7108 through the purchase agreement with Nestlé and the exclusive licensing agreement with Aldevron for ourCodex® HiCap RNA Polymerase, both of which were announced in December 2023, as well as the exclusive licensing agreement with Roche in February 2024 for the newly engineered DNA ligase.

Strategic Collaborations

Licensing Our CodeEvolver® Directed Evolution Technology Platform

GlaxoSmithKline

We entered into our first CodeEvolver® Platform Technology Transfer, Collaboration and License Agreement ("GSK CodeEvolver® Agreement") in July 2014 with GlaxoSmithKline Intellectual Property Development Limited, a subsidiary of GSK, pursuant to which we granted GSK a non-exclusive, worldwide license to use our CodeEvolver® technology platform in the field of human healthcare for GSK's internal development purposes.

Under the GSK CodeEvolver® Agreement, we licensed and transferred our certain patents, patent applications and know-how from our CodeEvolver® technology platform to GSK, completing the transfer in April 2016. Under this agreement, we have the potential to receive contingent payments that range from $5.75 million to $38.5 million per project, dependent on GSK's successful application of the licensed technology. We are also eligible to receive royalties based on net sales, if any, of a limited set of products developed by GSK using our CodeEvolver® technology platform.

The term of the GSK CodeEvolver® Agreement continues, unless earlier terminated, until the expiration of all payment obligations under the GSK CodeEvolver® Agreement. GSK can terminate the GSK CodeEvolver® Agreement by providing 90 days written notice to us.

In 2019, we received a $2.0 million milestone payment on the advancement of an enzyme developed by GSK using our CodeEvolver® technology platform. In 2021, we received two additional milestone payments from GSK under the GSK CodeEvolver® Agreement.

Merck

In August 2015, we entered into a CodeEvolver® Platform Technology Transfer and License Agreement (the "Merck CodeEvolver® Agreement") with Merck. The Merck CodeEvolver® Agreement allows Merck to use our proprietary CodeEvolver® technology platform in the field of human and animal healthcare.

Under the terms of the Merck CodeEvolver® Agreement, we granted to Merck an exclusive license under certain patents, patent applications and know-how from our CodeEvolver® technology platform for the research, development and manufacture of novel enzymes for use by Merck in the chemical synthesis of therapeutic products owned or controlled by Merck ("Merck Exclusive Field") and a non-exclusive worldwide license to use the CodeEvolver® technology platform to research, develop and manufacture novel enzymes for use by Merck in its internal research programs ("Merck Non-Exclusive Field").

Under the terms of the Merck CodeEvolver® Agreement, Merck paid us upfront technology transfer and license fees and milestone payments over the technology transfer period of 15 months from August 2015. We also have the potential to receive product-related payments of up to $15.0 million for each active pharmaceutical ingredient ("API") that is manufactured by Merck using one or more enzymes that have been developed or are in development using the CodeEvolver® technology platform during the 10-year period that begins on the conclusion of the 15-month technology transfer period. These product-related payments, if any, will be paid by Merck to us for each quarter that Merck manufactures API using a CodeEvolver®-developed enzyme. The payments will be based on the total volume of API produced using the CodeEvolver®-developed enzyme.

In September 2016, we completed the full transfer of the engineering platform technology. In October 2018, we entered into an amendment to the Merck CodeEvolver® Agreement whereby we amended certain licensing provisions and one exhibit. In January 2019, we entered into a second amendment to the Merck CodeEvolver® Agreement whereby we installed certain CodeEvolver® technology platform upgrades into Merck's platform license installation. We maintained those upgrades for a multi-year term that expired in January 2022.

Novartis

In May 2019, we entered into a Platform Technology Transfer and License Agreement (the "Novartis CodeEvolver® Agreement") with Novartis. The Novartis CodeEvolver® Agreement allows Novartis to use our proprietary CodeEvolver® platform technology in the field of human healthcare.

Under the terms of the Novartis CodeEvolver® Agreement, we granted to Novartis a worldwide license to use certain patents, patent applications and know-how from our CodeEvolver® technology platform to research, develop and manufacture novel enzymes for use by or on behalf of Novartis as biocatalysts in the chemical synthesis of small molecule and bioconjugate APIs. The license is exclusive for the research, development and manufacture of novel enzymes for use by Novartis as biocatalysts in the chemical synthesis of API owned or controlled by Novartis ("Novartis Exclusive Field") and non-exclusive for the research, development and manufacture of novel enzymes for use by Novartis in the chemical synthesis of API not owned or controlled by Novartis or any third party ("Novartis Non-Exclusive Field").

In July 2021, we announced the completion of the technology transfer period during which we transferred our proprietary CodeEvolver® technology platform to Novartis (the "Technology Transfer Period").

Pursuant to the Novartis CodeEvolver® Agreement, we received an upfront payment of $5.0 million shortly after the effective date. We completed the second technology milestone transfer under the agreement and received a milestone payment of $4.0 million in 2020. We have also received an aggregate of $5.0 million for the completion of the third technology transfer milestone in 2021.

In consideration for the continued disclosure and license of improvements to the technology and materials during a multi-year period that began on the conclusion of the Technology Transfer Period (the "Improvements Term"), Novartis will pay us annual payments over four years which amount to an additional $8.0 million in aggregate. We also have the potential to receive quantity-dependent, usage payments for each API that is manufactured by Novartis using one or more enzymes that have been developed or are in development using the CodeEvolver® technology platform during the period beginning on the conclusion of the Technology Transfer Period and ending on the expiration date of the last to expire licensed patent. These product-related usage payments, if any, will be paid by Novartis to Codexis for each quarter that Novartis manufactures API using a CodeEvolver®-developed enzyme.

The licenses to Novartis are granted under patents, patent applications and know-how that Codexis owns or controls as of the effective date of the Novartis CodeEvolver® Agreement and that cover the CodeEvolver® technology platform. Any improvements to the CodeEvolver® technology platform during the Technology Transfer Period will also be included in the license grants from Codexis to Novartis.

INTELLECTUAL PROPERTY

Our success depends in large part on our ability to protect our proprietary technology, products and services under patent, copyright, trademark and trade secret laws. We also rely heavily on confidentiality and non-disclosure and other contractual agreements for further protection of our proprietary technology, products and services. Protection of our proprietary rights, titles and interests is important for us to offer our customers and partners proprietary technology, products and services that are not available from our competitors, and to exclude our competitors from practicing technology that we have developed or exclusively licensed from other parties. For example, our ability to successfully supply innovator pharmaceutical manufacturers as customers depends on our ability to supply proprietary enzymes or methods for making pharmaceutical intermediates or APIs that are not available from our competitors. Likewise, in the generic pharmaceutical area, protection of our proprietary technology, products and services directed to our enzymes and methods of producing pharmaceutical products, through patent or trade secret laws or other legal protections is important for us and our customers to maintain a lower cost production advantage over competitors.

As of December 31, 2023, we owned or controlled approximately 1,990 active issued patents and pending patent applications in the United States and in various foreign jurisdictions, many of which are directed to our enabling technologies and specific methods and products that support our business in the pharmaceutical and oligonucleotide synthesis markets. This portfolio also includes patents and pending patent applications in the biotherapeutics, molecular diagnostics, and other markets. As of December 31, 2023, our patents and pending patent applications, if issued, have terms that expire between 2024 and approximately 2044. Our United States ("U.S.") patents and pending patent applications directed to the CodeEvolver® technology platform developed internally by us have terms that expire between 2029 and approximately 2034. It is possible that some U.S. patents and patent applications (if issued) may be entitled to patent term extensions and/or patent term adjustments, which would extend the protection beyond these expiration dates. It is also possible that some patents and patent applications (if issued) in other jurisdictions will be entitled to additional patent terms. Our current intellectual property rights also include patents, trademarks, copyrights, software and certain assumed contracts that we acquired from Maxygen, Inc. ("Maxygen") in October 2010, which are associated with directed evolution technology, known as the MolecularBreeding™ technology platform developed by Maxygen. The intellectual property rights and other related assets that we acquired from Maxygen continue to be subject to existing exclusive and non-exclusive license rights granted by Maxygen to third parties. We continue to file new patent applications in our business areas of interest, for which terms generally extend 20 years from the non-provisional filing date in the United States.

As of December 31, 2023, we owned approximately 100 trademark registrations in the United States and foreign jurisdictions, as well as various common law trademarks. These include, but are not limited to: Codexis®, Codex®, CodeEvolver®, Mosaic®, Sage®, Microcyp®, MCYP®, ProSAR®, Unlock the Power of Proteins®, the Codexis Protein Engineering Experts® logo, Strategist®, Continuity®, Ameli®, Forager®, Analogene®, Harvester®, Atoms®, Riptide®, APS® and a Codexis design mark (i.e., the stylized Codexis logo), as well as pending registration applications for ECO Synthesis™ and ecoRNA™.

COMPETITION

We face differing forms of competition in pharmaceutical manufacturing and RNAi therapeutics manufacturing, as set forth below.

Performance Enzyme

Pharmaceutical Manufacturing

We market our biocatalyst products and services to manufacturers of small molecule pharmaceutical intermediates and APIs. Our primary competitors in that market are companies marketing either conventional, non-enzymatic catalysts or alternative biocatalyst products and services, or from full-service CDMOs offering conventional chemistry approaches to the production of APIs. We also face competition from existing in-house technologies (both biocatalysis and conventional chemistries) within our client and potential client companies. The principal methods of competition and competitive differentiation in this market are price, product quality and performance, including manufacturing yield, safety and environmental benefits and speed of product delivery. Pharmaceutical manufacturers that use biocatalytic processes can face competition from manufacturers that use more conventional processes and/or manufacturers that are based in regions (such as India and China) with lower operating, regulatory, safety and environmental costs.

We also compete with companies developing and marketing conventional catalysts including, for example,Solvias AG, BASF, Johnson-Matthey and Takasago International Corporation.

The market for supplying enzymes for use in pharmaceutical manufacturing is quite fragmented. There is competition from large industrial enzyme companiesas well as subsidiaries of larger contract research/contract manufacturing organizations, such as DSM Firmenich, Cambrex Corporation, Lonza, WuXi STA and Almac Group Ltd. Some fermentation pathway design companies, such as Ginkgo Bioworks, whose traditional focus has been to design microorganisms that express small molecule chemicals, could extend into designing organisms that express enzymes. There is also competition in the enzyme customization and optimization area from several smaller companies, such as BRAIN AG, evoxx technologies GmbH, c-LEcta GmbH, Enzymicals AG, and Enzymaster.

The market for the manufacture and supply of APIs and intermediates is large, with many established companies. These companies include many of our large innovator and generic pharmaceutical customers, such as Merck, GSK, Novartis, Pfizer, Bristol-Myers Squibb Company ("Bristol-Myers"), Kyorin, Urovant, and Teva Pharmaceutical Industries Limited ("Teva"), which have significant internal research and development efforts directed at developing processes to manufacture APIs and intermediates for use in their drug product manufacturing. There is also a large network of CDMOs servicing the innovator companies with supply of APIs and/or intermediates. These C(D)MOs include Cambrex Corporation, Asymchem, WuXi STA and Almac Group Ltd, among many others. The processes used by these companies (both C(D)MOs and innovators) include classical organic chemistry reactions, chemo-catalytic reactions, biocatalytic reactions or combinations thereof. Our biocatalyst-based manufacturing processes must compete effectively on cost and efficiency with these internally developed routes.

We believe that our principal advantage is our ability to rapidly deliver customized biocatalysts for existing and new intermediates and APIs in the pharmaceutical manufacturing market. This capability has allowed us to create a breadth of biocatalysts with improved performance characteristics including, for example, better activity, stability, and activity on a range of substrates, compared to traditional chemistry-based manufacturing processes and naturally occurring (and thus not optimized) biocatalysts. We believe that our CodeEvolver® technology platform can provide substantially superior results, in shorter time frames, than companies offering competing biocatalyst development services.

ECO Synthesis™ Manufacturing Platform for RNAi Therapeutics

Following the restructuring of our business announced in July 2023, our Life Sciences business is now primarily focused on RNAi therapeutics manufacturing as we develop and commercialize the ECO Synthesis™ manufacturing platform. Phosphoramidite chemistry is the current and long-established industry standard for the manufacture of RNAi therapeutics, examples including antisense oligonucleotides ("ASO"), small-interfering RNA ("siRNA"), RNA aptamers, and guide RNA ("gRNA"). Primary competitors in this space include CDMOs, such as Agilent Technologies, which has made significant capital investment to expand their RNA manufacturing capabilities using phosphoramidite chemistry. In addition, CDMOs and large pharmaceutical companies are seeking to make incremental improvements to phosphoramidite chemistry, including the development of ligation-based approaches, liquid-phase synthesis, and solvent recycling. There are also multiple early-stage competitors who are pursuing fully enzymatic approaches to the manufacture of RNA, including EnPlusOne, a private startup company, and a UK-based consortium led by the Centre for Process Innovation ("CPI") and consisting of multiple academic and research organizations, including The University of Manchester and large pharmaceutical companies, including AstraZeneca plc and Novartis.

Other

Core Technology

We are a leader in the field of enzyme engineering to create novel enzymes, and our work across Pharmaceutical Manufacturing and the Eco Synthesis™ manufacturing platform relies on our core technology. We are aware that other companies, organizations and persons have developed technologies that appear to have some similarities to our patented proprietary technologies. For example, we are aware that other companies, including Ginkgo Bioworks, BRAIN, Enzymaster, and Enzymicals AG have alternative methods for obtaining and generating genetic diversity or use mutagenesis techniques to produce genetic diversity. In addition, academic institutions such as the California Institute of Technology, University of Manchester, and the Austrian Centre of Industrial Biotechnology are also working in this field. This field is highly competitive with companies and academic and research institutions actively seeking to develop technologies that could be competitive with our technologies.

Technological developments by others may result in our products and technologies, as well as products manufactured by our customers using our biocatalysts, becoming obsolete. We monitor publications and patents that relate to directed molecular evolution to be aware of developments in the field and evaluate appropriate courses of action in relation to these developments.

Many of our competitors have substantially greater manufacturing, financial, research and development, personnel and marketing resources than we do. As a result, our competitors may be able to develop competing and/or superior technologies and processes, and compete more aggressively and sustain that competition over a longer period of time than we could. Our technologies and products may be rendered obsolete or uneconomical by technological advances or entirely different approaches developed by one or more of our competitors.

We initially commercialized our CodeEvolver® technology platform and products in the manufacture of small molecule pharmaceuticals, which remains a primary business focus. Our customers, which include many large, global pharmaceutical companies, use our technology, products and services in their process development and in manufacturing. Additionally, we have licensed our proprietary CodeEvolver® technology platform to global pharmaceutical companies enabling them to use this technology, in-house, to engineer enzymes for their own businesses.

CUSTOMERS

We rely on certain key customers for a significant portion of our total revenues and our accounts receivable balances. For the year ended December 31, 2023, two customers accounted for approximately 22% and 13% of our total revenues. As of December 31, 2023, four customers accounted for approximately 21%, 13%, 12% and 12% of our accounts receivable balances. For more information, see Note 15, "Segment, Geographical and Other Revenue Information" in the Notes to the Consolidated Financial Statements set forth in Item 8 of this Annual Report on Form 10-K.

OPERATIONS

Our corporate headquarters are located in Redwood City, California and provide general administrative support to our business and are the center of our research, development and business operations. We have limited internal manufacturing capacity at our headquarters in Redwood City. We expect to rely on third-party manufacturers for commercial production of our biocatalysts for the foreseeable future. Our in-house manufacturing is dedicated to producing both Codex® biocatalyst panels and kits and enzymes for use by our customers in pilot scale and clinical production. We also supply initial commercial quantities of biocatalysts for use by our collaborators to produce pharmaceutical intermediates and manufacture biocatalysts that we sell.

In September 2023, we announced that we had entered into an agreement for the assignment and assumption of lease for our San Carlos, California facility. In the first quarter of 2021, we entered into an arrangement to lease this facility to serve as an additional office and research and development laboratory space which we occupied beginning December 2021. As part of the restructuring of our business announced in July 2023, we consolidated operations to our Redwood City headquarters and discontinued investment in biotherapeutics. For additional information on the San Carlos facility, see Note 13, "Commitments and Contingencies" in the Notes to the Consolidated Financial Statements set forth in Item 8 of this Annual Report on Form 10-K.

Our research and development operations include efforts directed towards engineering biocatalysts, bioprocess development, cellular engineering, biocatalyst screening, metabolites, strain improvement, fermentation development and process engineering. We conduct enzyme evolution, enzyme production development, microbial bioprocess development, cellular engineering, microbial evolution and process engineering evaluations and design primarily at our headquarters in Redwood City, California. Manufacturing of our enzymes is conducted primarily in four locations: at our in-house facility in Redwood City, California and at third-party contract manufacturing organizations, Lactosan GmbH & Co. KG ("Lactosan") in Kapfenberg, Austria, ACS Dobfar S.p.A. ("ACSD") (formerly known as DPhar S.p.A.) in Anagni, Italy, and Alphazyme in Jupiter, Florida, United States. Generally, we perform smaller scale manufacturing in-house and outsource larger scale manufacturing, representing a large percentage of our production of novel enzymes, to contract manufacturing organizations.

GOVERNMENT REGULATION

Our enzymes are used by pharmaceutical and biopharmaceutical companies in the manufacture of their drug or biologic product candidates and finished products. In the United States, the manufacture, distribution, marketing, and sale of drug products and the provision of certain services for development-stage pharmaceutical and biotechnology products are subject to extensive ongoing regulation by the United States Food and Drug Administration ("FDA"), the United States Department of Health and Human Services ("HHS"), state boards of pharmacy, state health departments, various accrediting bodies, and similar regulatory authorities in other countries, including laws and regulations governing bribery, fraud, kickbacks, and false claims. The costs associated with complying with the various applicable federal, state, local, national, and international laws and regulations could be significant, and the failure to comply with such legal requirements could have an adverse effect on our results of operations and financial condition. The FDA extensively regulates, among other things, the research, development, testing, manufacture, quality control, import, export, safety, effectiveness, labeling, packaging, storage, distribution, record keeping, approval, advertising, promotion, marketing, post-approval monitoring, and post-approval reporting of drug and biologic products under the Federal Food, Drug and Cosmetic Act, its implementing regulations and other laws, including, in the case of biologics, the Public Health Service Act. Our third-party contractors, collaborators, and customers will be required to navigate the various preclinical, clinical and commercial approval requirements of the governing regulatory agencies of the countries in which they wish to conduct studies or seek approval or licensure of their product candidates, which may include regulatory inspections for compliance with current good manufacturing practices ("cGMP"). The process of obtaining regulatory approvals and the subsequent compliance with applicable federal, state, local and foreign statutes and regulations require the expenditure of substantial time and financial resources. This regulatory scrutiny results in our customers imposing rigorous quality and other requirements on us as their supplier through supplier qualification processes and customer contracts and specifications.

The process required by the FDA before a drug or biologic may be marketed in the United States generally involves the following:

- completion of preclinical laboratory tests and animal studies performed in accordance with the FDA's good laboratory practice regulations;
- submission to the FDA of an IND, which must become effective before clinical trials in the United States may begin;

- performance of adequate and well-controlled human clinical trials to establish the safety and potency of the product candidate for each proposed indication, conducted in accordance with the FDA's good clinical practice ("GCP") regulations;
- preparation and submission to the FDA of a new drug application ("NDA") or biologics license application ("BLA") after completion of all pivotal clinical trials;
- satisfactory completion of an FDA inspection of the manufacturing facility or facilities at which the product is produced to assess compliance with cGMP regulations and to assure that the facilities, methods and controls are adequate to preserve the drug's continued safety, purity and potency, and of selected clinical investigation sites to assess compliance with Good Clinical Practices, or GCPs; and
- FDA review and approval of the NDA or BLA prior to any commercial marketing, sale or distribution of the product.

Environmental, Health and Safety Regulations

We are responsible for ensuring an environmentally responsible, safe, and healthy workplace. We are required to abide by all relevant county, state and federal agency regulations for environmental, health and safety requirements and have the necessary procedure, permits, and licenses in place to operate accordingly. Our contracts with outside suppliers and vendors require compliance with applicable laws and regulations.

HUMAN CAPITAL RESOURCES

As of December 31, 2023, we had 174 full-time employees and part-time employees worldwide. Of these employees, 61 were engaged in research and development, 41 were engaged in operations and quality control and 72 were engaged in selling, general and administrative activities. None of our employees are represented by a labor union. Supported by our annual employee survey, we believe our relationship with our employees to be generally good. Our scientists, bioinformatics experts and other professionals work collaboratively as interdisciplinary teams to unlock and advance technological innovation.

Compensation, benefits and development

Our goal is to attract, motivate and retain talent with a focus on encouraging performance, promoting accountability and adhering to our company values. We offer competitive compensation and benefit programs including a company-matched 401(k) Plan, an Employee Stock Purchase Plan ("ESPP"), stock options for eligible employees, health savings and flexible spending accounts, paid time off, education and training programs, and employee assistance programs.

Diversity, equity and inclusion

We are committed to our continued efforts to increase diversity and foster an inclusive work environment that supports our global workforce and the communities we serve. We recruit the best people for the job regardless of gender, ethnicity or other protected traits and it is our policy to fully comply with all laws applicable to discrimination in the workplace. Our diversity, equity and inclusion principles are also reflected in our employee training and policies. We continue to enhance our diversity, equity and inclusion policies which are guided by our executive leadership team, including our commitment to green chemistry, demonstrated, among other things, by our "My Green Lab Certification."

Health and safety

We are committed to maintain a safe and healthy workplace for our employees. Our policies and practices are intended to protect our employees and the surrounding communities in which we operate.

We continue to monitor COVID-19 local, state, and federal guidance, policies and regulations for changes and we implement modifications to internal guidelines as needed. In response to the COVID-19 pandemic, we implemented safety protocols and new procedures to protect our employees. These protocols include health and safety standards as required by state and local government agencies, taking into consideration guidelines of the Centers for Disease Control and Prevention and other public health authorities.

CORPORATE & AVAILABLE INFORMATION

We were incorporated in Delaware in January 2002 as a wholly-owned subsidiary of Maxygen, Inc. We commenced independent operations in March 2002, after licensing core enabling technology from Maxygen, Inc. Our principal corporate offices are located at 200 Penobscot Drive, Redwood City, California 94063 and our telephone number is (650) 421-8100. Our internet address is www.codexis.com. The information on, or that can be accessed through, our website is not incorporated by reference into this Annual Report on Form 10-K or any other filings we make with the U.S. Securities and Exchange Commission (the "SEC").

We make available on or through our website certain reports and amendments to those reports that we file with, or furnish to, the SEC in accordance with the Exchange Act. These include our Annual Reports on Form 10-K, our Quarterly Reports on Form 10-Q and our Current Reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act. We make this information available on or through our website free of charge as soon as reasonably practicable after we electronically file the information with, or furnish it to, the SEC. Copies of this information may be obtained at the SEC website at www.sec.gov. The contents of these websites are not incorporated into this filing. Further, the references to website URLs are intended to be inactive textual references only.

ITEM 1A. RISK FACTORS

You should carefully consider the risks described below together with the other information set forth in this Annual Report on Form 10-K, which could materially affect our business, financial condition or future results. The risks described below are not the only risks facing our company. Risks and uncertainties not currently known to us or that we currently deem to be immaterial also may materially adversely affect our business, financial condition and/or operating results. Additional discussion of the material risks and uncertainties summarized in this risk factor summary, as well as certain other risks and uncertainties that we face, can be found in this section.

RISK FACTORS SUMMARY

The following is a summary of the principal factors that cause an investment in the Company to be speculative or risky:

- We have a history of net losses and we may not achieve or maintain profitability.
- Biotherapeutic programs are highly regulated and expensive.
- We are dependent on a limited number of customers.
- Our product supply agreements with customers have finite duration and may not be extended or renewed.
- The demand for our product depends in part on our customers' research and development and the clinical and market success of their products.
- With respect to customers purchasing our products for the manufacture of API, the termination or expiration of such patent protection may materially and adversely affect our revenues, financial condition or results of operations.
- We are dependent on a limited number of contract manufacturers for large scale production of substantially all of our enzymes.
- We are dependent on our collaborators, and our failure to successfully manage these relationships could prevent us from developing and commercializing many of our products.
- If we are unable to develop and commercialize new products for the target markets, our business and prospects will be harmed.
- We have invested significant resources to enable fully enzymatic nucleic acid synthesis, which is based on novel ideas and technologies that are largely unproven.
- Future revenues from our sales of CDX-616 to Pfizer are subject to a number of factors which are outside of our control and may not materialize.
- Ethical, legal and social concerns about genetically engineered products and processes could limit or prevent the use of our products, processes, and technologies and limit our revenues.
- We have recently enhanced our strategic focus to concentrate on certain programs and business lines. As a result of this refined focus on returning the foundational, revenue-generating pharmaceutical manufacturing business and the ECO Synthesis™ manufacturing platform, we may fail to capitalize on other opportunities that may be more profitable or for which there is a greater likelihood of success.
- Given our recent change in strategic direction, we may receive limited revenue or no future value from certain of our existing license agreements.
- We use hazardous materials in our business, and we must comply with environmental laws and regulations.
- As a public reporting company, we are subject to rules and regulations established from time to time by the SEC and Nasdaq regarding our internal controls over financial reporting. We may not complete needed improvements to our internal controls over financial reporting in a timely manner, or these internal controls may not be determined to be effective, which may adversely affect investor confidence in our company and, as a result, the value of our common stock and your investment.
- We may need additional capital in the future in order to expand our business.

- We may not be able to comply with the terms of our five-year loan and security agreement (ou“Loan Agreement”) with Innovatus Life Sciences Lending Fund, I, LP, an affiliate of Innovatus Capital Partners (“Innovatus”).
- Our ongoing efforts to deploy our technology in the life science tools market may fail.
- Even if our customers or collaborators obtain regulatory approval for any products utilizing our enzymes, such products will remain subject to ongoing regulatory requirements, which may result in significant additional expense.
- If we or our customers fail to comply with certain healthcare laws, including fraud and abuse laws, we could face substantial penalties and our business, results of operations, financial condition and prospects could be adversely affected.
- Our efforts to prosecute, maintain, protect and/or defend our intellectual property rights may not be successful.
- Our ability to compete may decline if we do not adequately prosecute, maintain, protect and/or defend our proprietary technology, products or services or our intellectual property rights.
- Third parties may claim that we are infringing, violating or misappropriating their intellectual property rights, which may subject us to costly and time-consuming litigation and prevent us from developing or commercializing our technology, products or services.
- We may be involved in lawsuits to protect or enforce our intellectual property rights, which could be expensive, time-consuming and unsuccessful.
- We may not be able to enforce our intellectual property rights throughout the world.
- If our biocatalysts are stolen, misappropriated or reverse engineered, others could use these biocatalysts to produce competing products.
- We are subject to anti-takeover provisions in our certificate of incorporation and bylaws and under Delaware law that could delay or prevent an acquisition of our company.
- Market and economic conditions may negatively impact our business, financial condition, and share price.
- Business interruptions resulting from disasters or other disturbances could delay us in the process of developing our products and could disrupt our sales.
- Evolving expectations around environmental, social and governance matters may expose us to reputational and other risks.

Risks Related to Our Business and Strategy

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

We have incurred net losses since our inception, including losses of $76.2 million, $33.6 million, and $21.3 million for the years ended December 31, 2023, 2022, and 2021, respectively. As of December 31, 2023, we had an accumulated deficit of $497.5 million. If we are unable to continue to successfully develop and commercialize products in our pharmaceutical manufacturing business, increase sales of existing products and services, develop and commercialize our ECO Synthesis™ manufacturing platform, and or develop new products or services, or otherwise expand our business, whether through new or expanded collaborations or other products and services, our net losses may increase and we may never achieve profitability. In addition, some of our agreements, including the agreements with GSK, Merck, Novartis, Nestlé Health Science, Aldevron and Roche provide for milestone payments, usage payments, and/or future royalty or other payments, which we will only receive if we and/or our collaborators develop and commercialize products or achieve technical milestones. We also intend to continue to fund the development of additional proprietary performance enzyme products and advance new technologies like our ECO Synthesis™ manufacturing platform. There can be no assurance that any of these products or services will become commercially viable or that we will ever achieve profitability on a quarterly or annual basis. If we fail to achieve profitability, or if the time required to achieve profitability is longer than we anticipate, we may not be able to continue our business. Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis.

Biotherapeutic programs are highly regulated and expensive, and our enzyme products are complex and subject to quality control requirements. The ability of our customers, future customers or collaborators, including any company developing RNAi therapeutics, to advance product candidates utilizing our products to clinical trials and to ultimately receive regulatory approvals is highly uncertain.

Although we are no longer developing our own portfolio of biotherapeutics product candidates, we continue to develop enzyme products, including our ECO Synthesis™ manufacturing platform, that may be used by our customers, future customers or collaborators in connection with their biotherapeutic product candidates. The successful development of biotherapeutic candidates involves many risks and uncertainties, requires long timelines and may lead to uncertain results.

Our customers are subject to extensive regulations by the FDA and similar regulatory authorities in other countries for conducting clinical trials and commercializing products for therapeutic, vaccine or diagnostic use. These regulations result in our customers imposing quality requirements on us for the manufacture of our enzyme products through supplier qualification processes and customer contracts and specifications

In order to market a biologic or drug product in the United States, our customers, future customers or collaborators must undergo the following process required by the FDA:

- completion of extensive preclinical laboratory tests and preclinical animal studies, all performed in accordance with the FDA's Good Laboratory Practice requirements;
- submission to the FDA of an Investigational New Drug Application ("IND"), which must become effective before human clinical studies may begin in the United States;
- approval by an independent institutional review board ("IRB") representing each clinical site before the clinical study may be initiated at the site;
- performance of adequate and well-controlled human clinical studies in accordance with Good Clinical Practice ("GCP") requirements to establish the safety, purity and potency (or efficacy) of the product candidate for each proposed indication;
- preparation of and submission to the FDA of a Biologics License Application ("BLA") or New Drug Application ("NDA") after completion of all clinical studies;
- potential review of the product candidate by an FDA advisory committee;
- satisfactory completion of an FDA pre-approval inspection of the manufacturing facilities where the product candidate is produced to assess compliance with current Good Manufacturing Practice ("cGMP") requirements;
- FDA review and approval of a BLA or NDA prior to any commercial marketing or sale of the product in the United States; and
- any post-approval requirements, if applicable.

The regulatory approval processes of the FDA and comparable foreign authorities are lengthy, time consuming and the results are inherently unpredictable. If our customers, future customers or collaborators are ultimately unable to obtain regulatory approval for their biotherapeutic product candidates utilizing our enzyme products, our business may be harmed. In addition, if our customers, future customers or collaborators fail to comply with applicable FDA or other regulatory requirements at any time during the drug development process, clinical testing, the approval process or after approval, they may become subject to administrative or judicial penalties, including the FDA's refusal to approve a pending application, withdrawal of an approval, warning letters, product recalls and additional enforcement actions, any of which may have an adverse effect on our financial condition.

We believe our enzyme products are exempt from compliance with the Food, Drug, and Cosmetic Act ("FDCA") and the current GMP ("cGMP") regulations of the FDA, as our products are further processed and incorporated into final drug or biologic products by our customers and we do not make claims related to their safety or effectiveness. Our products are manufactured following the voluntary quality standards of ISO 9001:2015. In the event we, or our suppliers, produce products that fail to comply with required quality standards, we may incur delays in fulfilling orders, write-downs, damages resulting from product liability claims and harm to our reputation.

In the future, our products could become subject to more onerous regulation, or the FDA could disagree with our assessment that our enzyme products are exempt from current GMP regulations. In addition, the FDA could conclude that the products we provide to our customers are actually subject to the pharmaceutical, drug or biologic quality-related regulations for manufacturing, processing, packing or holding of drugs, biologics, or finished pharmaceuticals, and could take enforcement action against us, including requiring us to stop distribution of our products until we are in compliance with applicable regulations, which would reduce our revenue, increase our costs and adversely affect our business, prospects, results of operations and financial condition.

We are dependent on a limited number of customers.

Although we continue to expand our customer base, our current revenues are derived from a limited number of key customers. For the years ended December 31, 2023 and 2022, customers that each individually contributed 10% or more of our total revenue accounted for 35% and 56% of our total revenues, respectively. We expect a limited number of customers to continue to account for a significant portion of our revenues for the foreseeable future. This customer concentration increases the risk of quarterly fluctuations in our revenues and operating results. The loss or reduction of business from one or a combination of our significant customers could, materially adversely affect our revenues, financial condition and results of operations.

Our product supply agreements with customers have finite duration, may not be extended or renewed and generally do not require the customer to purchase any particular quantity or quantities of our products.

Our product supply agreements with customers generally have a finite duration, may not be extended or renewed and generally do not require the customer to purchase any particular quantity or quantities of our products. While our products are not considered commodities and may not be easily substituted for by our customers, particularly when our products are used in the manufacture of active pharmaceutical ingredients, our customers may nevertheless terminate or fail to renew their product supply agreements with us or significantly curtail their purchases thereunder under certain circumstances. We are working to develop new relationships with existing or new customers, but despite these efforts we may not, at the time that any of our existing product supply agreements expire or are terminated, or purchases thereunder curtailed, have other contracts in place generating similar or material revenue. Any such expiration, termination or reduction could materially adversely affect our revenues, financial condition and results of operations. For the year ended December 31, 2023, we derived a majority of our product revenue from these product supply agreements.

The demand for our products depends in part on our customers' research and development and the clinical and market success of their products. Our business, financial condition, and results of operations may be harmed if our customers spend less on, or are less successful in, these activities. In addition, customer spending may be affected by, among other things, general market and economic conditions beyond our control.

Our customers are engaged in research, development, production, and marketing of pharmaceutical products and intermediates. The amount our customers spend on research, development, production, and marketing, as well as the outcomes of such research, development, and marketing activities, have a large impact on our sales and profitability, particularly the amount our customers choose to spend on our offerings. Available resources, the need to develop new products, and consolidation in the industries in which our customers operate may have an impact on such spending. Our customers and potential customers finance their research and development spending from private and public sources. A reduction in available financing for and spending by our customers, for these reasons or because of continued unstable or unpredictable economic and marketplace conditions, could have a material adverse effect on our business, financial condition, and results of operations. If our customers are not successful in attaining or retaining product sales due to market conditions, reimbursement issues, or other factors, our results of operations may be materially adversely affected.

With respect to customers purchasing our products for the manufacture of APIs for which they have exclusivity due to patent protection, the termination or expiration of such patent protection and any resulting generic competition may materially and adversely affect our revenues, financial condition or results of operations.

With respect to customers purchasing our products for the manufacture of API, or lead to the manufacture of API, for which exclusivity due to patent protection has or is about to expire, we can expect that the quantity of our products sold to such customers for such products may decline as generic competition for the API increases. While we anticipate that we may, in some cases, also be able to sell products to these generic competitors for the manufacture of these APIs, or lead to the manufacture of these APIs, the overall effect on our revenues, financial condition and results of operations could be materially adverse.

We are dependent on a limited number of contract manufacturers for large scale production of substantially all of our enzymes. We are working to qualify new contract manufacturers to produce certain of our enzymes, however those efforts may not be successful and therefore we may experience limitations on our ability to supply our enzymes to customers.

Manufacturing of our enzymes is conducted primarily in four locations: our in-house facility in Redwood City, California, and at three third-party contract manufacturing organizations, Lactosan in Kapfenberg, Austria, ACSD (in Anagni, Italy, and Alphazyme in Jupiter, Florida, United States. Generally, we perform smaller scale manufacturing in-house and outsource the larger scale manufacturing to these contract manufacturers. We have limited internal capacity to manufacture enzymes. As a result, we are dependent upon the performance and capacity of third-party manufacturers for the larger scale manufacturing of the enzymes used in our pharmaceutical and life sciences businesses.

Accordingly, we face risks of difficulties with, and interruptions in, performance by third party manufacturers, the occurrence of which could adversely impact the availability, launch and/or sales of our enzymes in the future. Enzyme manufacturing capacity limitations at our third-party manufacturers and manufacturing delays could negatively affect our business, reputation, results of operations and financial condition. The failure of any contract manufacturer to supply us our required volumes of enzyme on a timely basis, or to manufacture our enzymes in compliance with our specifications or applicable quality requirements or in volumes sufficient to meet demand, would adversely affect our ability to sell pharmaceutical and complex chemicals products, could harm our relationships with our customers or collaborators and could negatively affect our revenues and operating results. We may be forced to secure alternative sources of supply, which may be unavailable on commercially acceptable terms, and could cause delays in our ability to deliver products to our customers, increase our costs and decrease our profit margins.

We currently have supply agreements in place with Lactosan, ACSD and Alphazyme. In the absence of a supply agreement, a contract manufacturer will be under no obligation to manufacture our enzymes and could elect to discontinue their manufacture at any time. If we require additional manufacturing capacity and are unable to obtain it in sufficient quantity, we may not be able to increase our product sales, or we may be required to make substantial capital investments to build that capacity or to contract with other manufacturers on terms that may be less favorable than the terms we currently have with our suppliers. If we choose to build our own additional manufacturing facility, it could take several years or longer before our facility is able to produce commercial volumes of our enzymes. Any resources we expend on acquiring or building internal manufacturing capabilities could be at the expense of other potentially more profitable opportunities. In addition, if we contract with other manufacturers, we may experience delays of several months in qualifying them, which could harm our relationships with our customers or collaborators and could negatively affect our revenues or operating results.

We are dependent on our collaborators, and our failure to successfully manage these relationships could prevent us from developing and commercializing many of our products and achieving or sustaining profitability, and could lead to disagreements with our current or former collaborators.

Our ability to maintain and manage collaborations in our markets is fundamental to the success of our business. We currently have license agreements, research and development agreements, supply agreements and/or distribution agreements with various collaborators. For example, we have ongoing collaborations and agreements with GSK, Merck, Novartis, Roche and Aldevron that are important to our business and financial results. We may have limited or no control over the amount or timing of resources that any collaborator is able or willing to devote to our partnered products or collaborative efforts. Any of our collaborators may fail to perform its obligations. These collaborators may breach or terminate their agreements with us or otherwise fail to conduct their collaborative activities successfully and in a timely manner. Further, our collaborators may not develop products arising out of our collaborative arrangements or devote sufficient resources to the development, manufacture, marketing or sale of these products. Moreover, disagreements with a collaborator could develop, and any conflict with a collaborator could lead to litigation, reduce our ability to enter into future collaboration agreements and negatively impact our relationships with one or more existing collaborators. If any of these events occur, especially if they occur in our collaborations with GSK, Merck or Novartis, or if we fail to maintain our agreements with our collaborators, we may not be able to commercialize our existing and potential products or grow our business or generate sufficient revenues to support our operations, we may not receive contemplated milestone payments and royalties under the collaboration, and we may be involved in litigation. Our collaboration opportunities could be harmed and our financial condition and results of operations could be negatively affected if:

- we do not achieve our research and development objectives under our collaboration agreements in a timely manner or at all;

- we develop products and processes or enter into additional collaborations that conflict with the business objectives of our other collaborators;
- our collaborators and/or our contract manufacturers do not receive the required regulatory and other approvals necessary for the commercialization of the applicable product;
- we disagree with our collaborators as to rights to intellectual property that are developed during the collaboration, or their research programs or commercialization activities;
- we are unable to manage multiple simultaneous collaborations;
- our collaborators or licensees are unable or unwilling to implement or use the technology or products that we provide or license to them;
- our collaborators become competitors of ours or enter into agreements with our competitors;
- our collaborators become unable or less willing to expend their resources on research and development or commercialization efforts due to general market conditions, their financial condition or other circumstances beyond our control; or
- our collaborators experience business difficulties, which could eliminate or impair their ability to effectively perform under our agreements.

Takeda recently confirmed that it will end research, discovery and preclinical work in certain rare disease areas that may overlap with the programs on which we collaborate under the Strategic Collaboration and License Agreement (the "Takeda Agreement") we entered into with Shire Human Genetic Therapies, Inc., a wholly-owned subsidiary of Takeda, in March 2020. Takeda announced in April 2023 the discontinuance of these development programs.

Even after collaboration relationships expire or terminate, some elements of the collaboration may survive. For instance, certain rights, licenses and obligations of each party with respect to intellectual property and program materials may survive the expiration or termination of the collaboration. Disagreements or conflicts between and among the parties could develop even though the collaboration has ended. These disagreements or conflicts could result in expensive arbitration or litigation, which may not be resolved in our favor.

Finally, our business could be negatively affected if any of our collaborators or suppliers undergoes a change of control or were to otherwise assign the rights or obligations under any of our agreements.

If we are unable to develop and commercialize new products for the pharmaceutical, biotherapeutics, diagnostics and life science tools markets, our business and prospects will be harmed.

We plan to launch new products for the pharmaceutical, biotherapeutics, diagnostics and other life science tools markets such as our ECO Synthesis™ manufacturing platform. These efforts are subject to numerous risks, including the following:

- customers in these markets may be reluctant to adopt new manufacturing processes that use our enzymes;
- we may be unable to successfully develop the enzymes or manufacturing processes for our products in a timely and cost-effective manner, if at all;
- we may face difficulties in transferring the developed technologies to our customers and the contract manufacturers that we may use for commercial scale production of intermediates and enzymes in these markets;
- the biotherapeutics products that use our tools may not receive regulatory approval or be commercially viable;
- the contract manufacturers that we may use may be unable to scale their manufacturing operations to meet the demand for these products and we may be unable to secure additional manufacturing capacity;
- customers may not be willing to purchase these products for these markets from us on favorable terms, if at all;
- we may face product liability litigation, unexpected safety or efficacy concerns and product recalls or withdrawals;
- our customers' products may experience adverse events or face competition from new products, which would reduce demand for our products;

- we may face pressure from existing or new competitive products; and
- we may face pricing pressures from existing or new competitors, some of which may benefit from government subsidies or other incentives.

We have invested significant resources to enable fully enzymatic nucleic acid synthesis, which is based on novel ideas and technologies that are largely unproven.

Our ECO Synthesis™ manufacturing platform is currently in development to enable the commercial-scale manufacture of RNAi therapeutics through an enzymatic route. While we believe fully enzymatic nucleic acid synthesis will offer certain improvements over phosphoramidite chemistry, including with respect to required infrastructure investments, batch size limitations and waste disposal challenges, the enzymatic route is novel and has not yet been commercialized. As such, we may be faced with unforeseen results, delays and setbacks, in addition to the other foreseeable risks and uncertainties associated with the ongoing development of the ECO Synthesis™ manufacturing platform and other products.

Other challenges with a new technology such as our ECO Synthesis™ manufacturing platform include having an unknown and unproven regulatory path, uncertainly around the value that we can realize from the technology, uncertainty around the timeline for adoption of the technology by customers, and uncertainly around our ability to manufacture and partner with customers on manufacturing and utilizing the technology.

There can be no assurance that these events we may experience in the future related to enzymatic synthesis will not cause significant delays or unanticipated costs, or that such development problems can be solved. Any delay or difficulties in developing and commercializing our ECO Synthesis™ manufacturing platform or any of our other current or future products could adversely affect our business and operations.

Competitors and potential competitors who have greater resources and experience than we do may develop products and technologies that make ours obsolete or may use their greater resources to gain market share at our expense.

The biocatalysis and performance enzyme industries and each of our target markets are characterized by rapid technological change. Our future success will depend on our ability to maintain a competitive position with respect to technological advances. In addition, as we enter new markets, we will face new competition and will need to adapt to competitive factors that may be different from those we face today.

We are aware that other companies, including DSM, BASF, Bayer and Novozymes have alternative methods for obtaining and generating genetic diversity or use mutagenesis techniques to produce genetic diversity. Academic institutions such as the California Institute of Technology, the Max Planck Institute and the Austrian Centre of Industrial Biotechnology are also working in this field. Technological development by others may result in our technology, products and services, as well as products developed by our customers using our biocatalysts, becoming obsolete.

Our primary competitors in the performance enzymes for the pharmaceutical productsmarkets include (i) companies marketing either conventional, non-enzymatic processes or biocatalytic enzymes; (ii) manufacturers of pharmaceutical intermediates and APIs; and (iii) existing in-house technologies (both biocatalysts and conventional catalysts) within our client and potential client companies. The principal methods of competition and competitive differentiation in this market are price, product quality and performance, including manufacturing yield, safety and environmental benefits, and speed of delivery of product. Pharmaceutical manufacturers that use biocatalytic processes can face increased competition from manufacturers that use more conventional processes and/or manufacturers that are based in regions (such as India and China) with lower regulatory, safety and environmental costs.

The market for the manufacture and supply of APIs and intermediates is large with many established companies. These companies include many of our large innovator and generic pharmaceutical customers, such as Merck, GSK, Novartis, Pfizer, Bristol-Myers, Kyorin, Urovant, and Teva which have significant internal research and development efforts directed at developing processes to manufacture APIs and intermediates. The processes used by these companies include classical conventional organic chemistry reactions, chemo catalytic reactions, biocatalytic reactions or combinations thereof. Our biocatalytic based manufacturing processes must compete with these internally developed routes. Additionally, we also face competition from companies developing and marketing conventional catalysts such as Solvias Inc., BASF and Takasago International Corporation.

The market for supplying enzymes for use in pharmaceutical manufacturing is quite fragmented. There is competition from large industrial enzyme companies, such as Novozymes and DuPont, as well as subsidiaries of larger contract research/contract manufacturing organizations, such as DSM, Cambrex Corporation, Lonza, WuXi STA and Almac Group Ltd. Some fermentation pathway design companies, like Ginkgo Bioworks (who recently acquired Zymergen), whose traditional focus has been to design microorganisms that express small molecule chemicals, could extend into designing organisms that express enzymes. There is also competition in the enzyme customization and optimization area from several smaller companies, such as BRAIN AG, Arzeda, c-LEcta GmbH and Evocatal GmbH.

We face competitive challenges related to our ECO Synthesis™ manufacturing platform. Phosphoramidite chemistry is the current and long-established industry standard for the manufacture of RNA therapeutics. Primary competitors in this space include CDMOs, such as Agilent Technologies, which has made significant capital investment to expand their RNA manufacturing capabilities using phosphoramidite chemistry. In addition, CDMOs and large pharmaceutical companies are seeking to make incremental improvements to phosphoramidite chemistry, including the development of ligation-based approaches, liquid-phase synthesis, and solvent recycling. There are also multiple early-stage competitors who are pursuing fully enzymatic approaches to the manufacture of RNA, including EnPlusOne, a private startup company, and a UK-based consortium led by CPI and consisting of multiple academic and research organizations, including The University of Manchester and large pharmaceutical companies, including AstraZeneca plc and Novartis.

Our ability to compete successfully in any of these markets will depend on our ability to develop proprietary products that reach the market in a timely manner and are technologically superior to and/or are less expensive than other products on the market. Many of our competitors have substantially greater production, financial, research and development, personnel and marketing resources than we do. They also started developing products earlier than we did, which may allow them to establish blocking intellectual property positions or bring products to market before we can. In addition, certain of our competitors may also benefit from local government subsidies and other incentives that are not available to us. As a result, our competitors may be able to develop competing and/or superior technologies and processes and compete more aggressively and sustain that competition over a longer period of time than we could. Our technologies and products may be rendered obsolete or uneconomical by technological advances or entirely different approaches developed by one or more of our competitors. We cannot be certain that any products we develop in the future will compare favorably to products offered by our competitors or that our existing or future products will compare favorably to any new products that are developed by our competitors. As more companies develop new intellectual property in our markets, the possibility of a competitor acquiring patent or other rights that may limit our products or potential products increases, and could additionally lead to litigation.

Our limited resources relative to many of our competitors may cause us to fail to anticipate or respond adequately to new developments and other competitive pressures. This failure could reduce our competitiveness and market share, adversely affect our results of operations and financial position, and prevent us from obtaining or maintaining profitability.

Revenues in future years from our sales of CDX-616 to Pfizer are subject to a number of factors which are outside of our control and may not materialize.

Starting the first and second quarters of 2021, we began to receive purchase orders from Pfizer for large quantities of our proprietary enzyme product, CDX-616, for use by Pfizer in the manufacture of a critical intermediate for its proprietary active pharmaceutical ingredient, nirmatrelvir. Pfizer markets, sells and distributes nirmatrelvir, in combination with the active pharmaceutical ingredient ritonavir, as its PAXLOVID™ (nirmatrelvir tablets; ritonavir tablets) product, which received FDA approval in May 2023 for the treatment of mild-to-moderate COVID-19 in adults who are at high risk for progression to severe COVID-19, including hospitalization or death.

Potential revenues in future years from our sales of CDX-616 to Pfizer and other potential customers (including sublicensees of Pfizer technology from The Medicines Patent Pool (the "MPP")) are subject to a number of factors which are outside of our control, including, without limitation, the following, all of which could reduce or eliminate our sales of CDX-616, and therefore materially and adversely affect our business, results of operations and financial condition:

- Pfizer has no future binding commitment to purchase any particular quantity or quantities of CDX-616 from us, and we are dependent upon Pfizer continuing to place orders with us (whether on a spot basis or under a long-term agreement, when and if executed) for their requirements, if any, for CDX-616;
- to our knowledge, sublicensees of Pfizer technology from the MPP have no obligation to purchase CDX-616 from us under their sublicenses with the MPP;
- future vaccine development and usage and the development and usage of other new therapies for the treatment or elimination of COVID-19 may eliminate or reduce demand for PAXLOVID™;

- new variants of COVID-19 may emerge which PAXLOVID™ is not effective in treating;
- Pfizer could reformulate or make changes in the manufacturing process for nirmatrelvir which would eliminate or reduce demand for the use of CDX-616 in its manufacture;
- sublicensees of Pfizer technology for the manufacture, sale and distribution of PAXLOVID™ from the MPP may not utilize CDX-616 in the manufacture of nirmatrelvir;
- national and regional governmental authorities (including those of the United States government) may mandate that raw materials and intermediates used in the manufacture of PAXLOVID™ to be marketed, sold and distributed within the borders of that country be domestically produced, which could eliminate or reduce demand for the use of CDX-616 in such country; and
- we may be unable (because of lack of available manufacturing capacity at our contract manufacturers, supply chain disruptions or an inability to obtain applicable regulatory approvals) to manufacture the quantities of CDX-616 that Pfizer may desire to purchase from us.

We have investments in non-marketable securities, which may subject us to significant impairment charges.

We have investments in illiquid or non-marketable equity securities acquired in private transactions. As of December 31, 2023, 7.1% of our consolidated assets consisted of investment securities, which are illiquid investments. Investments in non-marketable, securities are inherently risky and difficult to value. We account for our non-marketable equity securities under the measurement alternative. Under the measurement alternative, the carrying value of our non-marketable equity investments is adjusted to fair value for observable transactions for identical or similar investments of the same issuer or impairment. We evaluate our investment in non-marketable securities when circumstances indicate that we may not be able to recover the carrying value. We may impair these securities and establish an allowance for a credit loss when we determine that there has been an "other-than-temporary" decline in estimated fair value of the equity security compared to its carrying value. The impairment analysis requires significant judgment to identify events or circumstances that would likely have a material adverse effect on the fair value of the investment. Because over 5% of our total assets consisted of non-marketable investment securities, any future impairment charges from the write down in value of these securities could have a material adverse effect on our financial condition or results of operations.

Ethical, legal and social concerns about genetically engineered products and processes could limit or prevent the use of our technology, products and processes and limit our revenues.

Some of our technology, products and services, such as our ECO Synthesis™ manufacturing platform, are genetically engineered or involve the use of genetically engineered products or genetic engineering technologies. If we and/or our collaborators are not able to overcome the ethical, legal, and social concerns relating to genetic engineering, our technology, products and services may not be accepted. Any of the risks discussed below could result in increased expenses, delays, or other impediments to our programs or the public acceptance and commercialization of products and processes dependent on our technologies or inventions. Our ability to develop and commercialize one or more of our technologies, products, or processes could be limited by the following factors:

- public attitudes about the safety and environmental hazards of, and ethical concerns over, genetic research and genetically engineered products and processes, which could influence public acceptance of our technologies, products and processes;
- public attitudes regarding, and potential changes to laws governing ownership of, genetic material, which could harm our intellectual property rights with respect to our genetic material and/or discourage collaborators from supporting, developing, or commercializing our technology, products and services; and
- governmental reaction to negative publicity concerning genetically modified organisms, which could result in greater government regulation of genetic research and derivative products.

The subject of genetically modified organisms has received negative publicity, which has aroused public debate. This adverse publicity could lead to greater regulation and trade restrictions on imports of genetically altered products. The biocatalysts that we develop have significantly enhanced characteristics compared to those found in naturally occurring enzymes or microbes. While we produce our biocatalysts only for use in a controlled industrial environment, the release of such biocatalysts into uncontrolled environments could have unintended consequences. Any adverse effect resulting from such a release could have a material adverse effect on our business and financial condition, damage our reputation, and/or expose us to liability for any resulting harm.

We have recently enhanced our strategic focus to concentrate on certain programs and business lines. As a result of this refined focus, we may fail to capitalize on other opportunities that may be more profitable or for which there is a greater likelihood of success.

Because we have limited financial and managerial resources, we have recently focused our efforts on developing certain programs and business lines. As a result, we may forego or delay pursuit of business opportunities that later prove to have greater commercial potential. Further our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. In addition, our spending on current and future research and development programs, such as ECO Synthesis™ manufacturing platform that is in development, may not yield any commercially viable products. If we do not accurately evaluate the commercial potential or target market for a particular program or business line, our business and results of operations could be harmed.

Given our recent change in strategic direction, we may receive limited revenue or no future value from certain of our existing license agreements

While we have historically invested significant time and financial resources in the development of biotherapeutics assets, including candidates for the treatment of Fabry disease and Pompe disease, which are included in the Takeda Agreement, in July 2023, we announced we are terminating investment in our biotherapeutics business and in other programs. As a result, we are renegotiating some of these, along with other license agreements for product candidates in our biotherapeutics, food and feed, and non-core life science assets. For example, we entered into the Acquisition Agreement with Nestlé under which they acquired rights to our co-developed lipase enzyme CDX-7108 and we received an upfront payment and the right to downstream milestones and royalties, terminating our prior SCA and development agreement with Nestlé. While we are working to amend or terminate some of our agreements and enter into new agreements in such a way that we may be able to receive future revenue or other benefits, we may be unsuccessful in doing so. As a result, it remains uncertain as to whether we will receive any value or benefit from these license agreements going forward. Further, renegotiating these agreements may be costly and could divert management attention, which could have an adverse impact on our business and results of operations.

We use hazardous materials in our business and we must comply with environmental laws and regulations. Any claims relating to improper handling, storage or disposal of these materials or noncompliance of applicable laws and regulations could be time consuming and costly and could adversely affect our business and results of operations.

Our research and development and commercial processes involve the use of hazardous materials, including chemical, radioactive and biological materials. Our operations also produce hazardous waste. We cannot eliminate entirely the risk of accidental contamination or discharge and any resultant injury from these materials. Federal, state, local and foreign laws and regulations govern the use, manufacture, storage, handling and disposal of, and human exposure to, these materials. We may face liability for any injury or contamination that results from our use or the use by third parties of these materials, and our liability may exceed our total assets. Although we believe that our activities comply in all material respects with environmental laws, there can be no assurance that violations of environmental, health and safety laws will not occur in the future as a result of human error, accident, equipment failure or other causes. Compliance with applicable environmental laws and regulations may be expensive, and the failure to comply with past, present or future laws could result in the imposition of fines, third party property damage, product liability and personal injury claims, investigation and remediation costs, the suspension of production or a cessation of operations, and our liability may exceed our total assets. Liability under environmental laws can be joint and several and without regard to comparative fault. Environmental laws could become more stringent over time imposing greater compliance costs and increasing risks and penalties associated with violations, which could impair our research, development or production efforts and harm our business. In addition, we may be required to indemnify some of our customers or suppliers for losses related to our failure to comply with environmental laws, which could expose us to significant liabilities.

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

In general, under Section 382 of the Internal Revenue Code of 1986, as amended (the "Code"), a corporation that undergoes an "ownership change" is subject to limitations on its ability to utilize its pre-change net operating loss carryforwards ("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 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 Code. Furthermore, our ability to utilize NOLs of companies that we may acquire in the future may be subject to limitations. For these reasons, we may not be able to utilize a material portion of the NOLs reflected in our financial statements, even if we attain profitability.

As a public reporting company, we are subject to rules and regulations established from time to time by the SEC and Nasdaq regarding our internal controls over financial reporting. We may not complete needed improvements to our internal controls over financial reporting in a timely manner, or these internal controls may not be determined to be effective, which may adversely affect investor confidence in our company and, as a result, the value of our common stock and your investment.

We are subject to the rules and regulations established from time to time by the SEC and Nasdaq. These rules regulations require, among other things, that we establish and periodically evaluate procedures with respect to our internal controls over financial reporting. As part of these evaluations, material weaknesses in our internal controls over financial reporting may be identified. A material weakness is a deficiency, or a combination of deficiencies, in internal controls over financial reporting such that there is a reasonable possibility that a material misstatement of a company's annual or interim consolidated financial statements will not be prevented or detected on a timely basis. While we were able to remediate previously identified material weaknesses in our internal controls over financial reporting, there can be no guarantee we will not identify similar or other material weaknesses in the future and if such material weaknesses are identified, there can be no guarantee we would be able to remediate such material weaknesses. Any material weaknesses in our internal controls may adversely affect our ability to record, process, summarize and accurately report timely financial information and, as a result, our consolidated financial statements may contain material misstatements or omissions.

Reporting obligations as a public company place a considerable strain on our financial and management systems, processes and controls, as well as on our personnel. In addition, as a public company we are required to document and test our internal controls over financial reporting pursuant to Section 404 of the Sarbanes-Oxley Act so that our management can certify as to the effectiveness of our internal controls over financial reporting. Likewise, our independent registered public accounting firm is required to provide an attestation report on the effectiveness of our internal controls over financial reporting in our Annual Reports on Form 10-K. If our management is unable to certify the effectiveness of our internal controls or if our independent registered public accounting firm cannot deliver a report attesting to the effectiveness of our internal controls over financial reporting, or if we identify or fail to remediate material weaknesses in our internal controls, we could be subject to regulatory scrutiny and a loss of public confidence, which could seriously harm our reputation and the market price of our common stock. In addition, if we do not maintain adequate financial and management personnel, processes and controls, we may not be able to manage our business effectively or accurately report our financial performance on a timely basis, which could cause a decline in our common stock price and may seriously harm our business.

We may need additional capital in the future in order to expand our business.

Our future capital requirements may be substantial, particularly as we continue to develop our business. Although we believe that, based on our current level of operations, our existing cash, cash equivalents and equity securities will provide adequate funds for ongoing operations, planned capital expenditures and working capital requirements for at least the next 12 months, we may need additional capital if our current plans and assumptions change. Our need for additional capital will depend on many factors, including the financial success of our performance enzyme business, our spending to develop and commercialize new and existing enzyme products and the amount of collaboration funding we may receive to help cover the cost of such expenditures, the effect of any acquisitions of other businesses, technologies or facilities that we may make or develop in the future, our spending on new market opportunities, including the ongoing commercialization of our ECO Synthesis™ manufacturing platform, and the filing, prosecution, enforcement and defense of patent claims. If our capital resources are insufficient to meet our capital requirements, and we are unable to enter into or maintain collaborations with partners that are able or willing to fund our development efforts or commercialize any enzyme products that we develop or enable, we will have to raise additional funds to continue the development of our technology and products and complete the commercialization of products, if any, resulting from our technologies.

In addition, we may choose to raise additional capital due to market conditions or strategic considerations, such as funding the ongoing commercialization of our ECO Synthesis™ manufacturing platform, even if we believe we have sufficient funds for our current or future operating plans. We may seek to obtain such additional capital through equity offerings, including pursuant to the EDA, debt financings, credit facilities and/or strategic collaborations. If future financings involve the issuance of equity securities, our existing stockholders would suffer dilution. In addition, under our Loan Agreement, we are subject to restrictive covenants that limit our ability to conduct our business and could be subject to additional covenants to the extent we seek other debt financing in the future. Strategic collaborations may also place restrictions on our business. We may not be able to raise sufficient additional funds on terms that are favorable to us, if at all. If we fail to raise sufficient funds and fail to generate sufficient revenues to achieve planned gross margins and to control operating costs, 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, or grant licenses on terms that are not favorable to us. If adequate funds are not available, we will not be able to successfully execute our business plan or continue our business.

Covenants and other provisions in our Loan Agreement with Innovatus restrict our business and operations in many ways, and if we do not effectively manage our covenants, our financial conditions and results of operations could be adversely affected. In addition, our operations may not provide sufficient cash to meet the repayment obligations of our debt incurred under the Loan Agreement.

Pursuant to the Loan Agreement, Innovatus has been granted a security interest in substantially all of our assets. If an event of default occurs under the Loan Agreement, Innovatus may foreclose on its security interest and liquidate some or all of these assets, which would harm our business, financial condition and results of operations.

In the event of a default in connection with our bankruptcy, insolvency, liquidation, or reorganization, Innovatus would have a prior right to substantially all of our assets to the exclusion of our general unsecured creditors. Only after satisfying the claims of Innovatus and any unsecured creditors would any amount be available for our equity holders.

The pledge of these assets and other restrictions imposed in the Loan Agreement may limit our flexibility in raising capital for other purposes. Because substantially all of our assets are pledged to secure the Loan Agreement obligations, our ability to incur additional indebtedness or to sell or dispose of assets to raise capital may be impaired, which could have an adverse effect on our financial flexibility.

In addition, if we are unable to comply with certain financial and operating restrictions in the Loan Agreement, we may be limited in our business activities and access to credit or may default under the Loan Agreement. Provisions in the Loan Agreement impose restrictions or require prior approval on our ability, and the ability of certain of our subsidiaries to, among other things:

- sell, lease or transfer certain parts of our business or property, including equity interests of our subsidiaries;
- engage in new lines of business;
- acquire new companies and merge or consolidate;
- incur additional debt or guarantee the indebtedness of others or our subsidiaries;
- create liens or encumbrances;
- pay cash dividends and make distributions or redeem or repurchase our capital stock;
- make certain investments;
- enter into transactions with affiliates; and
- terminate or, in certain cases, amend our material agreements.

The Loan Agreement also contains other customary covenants. We may not be able to comply with these covenants in the future. Our failure to comply with these covenants may result in the declaration of an event of default, which, if not cured or waived, may result in the acceleration of the maturity of indebtedness outstanding under the Loan Agreement and would require us to pay all amounts outstanding. If the maturity of our indebtedness is accelerated, we may not have sufficient funds then available for repayment or we may not have the ability to borrow or obtain sufficient funds to replace the accelerated indebtedness on terms acceptable to us or at all. Our failure to repay our obligations under the Loan Agreement would result in Innovatus foreclosing on all or a portion of our assets, which could force us to curtail or cease our operations.

If we engage in any acquisitions, we will incur a variety of costs and may potentially face numerous risks that could adversely affect our business and operations.

We have made acquisitions in the past, and if appropriate opportunities become available, we expect to acquire additional businesses, assets, technologies, or products to enhance our business in the future. For example, in October 2010, we acquired substantially all of the patents and other intellectual property rights associated with Maxygen's directed evolution technology.

In connection with any future acquisitions, we could:

- issue additional equity securities, which would dilute our current stockholders;
- incur substantial debt to fund the acquisitions;
- use our cash to fund the acquisitions; or
- assume significant liabilities including litigation risk.

Acquisitions involve numerous risks, including problems integrating the purchased operations, technologies or products, unanticipated costs and other liabilities, diversion of management's attention from our core businesses, adverse effects on existing business relationships with current and/or prospective collaborators, customers and/or suppliers, risks associated with entering markets in which we have no or limited prior experience and potential loss of key employees. We do not have extensive experience in managing the integration process and we may not be able to successfully integrate any businesses, assets, products, technologies or personnel that we might acquire in the future without a significant expenditure of operating, financial and management resources, if at all. The integration process could divert management's time from focusing on operating our business, result in a decline in employee morale and cause retention issues to arise from changes in compensation, reporting relationships, future prospects or the direction of the business. Acquisitions may also require us to record goodwill and non-amortizable intangible assets that will be subject to impairment testing on a regular basis and potential periodic impairment charges, incur amortization expenses related to certain intangible assets, and incur large and immediate write offs and restructuring and other related expenses, all of which could harm our operating results and financial condition. In addition, we may acquire companies that have insufficient internal financial controls, which could impair our ability to integrate the acquired company and adversely impact our financial reporting. If we fail in our integration efforts with respect to any of our acquisitions and are unable to efficiently operate as a combined organization, our business and financial condition may be adversely affected.

COVID-19 has adversely affected, and any resurgence of COVID-19 pandemic or another global health epidemic may in the future, directly or indirectly, adversely affect our business, results of operations and financial condition.

COVID-19 has had a significant impact globally, prompting governments and businesses to take unprecedented measures in response. In the United States, COVID-19 has and may continue in the future to, directly or indirectly, adversely affect our business, results of operations and financial condition.

In the future, our business could be materially adversely affected, directly or indirectly, by the widespread outbreak of contagious disease, such as COVID-19 or any resurgence thereof. If national, state and local governments in affected regions implement safety precautions, similar to those implemented in response to COVID-19, including quarantines, border closures, increased border controls, travel restrictions, governmental orders and shutdowns, business closures, cancellations of public gatherings and other measures, such precautions could, and for COVID-19 did, disrupt normal business operations both in and outside of affected areas and could have significant negative impacts on businesses and financial markets worldwide.

The impact of COVID-19 has had, and any resurgence of the COVID-19 pandemic or another pandemic or public health crisis, could in the future have, significant repercussions across regional, national and global economies and financial markets, and could trigger a period of regional, national and global economic slowdown or regional, national or global recessions. The outbreak of COVID-19 in many countries adversely impacted regional, national and global economic activity and has continued to contribute to significant volatility and negative pressure in financial markets. As a result, we may experience difficulty accessing debt and equity capital on attractive terms, or at all, due to the severe disruption and instability in the global financial markets. In addition, our customers may terminate or amend their agreements for the purchase of our technology, products and services due to bankruptcy, lack of liquidity, lack of funding, operational failures or other reasons.

Risks Related to Government Regulation

Our ongoing efforts to deploy our technology in the life science tools markets may fail.

We have used our CodeEvolver® directed evolution technology platform to develop new products for customers using NGS and PCR/qPCR for*in vitro* molecular diagnostic applications. While we have entered into license agreements for products in this market, we do not know if we can successfully compete in this new market. This new market is well established and consists of numerous large, well-funded entrenched market participants who have long and established track records and customer relationships.

We have also developed a newly engineered ligase designed to address sequencing challenges. These enzymes, and any additional products that we may develop in the future for this market, may not succeed in displacing current products. If we succeed in commercializing new products for this market, we may not generate significant revenues and cash flows from these activities. The failure to successfully deploy products on a timely basis in this space may limit our growth and have a material adverse effect on our financial condition, operating results and business prospects.

Even if our customers, future customers or collaborators obtain regulatory approval for any products utilizing our enzymes, such products will remain subject to ongoing regulatory requirements, which may result in significant additional expense.

Any products that receives FDA approval will remain subject to ongoing regulatory requirements for manufacturing, labeling, packaging, distribution, storage, advertising, promotion, sampling, record-keeping and submission of safety and other post-market information, among other things. Any regulatory approvals received for such products may also be subject to limitations on the approved indicated uses for which they may be marketed or to the conditions of approval, or contain requirements for potentially costly post-marketing testing and surveillance studies. For example, the holder of an approved NDA or BLA in the United States is obligated to monitor and report adverse events and any failure of a product to meet the specifications in the NDA or BLA. In the United States, the holder of an approved NDA or BLA must also submit new or supplemental applications and obtain FDA approval for certain changes to the approved product, product labeling or manufacturing process. Similar provisions apply in the European Union (the "EU"). Advertising and promotional materials must comply with FDA rules and are subject to FDA review, in addition to other potentially applicable federal and state laws. Similarly, in the EU any promotion of medicinal products is highly regulated and, depending on the specific jurisdiction involved, may require prior vetting by the competent national regulatory authority. In addition, product manufacturers and their facilities are subject to payment of user fees and continual review and periodic inspections by the FDA and other regulatory authorities for compliance with cGMP requirements and adherence to commitments made in the NDA, BLA or foreign marketing application.

If our customers, future customers or our collaborators or a regulatory agency discovers previously unknown problems with a product such as adverse events of unanticipated severity or frequency or problems with the facility where the product is manufactured or disagrees with the promotion, marketing or labeling of that product, a regulatory agency may impose restrictions relative to that product, the manufacturing facility or our customers or collaborators, including requiring recall or withdrawal of the product from the market or suspension of manufacturing.

In addition, if our customers or collaborators fail to comply with applicable regulatory requirements, the FDA and other regulatory authorities may:

- issue an untitled letter or a warning letter asserting a violation of the law;
- seek an injunction, impose civil or criminal penalties, and impose monetary fines, restitution or disgorgement of profits or revenues;
- suspend or withdraw regulatory approval;

- issue safety alerts, Dear Healthcare Provider letters, press releases or other communications containing warnings or other safety information about the product;
- mandate modification of promotional materials and labeling and issuance of corrective information;
- issue consent decrees or corporate integrity agreements, or debar or exclude from federal healthcare programs;
- suspend or terminate any ongoing clinical trials or implement requirements to conduct post-marketing studies or clinical trials;
- refuse to approve a pending NDA, BLA or comparable foreign marketing application (or any supplements thereto);
- restrict the labeling, marketing, distribution, use or manufacturing of products;
- seize or detain products or otherwise require the withdrawal or recall of products from the market;
- refuse to approve pending applications or supplements to approved applications;
- refuse to permit the import or export of products; or
- refuse government contracts.

Any government investigation of alleged violations of law could require us to expend significant time and resources in response and could generate negative publicity. The occurrence of any event or penalty described above may also inhibit our customers or collaborators' ability to commercialize products and our ability to generate revenues.

In addition, the FDA's policies, and policies of foreign regulatory agencies, may change, and additional regulations may be enacted that could prevent, limit or delay regulatory approval of product candidates. We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative or executive action, either in the United States or abroad. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may be subject to enforcement action and we may not achieve or sustain profitability.

If we or our customers fail to comply with certain healthcare laws, including fraud and abuse laws, we could face substantial penalties and our business, results of operations, financial condition and prospects could be adversely affected.

The healthcare industry is highly regulated. We, and our customers, are subject to various local, state, federal, national, and international laws and regulations, which include laws and regulations promulgated by the FDA, HHS, state boards of pharmacy, state health departments, and similar regulatory bodies in other countries. Additionally, our business operations and future arrangements with investigators, healthcare professionals, and consultants, among others, may expose us and our customers to broadly applicable fraud and abuse and other healthcare laws and regulations, including, without limitation, the federal Anti-Kickback Statute, the federal civil False Claims Act, the federal Civil Monetary Penalties Law, and analogous state laws. These laws may constrain the business or financial arrangements and relationships through which we will conduct our operations. Because of the breadth of these laws and narrowness of available statutory and regulatory exceptions, it is possible that some of our business activities could be regulated by or subject to challenge under one or more of such laws. We cannot ensure that our compliance controls, policies, and procedures will in every instance protect us from acts of our employees, agents, contractors, or collaborators that turn out to violate any of the laws described above. If we or our operations are found to be in violation of any of the laws described above or any other governmental regulations that apply to us, we may be subject to penalties, including civil and criminal penalties, damages, fines, imprisonment and the curtailment or restructuring of our operations, any of which could materially adversely affect our ability to operate our business and our financial results.

Ongoing healthcare legislative and regulatory reform measures may have a material adverse effect on our business and results of operations.

In the United States, there have been, and we expect there will continue to be, a number of legislative initiatives to contain healthcare costs. Some of these initiatives, such as ongoing healthcare reform, including with respect to reforming drug pricing, adverse changes in governmental or private funding of healthcare products and services, legislation or regulations governing patient access to care, and the delivery, coverage, pricing, and reimbursement of pharmaceuticals and healthcare services may cause our customers to change the amount of our offerings that they purchase from us or the price they are willing to pay us for these offerings. If cost-containment efforts or other healthcare reform measures limit our customers' profitability, they may decrease research and development spending, which could decrease the demand for our products and services and materially adversely affect our growth prospects. Any of these factors could harm our customers' businesses, which, in turn, could materially adversely affect our business, financial condition, results of operations, cash flows, and prospects.

We cannot predict the likelihood, nature, or extent of other health reform initiatives that may arise from future legislative, administrative, or other action. Any substantial revision of applicable healthcare legislation could have a material adverse effect on the demand for our customers' products, which in turn could have a negative impact on our results of operations, financial condition, or business. Changes in the healthcare industry's pricing, selling, inventory, distribution, or supply policies or practices, or in public or government sentiment for the industry as a whole, could also significantly reduce our revenue and results of operations.

Compliance with European Union chemical regulations could be costly and adversely affect our business and results of operations.

Some of our products are subject to the EU regulatory regime known as The Registration, Evaluation and Authorization of Chemicals ("REACH"). REACH mandates that certain chemicals manufactured in, or imported into, the EU be registered and evaluated for their potential effects on human health and the environment. Under REACH, we and our contract manufacturers located in the EU are required to register certain of our products based on the quantity of such product imported into or manufactured in the EU and on the product's intended end-use. The registration, evaluation and authorization process under REACH can be costly and time consuming. Problems or delays in the registration, evaluation or authorization process under REACH could delay or prevent the manufacture of some of our products in, or the importation of some of our products into, the EU, which could adversely affect our business and results of operations. In addition, if we or our contract manufacturers fail to comply with REACH, we may be subject to penalties or other enforcement actions, which could have a material adverse effect on our business and results of operations.

Risks Related to Intellectual Property and Information Technology

Our efforts to prosecute, maintain, protect and/or defend our intellectual property rights may not be successful.

We will continue to file and prosecute patent applications and maintain trade secrets in an ongoing effort to protect our intellectual property rights. It is possible that our current patents, or patents which we may later acquire, may be successfully challenged or invalidated, in whole or in part. It is also possible that we may not obtain issued patents from our pending patent applications. We sometimes permit certain patents or patent applications to lapse or go abandoned under appropriate circumstances. Due to uncertainties inherent in prosecuting patent applications, sometimes patent applications are rejected, and we subsequently abandon them. It is also possible that we may develop proprietary technology, products or services in the future that are not patentable or that the patents of others will limit or altogether preclude our ability to conduct business. In addition, any patent issued to us or to our licensor may provide us with little or no competitive advantage, in which case we may abandon such patent, license it to another entity or terminate the license agreement.

Our means of protecting our proprietary rights may not be adequate and our competitors may independently develop technologies, products or services that are identical or similar to ours or that compete with ours. Patent, trademark, copyright and trade secret laws afford only limited protection for our technology, products and services . The laws of many countries do not protect our proprietary rights to as great of an extent as do the laws of the United States. Despite our efforts to protect our proprietary rights, unauthorized parties have in the past attempted, and may in the future attempt, to operate under the aspects of our intellectual property rights, or proprietary technology, products or services or products, or to obtain and use information that we regard as proprietary. Third parties may also design around our proprietary rights, which may render our protected technology, services and products less valuable, if the design around is favorably received in the marketplace. In addition, if any of our technology, products and services are covered by third-party patents or other intellectual property rights, we could be subject to various legal actions. We cannot assure that our technology products and/or services do not infringe, violate or misappropriate any patents or other intellectual property rights owned or controlled by others or that they will not in the future.

Litigation may be necessary to enforce our intellectual property rights, to protect our trade secrets, to determine the validity and scope of the proprietary rights of others, or to defend against claims of infringement, invalidity, misappropriation, or other claims.

Any such litigation could result in substantial costs and diversion of our resources. Moreover, any settlement of or adverse judgment resulting from litigation relating to intellectual property rights could require us to obtain a license to continue to make, use, import, sell or offer for sale the technology, products or services that is the subject of the claim, or otherwise restrict or prohibit our use of the technology, products or services.

Our ability to compete may decline if we do not adequately prosecute, maintain, protect and/or defend our proprietary technology, products or services or our intellectual property rights.

Our success depends in part on our ability to obtain patents and maintain adequate protection of our intellectual property rights directed to our technology, products and services in the United States and other countries. We have adopted a strategy of seeking patent protection in the United States and in foreign countries with respect to certain of the technology used in or relating to our products, services, and processes. As such, as of December 31, 2023, we owned or controlled approximately 1,990 active issued patents and pending patent applications in the United States and in various foreign jurisdictions. As of December 31, 2023, our patents and patent applications, if issued, have terms that expire between 2024 and approximately 2044. We also have license rights to a number of issued patents and pending patent applications in the United States and in various foreign jurisdictions. Our owned and licensed patents and patent applications include those directed to our enabling technology and to the methods and products that support our business in the pharmaceutical manufacturing, life sciences, oligonucleotide synthesis, and other markets. We intend to continue to apply for patents relating to our technology, methods, services and products as we deem appropriate.

Issuance of claims in patent applications and enforceability of such claims once issued involve complex legal and factual questions and, therefore, we cannot predict with any certainty whether any of our issued patents will survive invalidity claims asserted by third parties. Issued patents and patents issuing from pending applications may be challenged, invalidated, circumvented, rendered unenforceable or substantially narrowed in scope. In addition, the inventorship and ownership of the patents and patent applications may be challenged by others. Moreover, the United States Leahy-Smith America Invents Act ("AIA"), enacted in September 2011, brought significant changes to the United States patent system, which include a change to a "first to file" system from a "first to invent" system and changes to the procedures for challenging issued patents and disputing patent applications during the examination process, among other things. While interference proceedings are possible for patent claims filed prior to March 16, 2013, many of our filings will be subject to the post- and pre-grant proceedings set forth in the AIA, including citation of prior art and written statements by third parties, third party pre-issuance submissions, ex parte reexamination, inter partes review, post-grant review, and derivation proceedings. We may need to utilize the processes provided by the AIA for supplemental examination or patent reissuance. These proceedings could result in substantial cost to us even if the outcome is favorable. Even if successful, any proceeding may result in loss of certain claims. Any litigation or proceedings could divert our management's time and efforts. Even unsuccessful claims brought by third parties could result in significant legal fees and other expenses, diversion of management time, and disruption in our business. Uncertainties resulting from initiation and continuation of any patent or related litigation could harm our ability to compete.

Additional uncertainty may result from legal precedent handed down by the United States Federal Circuit Court and Supreme Court as they determine legal issues concerning the scope and construction of patent claims and inconsistent interpretation of patent laws by the lower courts. Accordingly, 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, our licensors', and other companies' patents. Given that the degree of future protection for our proprietary rights is uncertain, we cannot ensure that: (i) we or our licensors were the first to invent the inventions covered by each of our pending applications, (ii) we or our licensors were the first to file patent applications for these inventions, or (iii) the proprietary technology, products or services we develop will be patentable. In addition, unauthorized parties may attempt to copy or otherwise obtain and use our technology, products and services. Monitoring unauthorized use of our intellectual property rights is difficult, and we cannot be certain that the steps we have taken will prevent unauthorized use of our technology, products or services, 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 products made using our inventions into the United States or other countries. If competitors are able to use our proprietary technology, products or services, our ability to compete effectively could be harmed. In addition, others may independently develop and obtain patents for technologies, products or services that are similar to or superior to our technologies, products or services. If that happens, we may need to license these technologies, products or services, and we may not be able to obtain licenses on reasonable terms, if at all, which could cause harm to our business.

Similarly, foreign courts have made, and will likely continue to make, changes in how the patent laws in their respective jurisdictions are interpreted. Changes in patent laws and regulations in other countries or jurisdictions, changes in the governmental bodies that enforce them, or changes in how the relevant governmental authority enforces patent laws or regulations may weaken our ability to obtain new patents or to enforce patents that we own or may obtain in the future. For example, in some cases, we have filed for unitary patent protection under the rules implemented on June 1, 2023, in the European Patent Office. We will continue to assess this route of protection on a case-by-case basis, as applications are filed and patents are granted through the European Patent Office. This may alter our ability to protect our patents in some European countries. Further, the laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws of the United States. For example, in some foreign jurisdictions, governments have the right to compel patent owners to grant others licenses to their intellectual property under certain circumstances. In addition, any protection afforded by foreign patents may be more limited than that provided under U.S. patent and intellectual property laws. We may encounter significant problems in enforcing and defending our intellectual property both in the United States and abroad. For example, if the issuance in a given country of a patent covering an invention is not followed by the issuance in other countries of patents covering the same invention, or if any judicial interpretation of the validity, enforceability or scope of the claims or the written description or enablement in a patent issued in one country is not similar to the interpretation given to the corresponding patent issued in other countries, our ability to protect our intellectual property rights in those countries may be limited. Changes in either patent laws or in interpretations of patent laws in the United States and other countries may materially diminish the value of our intellectual property rights or narrow the scope of our patent protection. We cannot predict future changes in the interpretation of patent laws or changes to patent laws that might be enacted into law by U.S. and foreign legislative bodies. Those changes may materially affect our patents or patent applications and our ability to obtain additional patent protection in the future. Any of the foregoing could have a material adverse effect on our competitive position, business, financial condition, results of operations and prospects.

Third parties may claim that we are infringing, violating or misappropriating their intellectual property rights, which may subject us to costly and time-consuming litigation and prevent us from developing or commercializing our technology, products or services.

Our commercial success also depends in part on our ability to operate without infringing, violating or misappropriating patents and other intellectual property rights of third parties, and without breaching any licenses or other agreements that we have entered into with regard to our technologies, products or services. We cannot ensure that patents have not been issued, or will not be issued, to third parties that could block our ability to obtain patents or to operate as we would like. There may be patents in some countries that, if valid, may block our ability to make, use, sell, or offer for sale our technology, products or services in those countries, or import our products into those countries, if we are unsuccessful in circumventing or acquiring rights to these patents. There also may be claims in patent applications filed in some countries that, if granted and valid, may also block our ability to commercialize technology, products, services or processes in these countries if we are unable to circumvent or obtain rights to them.

The industries in which we operate and the biotechnology industry, in particular, are characterized by frequent and extensive litigation regarding patents and other intellectual property rights. Many biotechnology companies have employed intellectual property litigation as a way to gain a competitive advantage. We are aware of some patents and patent applications relating to aspects of our technologies, products or services filed by, and issued to, third parties. We cannot assure that if such third-party patents rights are asserted against us that we would ultimately prevail. Any involvement in litigation or other intellectual property proceedings inside and/or outside of the United States to defend against claims that we infringe, misappropriate or violate the intellectual property rights of others may divert our management's time from focusing on business operations and could cause us to spend significant amounts of money. Any potential intellectual property litigation also could force us to do one or more of the following:

- stop making, using, selling or importing our technologies, products and services that use the subject intellectual property;
- pay monetary damages to the third party asserting claims against us;
- grant or transfer rights to third parties relating to our patents or other intellectual property rights;
- obtain from the third party asserting its intellectual property rights a license to make, sell, offer for sale, import or use the relevant technology, product or service, which license may not be available on reasonable terms, or at all; or

- redesign those technologies, products, services or processes that use any allegedly infringing, misappropriated or violated intellectual property rights, or relocate the operations relating to the allegedly infringing, misappropriated or violated intellectual property rights to another jurisdiction, which may result in significant cost or delay to us, could be technically infeasible or could prevent us from making, selling, offering for sale, using or importing some of our technologies, products or services in the United States or other jurisdictions.

We may be involved in lawsuits to protect or enforce our intellectual property rights, which could be expensive, time-consuming and unsuccessful.

Competitors may infringe, violate or misappropriate our intellectual property rights or those of our licensors. To prevent infringement, violation, misappropriation or other unauthorized use, we have in the past filed, and may in the future be required to file, enforcement claims, which can be expensive and time-consuming. In addition, in an enforcement proceeding, a court may decide that the intellectual property right that we own or control is not valid, is unenforceable and/or is not infringed, violated or misappropriated. In addition, in legal proceedings against a third party to enforce a patent directed at one of our technologies, products or services, the defendant could counterclaim that our patent is invalid and/or unenforceable in whole or in part. In patent enforcement litigation in the United States, defendant counterclaims alleging invalidity and/or unenforceability are commonplace. Grounds for a patent validity challenge include an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness or non-enablement. Grounds for an unenforceability assertion could include an allegation that someone connected with prosecution of the patent withheld relevant information from the United States Patent and Trademark Office ("USPTO") or made a misleading statement during prosecution. Third parties may also raise similar claims before the USPTO, even outside the context of enforcement litigation. The outcome following legal assertions of invalidity and unenforceability is unpredictable, and prior art could render our patents or those of our licensors invalid. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, we would lose at least part, and perhaps all, of the patent protection on the respective technology, products or services. Such a loss of patent protection could have a material adverse impact on our business.

Even if resolved in our favor, litigation or other legal proceedings relating to our intellectual property rights may cause us to incur significant expenses and could distract our technical and management personnel from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Such litigation or proceedings could substantially increase our expenses and reduce the resources available for operations and research and development activities. We may not have sufficient financial or other resources to conduct such litigation or proceedings adequately. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could compromise our ability to compete in the marketplace. Furthermore, because of the substantial amount of discovery required in connection with U.S. intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation.

We may not be able to enforce our intellectual property rights throughout the world.

The laws of some foreign countries where we do business do not protect intellectual property rights to the same extent as the laws of the United States. Many companies have encountered significant problems in protecting and enforcing intellectual property rights in certain foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property rights, particularly those relating to biotechnology technologies. Accordingly, our efforts to protect and enforce our intellectual property rights in such countries may be inadequate. This could make it difficult for us to stop the infringement, violation or misappropriation of our patents or other intellectual property rights. Additionally, proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business.

If our biocatalysts, or the genes that code for our biocatalysts, are stolen, misappropriated or reverse engineered, others could use these biocatalysts or genes to produce competing products.

Third parties, including our contract manufacturers, customers and those involved in shipping our biocatalysts, often have custody or control of our biocatalysts. If our biocatalysts, or the genes that code for our biocatalysts, were stolen, misappropriated or reverse engineered, they could be used by other parties who may be able to reproduce these biocatalysts for their own commercial gain. If this were to occur, it may be difficult for us to challenge this type of use, especially in countries with limited intellectual property rights protection or in countries in which we do not have patents covering the misappropriated biocatalysts.

Confidentiality and non-use agreements with employees, consultants, advisors and other third parties may not adequately prevent disclosures and non-use of trade secrets and other proprietary information.

In addition to patent protection, we also rely on other intellectual property rights, including protection of copyright, trade secrets, know-how and/or other proprietary information that is not patentable or that we elect not to patent. However, trade secrets can be difficult to protect, and some courts are less willing or unwilling to protect trade secrets. To maintain the confidentiality of our trade secrets and proprietary information, we rely in part on trade secret law and contractual agreements to protect our confidential and proprietary information and processes. We generally enter into confidentiality and invention assignment agreements with our employees, consultants and third parties working on our behalf upon their commencement of a relationship with us. However, trade secrets and confidential information are difficult to protect and we cannot guarantee that we have entered into such agreements with each party that may have or have had access to our trade secrets or proprietary technology and processes and we may not enter into such agreements with all employees, consultants and third parties who have been involved in the development of our intellectual property rights. Nevertheless, without our permission or awareness, our confidential and proprietary information may be disclosed to third parties, used by the respective individuals for purposes other than for the Company's business, or obtained through illegal means, such that third parties could reverse engineer our biocatalysts, enzyme products and processes, to attempt to develop the same technology or develop substantially equivalent technology.

Costly and time-consuming litigation could be necessary to enforce and determine the scope of our confidential and proprietary rights, and failure to protect our trade secrets could adversely affect our competitive business position. If any of our trade secrets were lawfully obtained, we may be unable to prevent them, or those to whom they communicate it, from using that technology or information to compete with us or disclosing it publicly. Therefore, these events could have a material adverse effect on our business, financial condition and results of operations. In particular, a failure to protect our proprietary rights may allow competitors to copy our technology, which could adversely affect our pricing and market share.

In addition to contractual measures, we try to protect the confidential nature of our proprietary information by maintaining physical security of our premises and electronic security of our information technology systems. Such security measures may not, for example, in the case of misappropriation of a trade secret by an employee, consultant or other third party with authorized access or with unauthorized access but an intent to steal, provide adequate protection for our proprietary information. Our security measures may not prevent such employee, consultant or other third party from misappropriating our trade secrets and using them or providing them to a competitor, and recourse we take against such misconduct may not provide an adequate remedy to protect our interests fully. While we use commonly accepted security measures, trade secret violations are often a matter of state law in the United States, and the criteria for protection of trade secrets can vary among different jurisdictions. If the steps we have taken to maintain our trade secrets are deemed inadequate, we may have insufficient recourse against third parties for misappropriating the trade secret.

Risks Related to Owning our Common Stock

We are subject to anti-takeover provisions in our certificate of incorporation and bylaws and under Delaware law that could delay or prevent an acquisition of our company, even if the acquisition would be beneficial to our stockholders.

Provisions in our amended and restated certificate of incorporation and our bylaws may delay or prevent an acquisition of the Company. Among other things, our amended and restated certificate of incorporation and bylaws provide for a board of directors which is divided into three classes, with staggered three-year terms and provide that all stockholder action must be effected at a duly called meeting of the stockholders and not by a consent in writing, and further provide that only our board of directors, the chairman of the board of directors, our chief executive officer or president may call a special meeting of the stockholders. In addition, our amended and restated certificate of incorporation allows our board of directors, without further action by our stockholders, to issue up to 5,000,000 shares of preferred stock in one or more series and to fix the rights, preferences, privileges and restrictions thereof. These provisions may also frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors, who are responsible for appointing the members of our management team. Furthermore, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law ("DGCL") which prohibits, with some exceptions, stockholders owning in excess of 15% of our outstanding voting stock from merging or combining with us. Finally, our charter documents establish advanced notice requirements for nominations for election to our board of directors and for proposing matters that can be acted upon at stockholder meetings. Although we believe these provisions together provide for an opportunity to receive higher bids by requiring potential acquirers to negotiate with our board of directors, they would apply even if an offer to acquire our company may be considered beneficial by some stockholders.

Our bylaws designate a state or federal court located within the State of Delaware as the sole and exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us our current or former directors, officers, stockholders, or other employees.

Our bylaws provide that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for (i) any derivative action or proceeding brought on behalf of us under Delaware law, (ii) any action asserting a claim of breach of a fiduciary duty owed by any current or former director, officer, or other employee of the Company to us or our stockholders, (iii) any action asserting a claim against us or any of our directors, officers, or other employees arising pursuant to any provision of the DGCL or our certificate of incorporation or bylaws (as either may be amended from time to time), (iv) any action asserting a claim against us governed by the internal affairs doctrine, or (v) any other action asserting an "internal corporate claim," as defined under Section 115 of the DGCL. The forgoing provisions do not apply to any claims arising under the Securities Act and, unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States will be the sole and exclusive forum for resolving any action asserting a claim arising under the Securities Act.

These choice of forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or any of our current or former directors, officers, or other employees, which may discourage lawsuits with respect to such claims. There is uncertainty as to whether a court would enforce such provisions, and the enforceability of similar choice of forum provisions in other companies' charter documents has been challenged in legal proceedings. It is possible that a court could find these types of provisions to be inapplicable or unenforceable, and if a court were to find the choice of forum provision to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could harm our business, results of operations or financial condition.

Our quarterly or annual operating results may fluctuate in the future. As a result, we may fail to meet or exceed the expectations of research analysts or investors, which could cause our stock price to decline.

Our financial condition and operating results have varied significantly in the past and may continue to fluctuate from quarter to quarter and year to year in the future due to a variety of factors, many of which are beyond our control. Factors relating to our business that may contribute to these fluctuations include the following factors, as well as other factors described elsewhere in this report:

- our ability to achieve or maintain profitability;
- our dependence on a limited number of customers;
- our product supply agreements with customers have finite duration, may not be extended or renewed and generally do not require the customer to purchase any particular quantity or quantities of our products;
- with respect to customers purchasing our products for the manufacture of active pharmaceutical ingredients for which they have exclusivity due to patent protection, the termination or expiration of such patent protection and any resulting generic competition may materially and adversely affect our revenues, financial condition or results of operations;
- our dependence on a limited number of products in our performance enzymes business;
- our reliance on a limited number of contract manufacturers for large scale production of substantially all of our enzyme products;
- our relationships with, and dependence on, collaborators in our principal markets;
- our ability to successfully and timely develop and commercialize new products, including our ECO Synthesis™ manufacturing platform, for the markets we serve;
- the potential of GSK, Merck, Novartis or any other performance enzyme customer terminating their agreements with us;
- the success of our customers' products in the market and the ability of such customers to obtain regulatory approvals for products and processes;
- our ability to deploy our technology platform in life science tools markets;

- our dependence on our collaborators or customers' product candidates which could unexpectedly fail at any stage of preclinical or clinical development;
- our dependence on our collaborators or customers' product candidates which may lack the ability to work as intended or cause undesirable side effects;
- our ability to successfully prosecute and protect our intellectual property;
- our ability to compete if we do not adequately protect our proprietary technologies or if we lose some of our intellectual property rights;
- our ability to avoid infringing the intellectual property rights of third parties;
- our involvement in lawsuits to protect or enforce our patents or other intellectual property rights;
- our ability to enforce our intellectual property rights throughout the world;
- our dependence on, and the need to attract and retain, key management and other personnel;
- our ability to prevent the theft or misappropriation of our biocatalysts, the genes that code for our biocatalysts, know-how or technologies;
- our ability to protect our trade secrets and other proprietary information from disclosure by employees and others;
- our ability to obtain substantial additional capital that may be necessary to expand our business;
- our ability to comply with the terms of our Loan Agreement;
- our ability to timely pay debt service obligations;
- our customers' ability to pay amounts owed to us in a timely manner;
- our ability to avoid charges to earnings as a result of any impairment of goodwill, intangible assets or other long-lived assets;
- changes in financial accounting standards or practices may cause adverse, unexpected financial reporting fluctuations and affect our reported results of operations;
- our ability to maintain effective internal control over financial reporting;
- our dependency on information technology systems, infrastructure and data;
- our ability to control and to improve product gross margins;
- our ability to protect against risks associated with the international aspects of our business;
- the cost of compliance with EU chemical regulations;
- potential advantages that our competitors and potential competitors may have in securing funding or developing products;
- our ability to accurately report our financial results in a timely manner;
- results of regulatory tax examinations;
- market and economic conditions may negatively impact our business, financial condition, and share price;
- business interruptions due to natural disasters, disease outbreaks or other events beyond our control;
- public concerns about the ethical, legal and social ramifications of genetically engineered products and processes;
- our ability to integrate our current business with any businesses that we may acquire in the future;
- our ability to properly handle and dispose of hazardous materials in our business;
- potential product liability claims;

- changes to tax law and related regulations could materially affect our tax obligations and effective tax rate; and
- our ability to use our NOLs to offset future taxable income.

Due to the various factors mentioned above, and others, the results of any prior quarterly or annual periods should not be relied upon as indications of our future operating performance.

We do not intend to pay cash dividends for the foreseeable future.

We currently intend to retain our future earnings, if any, to finance the further development and expansion of our business and do not intend to pay cash dividends in the foreseeable future. Any future determination to pay dividends will be at the discretion of our board of directors and will depend on our financial condition, results of operations, capital requirements, restrictions contained in future agreements and financing instruments, business prospects and such other factors as our board of directors deems relevant.

General Risk Factors

If securities or industry analysts do not publish research or reports about our business, or publish negative reports about our business, our stock price and trading volume could decline.

The trading market for our common stock will be influenced by the research and reports that securities or industry analysts publish about us or our business. We do not have any control over these analysts. If one or more of the analysts who cover us downgrade our stock or change their opinion of our stock in a negative manner, our stock price would likely decline. If one or more of these analysts cease coverage of our company or fail to regularly publish reports on us, we could lose visibility in the financial markets, which could cause our stock price or trading volume to decline.

We face risks associated with our international business.

While we have a limited number of employees located outside of the United States, we are and will continue to be dependent upon contract manufacturers located outside of the United States. In addition, 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 U.S. or foreign laws or 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 foreign subsidiaries or joint ventures;
- the imposition of limitations on genetically-engineered or other products or processes and the production or sale of those products or processes in foreign countries;
- currency exchange rate fluctuations;
- uncertainties relating to foreign laws, regulations and legal proceedings including pharmaceutical, 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.

Market and economic conditions may negatively impact our business, financial condition, and share price.

Concerns about inflation, energy costs, geopolitical issues, the United States mortgage market and a declining real estate market, unstable global credit markets and financial conditions, and volatile oil prices have led to periods of significant economic instability, diminished liquidity and credit availability, declines in consumer confidence and discretionary spending, diminished expectations for the global economy and expectations of slower global economic growth going forward, increased unemployment rates, and increased credit defaults in recent years. Our general business strategy may be adversely affected by any such economic downturns, volatile business environments and continued unstable or unpredictable economic and market conditions.

Recently, the closures of Silicon Valley Bank ("SVB") and Signature Bank ("Signature") and their placement into receivership with the Federal Deposit Insurance Corporation, and the government-brokered sale of the deposits and majority of assets of First Republic Bank to JPMorgan Chase, created bank-specific and broader financial institution liquidity risk and concerns. Although government intervention ensured that depositors at these banks have access to their funds, future adverse developments with respect to specific financial institutions or the broader financial services industry may lead to market-wide liquidity shortages, impair the ability of companies to access near-term working capital needs, and create additional market and economic uncertainty. There can be no assurance that future credit and financial market instability and a deterioration in confidence in economic conditions will not occur, and we cannot predict the impact or follow-on effects of these insolvencies more broadly or on our business in particular. Further, we cannot guarantee that the government will intervene to provide depositors with access to funds if similar events occur in the future. If other banks and financial institutions enter receivership or become insolvent in the future, our ability to access our existing cash, cash equivalents, and investments may be threatened, which could have a material adverse effect on our business and financial condition.

In addition, if the market and economic conditions described above continue to deteriorate or do not improve, it may make any necessary debt or equity financing more difficult to complete, more costly, and more dilutive. Failure to secure any necessary financing in a timely manner and on favorable terms could have a material adverse effect on our growth strategy, financial performance, and stock price. Additionally, rising rates of inflation have increased the costs associated with conducting our business, including by causing substantial increases in the costs of materials, including raw materials and consumables, equipment, services, and labor. Moreover, given the unpredictable nature of the current economic climate, including future changes in rates of inflation, it may be increasingly difficult for us to predict and control our future expenses, which may harm our ability to conduct our business.

Business interruptions resulting from disasters or other disturbances could delay us in the process of developing our products and could disrupt our sales. Our business continuity and disaster recovery plans may not adequately protect us from a serious disaster or other disturbance.

Our headquarters and other facilities are located in the San Francisco Bay Area, which in the past has experienced both severe earthquakes and wildfires. Earthquakes, wildfires or other natural disasters could severely disrupt our operations, and have a material adverse effect on our business, results of operations, financial condition and prospects. We are also vulnerable to other types of disasters and other events that could disrupt our operations, such as riot, civil disturbances, war, terrorist acts, public health emergencies, domestic or foreign conflicts, infections in our laboratory or production facilities or those of our customers or contract manufacturers and other events beyond our control. If a natural disaster or other event occurred that prevented us from using all or a significant portion of our headquarters, that damaged critical infrastructure, such as our enterprise financial systems or manufacturing resource planning and enterprise quality systems, or that otherwise disrupted operations, it may be difficult or, in certain cases, impossible, for us to continue our business for a substantial period of time. The disaster recovery and business continuity plans we have in place currently are limited and are unlikely to prove adequate in the event of a serious disaster or similar event, and we may incur substantial expenses as a result of the limited nature of such plans. We do not carry insurance for earthquakes and we may not carry sufficient business interruption insurance to compensate us for losses that may occur. Any losses or damages we incur could have a material adverse effect on our cash flows and success as an overall business.

We are dependent on information technology systems, infrastructure and data, and any failure of these systems could harm our business. Security breaches, loss of data and other disruptions could compromise sensitive information related to our business or prevent us from accessing critical information and expose us to liability, which could adversely affect our business, results of operations and financial condition.

Information technology helps us operate efficiently, interface with customers, maintain financial accuracy and efficiency and accurately produce our financial statements. If we do not allocate and effectively manage the resources necessary to build and sustain the proper technology infrastructure, we could be subject to transaction errors, processing inefficiencies, the loss of customers, business disruptions or the loss of or damage to intellectual property through security breach. If our information technology systems do not effectively collect, store, process and report relevant data for the operation of our business, whether due to equipment malfunction or constraints, software deficiencies, or human error, our ability to effectively plan, forecast and execute our business plan and comply with applicable laws and regulations will be impaired, perhaps materially. Our information technology systems and those of our external vendors, strategic partners and other contractors or consultants are vulnerable to attack and damage or interruption from computer viruses and malware (e.g. ransomware), malicious code, natural disasters, terrorism, war, telecommunication and electrical failures, hacking, cyberattacks, phishing attacks and other social engineering schemes, employee theft or misuse, human error, fraud, denial or degradation of service attacks, sophisticated nation-state and nation-state-supported actors or unauthorized access or use by persons inside our organization, or persons with access to systems inside our organization. Any such impairment could materially and adversely affect our financial condition, results of operations, cash flows and the timeliness with which we report our internal and external operating results.

Our business may require us to use and store personal information of our customers, employees, and business partners. This may include names, addresses, phone numbers, email addresses, contact preferences, tax identification numbers and payment account information. We require usernames and passwords in order to access our information technology systems. We also use encryption and authentication technologies to secure the transmission and storage of data. However, these security measures may be compromised as a result of security breaches by unauthorized persons, employee error, malfeasance, faulty password management or other irregularity, and result in persons obtaining unauthorized access to our data or accounts. Third parties may attempt to fraudulently induce employees or customers into disclosing usernames, passwords or other sensitive information, which may in turn be used to access our information technology systems. For example, our employees have received “phishing” emails and phone calls attempting to induce them to divulge passwords and other sensitive information.

In addition, unauthorized persons may attempt to hack into our products or systems to obtain personal data relating to employees and other individuals, our confidential or proprietary information or confidential information we hold on behalf of third parties. We also rely on external vendors to supply and/or support certain aspects of our information technology systems. The systems of these external vendors may contain defects in design or manufacture or other problems that could unexpectedly compromise information security of our own systems, and we are dependent on these third parties to deploy appropriate security programs to protect their systems. If we or our third-party vendors were to experience a significant cybersecurity breach of our or their information systems or data, the costs associated with the investigation, remediation and potential notification of the breach to counterparties and data subjects could be material. Our remediation efforts may not be successful. Further, if such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our development programs and our business operations, whether due to a loss, corruption or unauthorized disclosure of our trade secrets, personal information or other proprietary or sensitive information or other similar disruptions. Attacks upon information technology systems are also increasing in their frequency, levels of persistence, sophistication and intensity, and are being conducted by sophisticated and organized groups and individuals with a wide range of motives and expertise. As a result of the remote work policies we initiated in response to the COVID-19 pandemic, and our continued hybrid working environment, we may also face increased cybersecurity risks due to our reliance on internet technology and the number of our employees who are working remotely, which may create additional opportunities for cybercriminals to exploit vulnerabilities. We have programs in place to detect, contain and respond to data security incidents, and we make ongoing improvements to our information-sharing products in order to minimize vulnerabilities, in accordance with industry and regulatory standards. However, because the techniques used to obtain unauthorized access to or sabotage systems change frequently and may be difficult to detect, we may not be able to anticipate and prevent these intrusions or mitigate them when and if they occur. Even if identified, we may be unable to adequately and timely investigate or remediate incidents or breaches due to attackers increasingly using tools and techniques that are designed to circumvent controls, to avoid detection and to remove or obfuscate forensic evidence.

We and certain of our external vendors are from time to time subject to cyberattacks and security incidents. While we do not believe that we have experienced any significant system failure, accident, or security breach to date, if such an event were to occur, it could result in the unauthorized access to or unauthorized use, disclosure, release or other processing of personal information, it may be necessary to notify individuals, governmental authorities, supervisory bodies, the media and other parties pursuant to privacy and security laws. Any security compromise affecting us, our service providers, vendors, strategic partners, other contractors, consultants or our industry, whether real or perceived, could harm our reputation, erode confidence in the effectiveness of our security measures and lead to regulatory scrutiny. To the extent that any disruption or security breach were to result in a loss of, or damage to, our data or systems, or inappropriate disclosure of confidential or proprietary or personal information, we could incur liability, including litigation exposure, penalties and fines, which may not be covered by insurance or may be in excess of our insurance coverage. Additionally, we could become the subject of regulatory action or investigation, our competitive position could be harmed and the further development of our products could be delayed. If such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our business and could materially and adversely affect our business, results of operations and financial condition.

Actual or perceived failures to comply with applicable data protection, privacy and security laws, regulations, standards and other requirements could adversely affect our business, results of operations and financial condition.

The global data protection landscape is rapidly evolving, and we are or may become subject to state, federal and foreign laws, regulations, decisions and directives governing the privacy, security, collection, storage, transmission, use, processing, retention and disclosure of personal information. Any failure or perceived failure by us to comply with applicable laws or regulations, our internal policies and procedures or our contracts governing our processing of personal information could result in negative publicity, government investigations and enforcement actions, claims by third parties and damage to our reputation, any of which could have a material adverse effect on our operations, financial performance and business.

In the United States, HIPAA imposes, among other things, certain standards relating to the privacy, security, transmission and breach reporting of certain individually identifiable health information. Certain states have also adopted and continue to adopt new privacy and security laws and regulations, which govern the privacy, processing and protection of health-related and other personal information. Such laws and regulations will be subject to interpretation by various courts and other governmental authorities, thus creating potentially complex compliance issues for us and our future customers and strategic partners. For example, the California Consumer Privacy Act ("CCPA") went into effect on January 1, 2020. The CCPA creates individual privacy rights for California consumers and increases the privacy and security obligations of entities handling certain personal information. The CCPA also provides for civil penalties for violations, as well as a private right of action for data breaches (which has increased the likelihood of, and risks associated with, data breach litigation). Further, the California Privacy Rights Act ("CPRA") significantly amended the CCPA, which went into effect in January 2023. It imposes additional data privacy obligations on covered businesses, including additional consumer rights processes, limitations on data uses, new audit requirements for higher risk data and opt outs for certain uses of sensitive data. It also created a new California privacy protection agency authorized to issue substantive regulations and could result in increased privacy and information security enforcement. Additional compliance investment and potential business process changes may also be required. Similar laws regulating personal information generally or health information in particular have passed in more than a dozen states and have been proposed in other states and at the federal level, reflecting a trend toward more stringent privacy legislation in the United States. These developments increase our compliance burden and our risk, including risks of regulatory fines, litigation and associated reputational harm. Any liability from failure to comply with the requirements of these laws could adversely affect our financial condition.

Furthermore, the Federal Trade Commission ("FTC") and many state Attorneys General continue to enforce federal and state consumer protection laws against companies for the collection, use, sharing and security of personal information that appear to be unfair or deceptive. For example, according to the FTC, failing to take appropriate steps to keep consumers' personal information secure can constitute unfair acts or practices in or affecting commerce in violation of Section 5(a) of the Federal Trade Commission Act. The FTC expects a company's data security measures to be reasonable and appropriate in light of the sensitivity and volume of consumer information it holds, the size and complexity of its business, and the cost of available tools to improve security and reduce vulnerabilities.

In the European Union ("EU"), the EU General Data Protection Regulation ("EU GDPR") governs the processing of personal data. The UK has implemented the EU GDPR as the UK GDPR which sits alongside the UK Data Protection Act 2018 (the "UK GDPR", and together with the EU GDPR, the "GDPR"). The GDPR imposes requirements for controllers, including (among others) specific requirements for obtaining valid consent where consent is the legal basis for processing, requirements around accountability and transparency, the obligation to consider data protection when any new products or services are developed, the obligation to comply with individuals' data protection rights, and the obligation to notify relevant data supervisory authorities of notifiable personal data breaches without undue delay (and no later than 72 hours) after becoming aware of the personal data breach (and affected data subjects where the personal data breach is likely to result in a high risk to their rights and freedoms). The EU GDPR provides that EU member states may enact their own additional national laws and regulations regarding the processing of genetic, biometric or health data, which could affect our ability to use and share personal data or could cause our costs to increase and potentially harm our business and financial condition. Failure to comply with the requirements of the GDPR can result in (among other things) fines of up to the greater of €20 million (under the EU GDPR) or £17.5 million (under the UK GDPR) or 4% of an organization's total worldwide annual turnover of the preceding financial year and other administrative penalties. To the extent that we are subject to the GDPR, compliance with the GDPR may require substantial amendments to our procedures and policies and these changes could adversely impact our business by increasing operational and compliance costs or impact business practices. Further, there is a risk that the amended policies and procedures will not be implemented correctly or that individuals within the business will not be fully compliant with the new procedures. There is a risk that we could be impacted by a cybersecurity incident that results in loss or unauthorized disclosure of personal data, potentially resulting in us facing harms similar to those described above.

Among other requirements, the EU GDPR prohibits the international transfer of personal data subject to the GDPR from the European Economic Area ("EEA") to third countries that the European Commission does not recognize as having an 'adequate' level of data protection, unless a data transfer mechanism has been put in place or a derogation under the EU GDPR can be relied on. In July 2020, the Court of Justice of the EU in its Schrems II judgement limited how organizations could lawfully transfer personal data from the EEA to the United States by invalidating the EU-U.S. Privacy Shield for purposes of international transfers and imposing further restrictions on the use of standard contractual clauses ("EU SCCs"), including a requirement for companies to carry out a transfer privacy impact assessment ("TIA"). A TIA, among other things, assesses laws governing access to personal data in the recipient country and considers whether supplementary measures that provide privacy protections additional to those provided under the EU SCCs will need to be implemented to ensure an 'essentially equivalent' level of data protection to that afforded in the EEA.

On October 7, 2022, U.S. President Biden introduced an Executive Order to facilitate a new Trans-Atlantic Data Privacy Framework ("DPF") and in July 2023, the European Commission adopted its Final Implementing Decision granting the United States adequacy ("Adequacy Decision") for EU-U.S. transfers of personal data for entities self-certified to the DPF. Entities relying on EU SCCs for transfers to the United States are also able to rely on the analysis in the Adequacy Decision as support for their TIA regarding the equivalence of U.S. national security safeguards and redress.

The UK GDPR also imposes similar restrictions on transfers of personal data from the UK to jurisdictions that the UK Government does not consider adequate, including the United States. The UK Government has published its own form of the EU SCCs, known as the International Data Transfer Agreement and an International Data Transfer Addendum to the new EU SCCs. The UK Information Commissioner's Office has also published its own version of the TIA and guidance on international transfers, although entities may choose to adopt either the EU or UK-style TIA. Further, on September 21, 2023, the UK Secretary of State for Science, Innovation and Technology established a UK-U.S. data bridge (i.e., a UK equivalent of the Adequacy Decision) and adopted UK regulations to implement the UK-U.S. data bridge ("UK Adequacy Regulations"). Personal data may now be transferred from the UK under the UK-U.S. data bridge through the UK extension to the DPF to organizations self-certified under the UK extension to DPF.

As we continue to expand into other foreign countries and jurisdictions, we may be subject to additional laws and regulations that may affect how we conduct business.

Although we work to comply with applicable laws, regulations and standards, our contractual obligations and other legal obligations, these requirements are evolving and may be modified, interpreted and applied in an inconsistent manner from one jurisdiction to another, and may conflict with one another or other legal obligations with which we must comply. Various federal, state and foreign legislative or regulatory bodies may enact new or additional laws and regulations concerning privacy, data-retention and data-protection issues, including laws or regulations mandating disclosure to domestic or international law enforcement bodies, which could adversely impact our business or our reputation with customers. For example, some countries have adopted laws mandating that certain personal information regarding customers in their country be maintained solely in their country. Having to maintain local data centers and redesign product, service and business operations to limit processing of personal information to within individual countries could increase our operating costs significantly. Any failure, or perceived failure, by us to comply with federal, state or international privacy, data-retention or data-protection-related laws, regulations, orders or industry self-regulatory principles could result in proceedings or actions against us by governmental entities or others, a loss of customer confidence, damage to our brand and reputation and a loss of customers, any of which could have an adverse effect on our business.

Evolving expectations around corporate responsibility practices, specifically related to environmental, social and governance ("ESG") matters, may expose us to reputational and other risks.

Investors, stockholders, customers, suppliers and other third parties are increasingly focusing on ESG and corporate social responsibility endeavors and reporting. Companies that do not adapt to or comply with the evolving investor or stakeholder expectations and standards, or that are perceived to have not responded appropriately, may suffer from reputational damage, which could result in the business, financial condition and/or stock price of a company being materially and adversely affected. For example, certain customers have inquired about our ESG practices and may impose ESG guidelines, procurement policies, sustainability standards, mandates or reporting requirements for, and may scrutinize relationships more closely with, their suppliers, including us, which may lengthen sales cycles, increase our costs or impair our ability to attract and retain customers. Further, this increased focus on ESG issues may result in new regulations, international accords and/or third-party requirements that could adversely impact our business, or certain shareholders reducing or eliminating their holdings of our stock. An allegation or perception that we have not taken sufficient action in these areas could negatively harm our reputation. Additionally, the subjective nature and wide variety of methods and processes used by various stakeholders, including investors, to assess environmental, social, and governance criteria could result in a negative perception or misrepresentation of the company's sustainability policies and practices.

ITEM 1B. UNRESOLVED STAFF COMMENTS

Not applicable.

ITEM 1C. CYBERSECURITY

Risk Management and Strategy

In the normal course of business, we may collect and store personal information and other sensitive information, including proprietary and confidential business information, trade secrets, intellectual property, sensitive third-party information and employee information. We assess and identify cybersecurity risk to such information by maintaining cybersecurity policies that require continuous monitoring and detection programs and network security precautions. Our program incorporates industry-standard frameworks, policies and practices designed to protect the privacy and security of our sensitive information.

We manage cybersecurity risks by maintaining various protections designed to safeguard against cyberattacks, including firewalls and virus detection software, and periodic end user training on common cybersecurity threats (e.g. phishing exercises and interactive trainings). We have established our disaster recovery plan and we protect against business interruption by backing up our major systems. In addition, we periodically scan our environment for any vulnerabilities, perform penetration testing and engage third parties to assess effectiveness of our data security practices. A third party security consultant conducts regular network security reviews, scans and audits, and we may consult with other external experts as warranted by a particular cybersecurity incident or threat. In addition, we maintain insurance that includes cybersecurity coverage.

Areas of cybersecurity risk are assessed bi-annually, and updates are reported by our Vice President of Information Technology ("VP IT") to the Board's Audit Committee and senior management annually. Where our bi-annual cybersecurity risk assessment identifies areas for improvement, we document and track our remediation activities, which are also reported to the Audit Committee and senior management annually. In this way, our program to manage cybersecurity risk integrates with our overall risk management processes.

With respect to third parties who provide services affecting critical business management systems, we collect and maintain SOC2 type II reports (attestation of controls at a service organization over a minimum six-month period). For other third-party service providers, cybersecurity risk is addressed as appropriate.

As of the date of this report, we are not aware of any risks from cybersecurity threats that have materially affected or are reasonably likely to materially affect us, including our business strategy, results of operations and financial condition. Despite the implementation of our cybersecurity program, our security measures cannot guarantee that a significant cyberattack will not occur. A successful attack on our information technology systems could have significant consequences to the business. While we devote resources to our security measures to protect our systems and information, these measures cannot provide absolute security. See "Risk Factors – General Risk Factors" for additional information about the risks to our business associated with a breach or compromise to our information technology systems.

Governance

The Company's Board of Directors has visibility into cybersecurity risks through its Audit Committee and through the process described below. The Audit Committee has oversight of the Company's cybersecurity risk management programs and the design and operating effectiveness thereof, and reviews reports from Company management on cybersecurity, data privacy and other risks relevant to the Company's computerized information system controls and security.

Areas of cybersecurity risk are assessed bi-annually, and updates are reported by the VP IT to the Audit Committee and senior management annually. Where our bi-annual cybersecurity risk assessment identifies areas for improvement, we document and track our remediation activities, which are also reported to the Audit Committee and senior management annually.

Senior management has appointed a Cybersecurity Council that is responsible for identifying, escalating, and facilitating the assessment and determination of the materiality of cybersecurity incidents and threats. The Cybersecurity Council is made up of representatives of IT, Legal and Finance, as well as ad hoc additional members depending on the circumstances of the incident or threat. The members of the Cybersecurity Council do not have specific expertise in cybersecurity risk other than the VP IT who has more than 20 years of experience, and engages with trusted third-party experts for support and guidance when additional expertise is required. Prior to joining Codexis, our VP IT has managed cybersecurity functions, where he was responsible for overseeing cybersecurity strategy and operations, including incident response, threat intelligence, security awareness training programs, risk assessments and remediation, and regulatory and compliance matters.

An actual or suspected cybersecurity incident that jeopardizes the confidentiality, integrity, or availability of Codexis' information systems or any information residing therein (or threat that presents significant risk to our information systems as identified by IT) is reported to the Cybersecurity Council by our IT Department. The focus of the Cybersecurity Council is on the investigation and facilitation of senior management's assessment and determination of materiality of an incident or threat, and such investigation is separate but contemporaneous with the investigation(s) done under other applicable programs, policies, and plans regarding cybersecurity. The Cybersecurity Council will liaise directly with other investigation(s) and share information and assessments. Along with assistance from the Cybersecurity Council as necessary, senior management reports its materiality determination and analysis, including necessary facts to support its determination, to the Audit Committee of the Board of Directors. Pursuant to its charter, the Audit Committee may, along with senior management, report such determination to the Board of Directors.

ITEM 2. PROPERTIES

FACILITIES

Our headquarters are located in Redwood City, California, where we lease approximately 77,300 square feet of office and laboratory space.

Our lease ("RWC Lease") with Metropolitan Life Insurance Company ("MetLife") includes approximately 28,200 square feet of space located at 200 and 220 Penobscot Drive, Redwood City, California (the "200/220 Penobscot Space"), approximately 37,900 square feet of space located at 400 Penobscot Drive, Redwood City, California (the "400 Penobscot Space") (the 200/220 Penobscot Space and the 400 Penobscot Space are collectively referred to as the "Penobscot Space"), and approximately 11,200 square feet of space located at 501 Chesapeake Drive, Redwood City, California (the "Chesapeake Space").

We entered into the initial lease with MetLife for our facilities in Redwood City in 2004 and the RWC lease has been amended multiple times since then to adjust the leased space and terms of the RWC Lease. In February 2019, we entered into an Eighth Amendment to the RWC Lease (the "Eighth Amendment") with MetLife with respect to the Penobscot Space and the 501 Chesapeake Space to extend the term of the RWC Lease for additional periods. Pursuant to the Eighth Amendment, the term of the lease of the Penobscot Space has been extended through May 2027. The lease term for the 501 Chesapeake Space has been extended to May 2029. We have one (1) option to extend the term of the lease for the Penobscot Space for five (5) years, and one (1) separate option to extend the term of the lease for the 501 Chesapeake Space for five (5) years.

In January 2021, we entered into a lease agreement with ARE-San Francisco No. 63, LLC ("ARE") to lease a portion of a facility comprising approximately 36,593 rentable square feet at 825 Industrial Road, San Carlos, California to serve as additional office and research and development laboratory space (the "San Carlos Space"). In December 2021, we commenced occupancy of the San Carlos Space. The lease term for the San Carlos Space was through the end of November 2031, with one (1) option to extend the term of the lease for the San Carlos Space for five (5) years.

In July 2023, we announced our plan to consolidate operations from our San Carlos facility to our headquarters in Redwood City. On September 1, 2023, the Company entered into an Assignment and Assumption of Lease (the "Assignment Agreement") with Vaxcyte, Inc. ("Vaxcyte") to assign to Vaxcyte all of the Company's right, title and interest in, under and to the San Carlos Space and the Lease Agreement, dated as of January 29, 2021. On September 6, 2023, the Company, Vaxcyte and ARE entered into a Consent to Assignment and First Amendment (the "Consent") pursuant to which ARE consented to the Assignment Agreement and the assignment by the Company and the assumption by Vaxcyte of the Company's interest as tenant in the lease and agreed to release the Company from all of its obligations under the lease that accrue from and after the assignment. The effective date of the assignment was October 1, 2023.

We believe that the facility that we currently lease in Redwood City, California is adequate for our needs for the immediate future and that, should it be needed, additional space can be leased to accommodate any future growth.

ITEM 3. LEGAL PROCEEDINGS

We are currently not a party to any material pending litigation or other material legal proceedings.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

MARKET INFORMATION

Our common stock is quoted on the Nasdaq Global Select Market ("Nasdaq"), under the symbol "CDXS."

As of February 23, 2024, there were approximately 125 stockholders of record. A substantially greater number of stockholders may be "street name" or beneficial holders, whose shares are held of record by banks, brokers and other financial institutions.

Dividend Policy

We have never declared or paid cash dividends on our common stock, and we currently do not plan to declare dividends on shares of our common stock in the foreseeable future. We expect to retain our future earnings, if any, for use in the operation and expansion of our business. In addition, unless waived, the terms of our Loan Agreement prohibit us from paying any cash dividends or making other distributions. The payment of cash dividends in the future, if any, will be at the discretion of our board of directors and will depend upon such factors as earnings levels, capital requirements, our overall financial condition and any other factors deemed relevant by our board of directors.

Securities Authorized for Issuance under Equity Compensation Plans

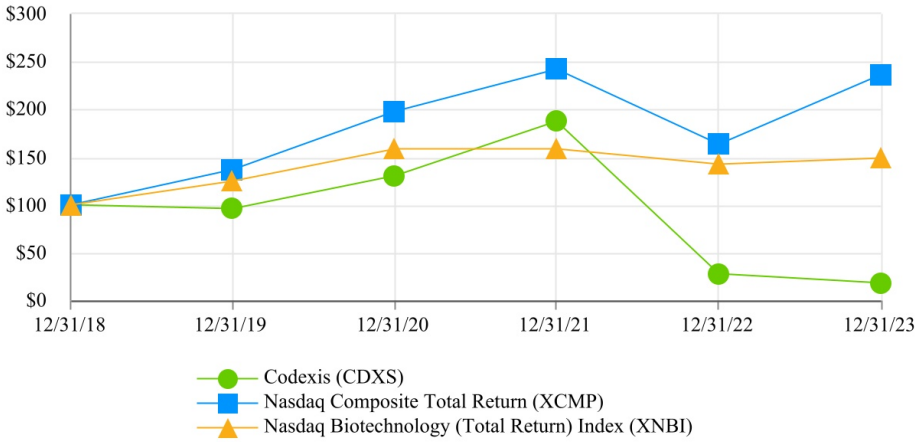
The information required by this item concerning securities authorized for issuance under equity compensation plans is incorporated by reference from the information that will be set forth in the Definitive Proxy Statement to be filed with the Securities and Exchange Commission in connection with the Annual Meeting of Stockholders to be held in 2024 (the "2024 Proxy Statement") under the heading "Executive Compensation—Equity Compensation Plan Information"

Stock Price Performance Graph

The following tabular information and graph compare our total common stock return with the total return for (i) the Nasdaq Composite Index and (ii) the Nasdaq Biotechnology Total Return Index for the period December 31, 2018 through December 31, 2023. The figures represented below assume an investment of $100 in our common stock at the closing price on December 31, 2018 and in the Nasdaq Composite Index and the Nasdaq Biotechnology Total Return Index on December 31, 2018 and the reinvestment of dividends into shares of common stock. The comparisons in the table and graph are required by the SEC and are not intended to forecast or be indicative of possible future performance of our common stock. The tabular information and graph shall not be deemed "soliciting material" or to be "filed" for purposes of Section 18 of the Exchange Act or otherwise subject to the liabilities under that Section, and shall not be deemed to be incorporated by reference into any of our filings under the Securities Act or the Exchange Act.

$100 investment in stock or index	Ticker	December 31,					
		2018	2019	2020	2021	2022	2023
Codexis, Inc.	CDXS	$ 100.00	$ 95.75	$ 130.72	$ 187.25	$ 27.90	$ 18.26
Nasdaq Composite Total Return	XCMP	$ 100.00	$ 136.69	$ 198.10	$ 242.03	$ 163.28	$ 236.17
Nasdaq Biotechnology (Total Return) Index	XNBI	$ 100.00	$ 125.11	$ 158.17	$ 158.20	$ 142.19	$ 148.72

Comparison of Cumulative Total Return
Among Codexis, Nasdaq Composite Index and Nasdaq
Biotechnology Index



Unregistered Sales of Equity Securities and Use of Proceeds

During the year ended December 31, 2023, we did not issue or sell any unregistered securities not previously disclosed in a Quarterly Report on Form 10-Q or in a Current Report on Form 8-K.

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 management's discussion and analysis of our financial condition and results of operations should be read in conjunction with our audited consolidated financial statements and the related notes thereto included elsewhere in this Annual Report on Form 10-K. This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). These statements include, but are not limited to, expectations regarding our strategy, business plans, financial performance and developments relating to our industry. These statements are often identified by the use of words such as "may," "will," "expect," "believe," "anticipate," "intend," "could," "should," "estimate," or "continue," and similar expressions or variations. Such forward-looking statements are subject to risks, uncertainties and other factors that could cause actual results and the timing of certain events to differ materially from future results expressed or implied by such forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those discussed in Part I, Item IA: "Risk Factors," of this Annual Report on Form 10-K and elsewhere in this report. The forward-looking statements in this Annual Report on Form 10-K represent our views as of the date of this Annual Report on Form 10-K. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we have no current intention of doing so except to the extent required by applicable law. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this Annual Report on Form 10-K.

Business Overview

We are a leading enzyme engineering company leveraging our proprietary CodeEvolver® technology platform to discover, develop, enhance, and commercialize novel, high performance enzymes and other classes of proteins. Enzymes are naturally occurring biological molecules critical to almost all biochemical reactions that sustain life. They can be precisely engineered and optimized for specific functions, and to have particular characteristics, such as an ability to survive environments in which natural enzymes cannot, or to perform (bio)chemical transformations different than those for which they naturally evolved. We focus on leveraging our capacity to enhance the properties and performance of enzymes to drive pivotal improvements across two key focus areas: our foundational, revenue-generating pharmaceutical manufacturing business and our Enzyme-Catalyzed Oligonucleotide (ECO) Synthesis™ ("ECO Synthesis™") manufacturing platform, which is currently in development to enable the commercial scale manufacture of RNA interference (RNAi) therapeutics. Our unique enzymes drive improvements such as higher yields, increased purity, reduced energy usage and waste generation, and improved efficiency in manufacturing. In July 2023, we announced that we discontinued investment in certain development programs, primarily in our novel biotherapeutics business segment and that we are actively exploring options to drive value by potentially monetizing other non-core assets within our Life Sciences portfolio.

Within the pharmaceutical manufacturing business, we utilize our CodeEvolver® technology platform to develop optimized enzymes that are used by some of the world's largest pharmaceutical companies to reduce their costs and improve the efficiency and productivity of their manufacturing processes for small molecule therapeutics. We also use the CodeEvolver® technology platform to develop enzymes for the synthesis of nucleic acids such as DNA/RNA, including our ECO Synthesis™ manufacturing platform. We demonstrated gram-scale synthesis with the ECO Synthesis™ manufacturing platform in December 2023 and expect to begin pre-commercial customer testing in 2024. We anticipate that this will be followed by early commercial licenses to the ECO Synthesis™ manufacturing platform in 2025 and a full commercial launch in 2026.

Recent Developments

On February 13, 2024, we entered into a five-year loan and security agreement with Innovatus Life Sciences Lending Fund I, LP, an affiliate of Innovatus Capital Partners, LLC ("Innovatus"), for an aggregate principal amount of up to $40.0 million (the "Loan Agreement") consisting of two tranches, of which the first tranche of $30.0 million was completed on execution of the Loan Agreement. We will be eligible to draw on the second tranche of $10.0 million upon achievement of certain milestones including certain pre-specified revenue thresholds. The two tranches collectively are referred to as the "Term Loans."

Investing and Financing Activities

In March 2022, we entered into a Stock Purchase Agreement with seqWell Inc. ("seqWel"), a privately held biotechnology company, pursuant to which we purchased 1,000,000 shares of seqWell's Series C preferred stock for $5.0 million. In September 2023, we purchased an additional 88,256 shares of seqWell's Series C-1 preferred stock and 44,128 common stock warrants for $0.4 million. As of December 31, 2023, we have 1,293,535 shares of seqWell's Series C and C-1 preferred stock that we have earned or purchased since executing the Stock Purchase Agreement with seqWell.

In May 2021, we filed a Registration Statement on Form S-3 with the SEC, that automatically became effective upon its filing, under which we may sell common stock, preferred stock, debt securities, warrants, purchase contracts, and units from time to time in one or more offerings. On February 27, 2023, we filed a post-effective amendment to that Registration Statement on Form S-3. Pursuant to that post-effective amendment, we registered an aggregate $200.0 million of securities. In May 2021, we entered into an Equity Distribution Agreement ("EDA") with Piper Sandler & Co ("PSC"), under which PSC, as our exclusive agent, at our discretion and at such times that we may determine from time to time, may sell over a three-year period from the execution of the EDA up to a maximum of $50.0 million of shares of our common stock. Under the terms of the EDA, PSC may sell the shares at market prices by any method that is deemed to be an "at the market offering" as defined in Rule 415 under the Securities Act of 1933, as amended. During the year ended December 31, 2023, 3,079,421 shares of our common stock were issued and sold pursuant to the EDA for gross proceeds of $8.7 million, or $7.9 million in net proceeds after PSC's commissions and direct offering expenses of $0.7 million. As of December 31, 2023, $41.3 million of shares remained available for sale under the EDA. During the year ended December 31, 2022, no shares of our common stock were sold pursuant to the EDA.

In June 2020, we entered into a Stock Purchase Agreement with MAI, a privately held life sciences company, pursuant to which we purchased 1,587,050 shares of MAI's Series A preferred stock for $1.0 million. Mr. Nicols, our former President and CEO until August 2022, also joined MAI's board of directors in June 2020 and remained on MAI's board until September 2023. Concurrently with our initial equity investment, we entered into a Master Collaboration and Research Agreement with MAI (the "MAI Agreement"), pursuant to which we performed services utilizing our CodeEvolver® directed evolution technology platform to improve DNA polymerase enzymes in exchange for compensation in the form of additional shares of MAI's Series A and B preferred stock. In April 2021, we purchased an additional 1,000,000 shares of MAI's Series A preferred stock for $0.6 million. In September 2021, we purchased 9,198,423 shares of MAI's Series B preferred stock for $7.0 million. As of December 31, 2023, we held 19,277,914 shares of MAI's Series A and B preferred stock that we have earned or purchased since executing the Stock Purchase Agreement with MAI.

Business Impact of COVID-19 and Sales of CDX-616 to Pfizer for PAXLOVID™

In March 2020, the World Health Organization declared COVID-19 a global pandemic and recommended containment and mitigation measures worldwide. The impact of COVID-19 affected segments of the global economy and its continuing impacts may affect our operations, including the potential interruption of our supply chain. On May 11, 2023, the COVID-19 Public Health Emergency ("PHE") declared under the Public Health Service Act expired. While COVID-19 is no longer considered a PHE, future surges or actions taken in response to COVID-19 or other PHEs may materially affect our products, supply chain or operations.

As a result of the COVID-19 pandemic, in 2021 and 2022 we received purchase orders from Pfizer Inc. ("Pfizer") for large quantities of our proprietary enzyme product, CDX-616, for use by Pfizer in the manufacture of a critical intermediate for its proprietary API, nirmatrelvir, used by Pfizer in combination with the API ritonavir, as its PAXLOVID™ (nirmatrelvir tablets; ritonavir tablets) product for the treatment of COVID-19 infections in humans. We are a party to an Enzyme Supply Agreement with Pfizer Ireland Pharmaceuticals, a subsidiary of Pfizer, Inc. (the "Pfizer Supply Agreement"), covering the manufacture, sale and purchase of CDX-616 for use by Pfizer in the manufacture of nirmatrelvir. Under the terms of the Pfizer Supply Agreement, Pfizer paid us a fee of $25.9 million in August 2022 which was recorded as deferred revenue. Pursuant to the agreement, 90% of the fee ($23.3 million) is creditable against (i) future orders of CDX-616 used to manufacture its PAXLOVID™ with shipment dates prior to December 31, 2023, and (ii) fees associated with any new development and licensing agreements with Pfizer entered into prior to April 4, 2023. On March 31, 2023, we entered into a license agreement whereby Pfizer utilized a portion of the $23.3 million credit towards a license to develop future product candidates, for which we recognized $5.0 million as non-cash research and development revenue during the second quarter of 2023. Pfizer's ability to utilize the credit under item (i) above expired on December 31, 2023, and under item (ii) above expired on April 4, 2023. Up to 50% of any portion of the $25.9 million which has not been credited under items (i) and (ii) is creditable against future orders of CDX-616 used to manufacture PAXLOVID™ with shipment dates in 2024. The sale of CDX-616 to Pfizer had a substantial impact on our revenues in 2021 and 2022, and to a lesser extent in 2023. Potential revenues in future years from our sales of CDX-616 to Pfizer and other potential customers (including sublicensees of Pfizer technology from The Medicine Patent Pool) are subject to a number of factors which are outside of our control and could reduce or eliminate our sales of CDX-616.

RESULTS OF OPERATIONS

The following table shows the amounts from our consolidated statements of operations for the periods presented (in thousands, except percentages):

	Year Ended December 31,			% of Total Revenues		
	2023	2022	2021	2023	2022	2021
Revenues:						
Product revenue	$ 42,906	$ 116,676	$ 70,657	61 %	84 %	67 %
Research and development revenue	27,237	21,914	34,097	39 %	16 %	33 %
Total revenues	70,143	138,590	104,754	100 %	100 %	100 %
Costs and operating expenses:						
Cost of product revenue	12,809	38,033	22,209	18 %	27 %	21 %
Research and development	58,885	80,099	55,919	84 %	58 %	53 %
Selling, general and administrative	53,250	52,172	49,323	76 %	38 %	47 %
Restructuring charges	3,284	3,167	—	5 %	2 %	— %
Asset impairment and other charges	9,984	—	—	14 %	— %	— %
Total costs and operating expenses	138,212	173,471	127,451	197 %	125 %	121 %
Loss from operations	(68,069)	(34,881)	(22,697)	(97) %	(25) %	(21) %
Interest income	4,172	1,441	459	6 %	1 %	— %
Other income (expense), net	(12,274)	124	1,148	(17) %	— %	1 %
Loss before income taxes	(76,171)	(33,316)	(21,090)	(108) %	(24) %	(20) %
Provision for income taxes	69	276	189	— %	— %	— %
Net loss	$ (76,240)	$ (33,592)	$ (21,279)	(108) %	(24) %	(20) %

Revenues

Our revenues consist of product revenue and research and development revenue as follows:

- Product revenue consist of sales of biocatalysts, pharmaceutical intermediates, and Codex® biocatalyst panels and kits.
- Research and development revenue include license, technology access and exclusivity fees, research services fees, milestone payments, royalties, optimization and screening fees.

Revenues are as follows (in thousands, except percentages):

	Year Ended December 31,			Change			
				2023		2022	
	2023	2022	2021	$	%	$	%
Product revenue	$ 42,906	$ 116,676	$ 70,657	$ (73,770)	(63) %	$ 46,019	65 %
Research and development revenue	27,237	21,914	34,097	5,323	24 %	(12,183)	(36) %
Total revenues	$ 70,143	$ 138,590	$ 104,754	$ (68,447)	(49) %	$ 33,836	32 %

Revenues typically fluctuate on a quarterly basis due to the variability in our customers' manufacturing schedules and the timing of our customers' clinical trials. In addition, we have limited internal capacity to manufacture enzymes. As a result, we are dependent upon the performance and capacity of third party manufacturers for the commercial scale manufacturing of the enzymes used in our pharmaceutical and fine chemicals business.

We accept purchase orders for deliveries covering periods from one day up to 14 months from the date on which the order is placed. However, some of our purchase orders can be revised or cancelled by the customer without penalty. Considering these industry practices and our experience, we do not believe the total of customer purchase orders outstanding (backlog) provides meaningful information that can be relied on to predict actual sales for future periods.

2023 compared to 2022

Total revenues decreased by $68.4 million in 2023 to $70.1 million, as compared to 2022. The decrease was driven by lower product revenue as compared to the prior year.

Product revenue was $42.9 million in 2023, a decrease of 63% compared with $116.7 million in 2022. The decrease in product revenue was primarily due to decreased sales of CDX-616 to Pfizer. This decrease was partially offset by $8.2 million release of prior year's deferrals related to Pfizer's fee, $3.2 millionrelease of prior periods' product revenue deferrals due to early termination of the enzyme supply obligations to a customer and $1.3 million of product revenue recognized as settlement fee pursuant to the enzyme supply agreement with the same customer.

Research and development revenue increased by $5.3 million in 2023 to $27.2 million, or 24% compared with $21.9 million in 2022, primarily due to higher revenue from the Pfizer license agreement and from Nestlé Health Science under the Nestlé SCA and development agreement and the Acquisition Agreement, which was partially offset by lower research and development fees from existing collaboration agreements being recognized in 2023 as compared to the prior year.

2022 compared to 2021

Total revenues increased by $33.8 million in 2022 to $138.6 million, as compared to 2021. The increase was driven by growth in product revenue of $46.0 million, or 65%, partially offset by a decrease in research and development revenue of $12.2 million, or 36%.

Product revenue was $116.7 million in 2022, an increase of 65% compared with $70.7 million in 2021. The increase in product revenue was primarily due to $40.9 million higher revenue from Pfizer sales related to the purchase of CDX-616.

Research and development revenue decreased by $12.2 million in 2022 to $21.9 millior, or 36% compared with $34.1 million in 2021,primarily due to lower license fees from Takeda, decreased revenue from milestone payments received from GSK in 2021 and lower research and development fees from other existing collaboration agreements being recognized in 2022 as compared to the prior year. A portion of our research and development revenue in 2022 and 2021 was paid to us by MAI in the form of additional shares of MAI Series A and Series B preferred stock. We received an aggregate of 1,587,049 and 3,491,505 shares of MAI's Series A and B preferred stock for the years ended December 31, 2022 and 2021, respectively.

Costs and Operating Expenses (in thousands, except percentages):

	Year Ended December 31,			Change			
				2023		2022	
	2023	2022	2021	$	%	$	%
Cost of product revenue	$ 12,809	$ 38,033	$ 22,209	$ (25,224)	(66) %	$ 15,824	71 %
Research and development	58,885	80,099	55,919	(21,214)	(26) %	24,180	43 %
Selling, general and administrative	53,250	52,172	49,323	1,078	2 %	2,849	6 %
Restructuring charges	3,284	3,167	—	117	4 %	3,167	100 %
Asset impairment and other charges	9,984	—	—	9,984	100 %	—	— %
Total costs and operating expenses	$ 138,212	$ 173,471	$ 127,451	$ (35,259)	(20) %	$ 46,020	36 %

Costs of Product Revenue and Product Gross Margin

The following table shows the amounts of our product revenue, cost of product revenue, product gross profit and product gross margin from our consolidated statements of operations (in thousands, except percentages):

	Year Ended December 31,		Change		Year Ended December 31,		Change	
	2023	2022	$	%	2022	2021	$	%
Product revenue	$ 42,906	$ 116,676	$ (73,770)	(63) %	$ 116,676	$ 70,657	$ 46,019	65 %
Cost of product revenue[1]	12,809	38,033	(25,224)	(66) %	38,033	22,209	15,824	71 %
Product gross profit	$ 30,097	$ 78,643	$ (48,546)	(62) %	$ 78,643	$ 48,448	$ 30,195	62 %
Product gross margin (%)[2]	70 %	67 %			67 %	69 %		

[1] Cost of product revenue comprises both internal and third-party fixed and variable costs, including materials and supplies, labor, facilities and other overhead costs associated with our product revenue.
[2] Product gross margin is used as a performance measure to provide additional information regarding our results of operations on a consolidated basis.

2023 compared to 2022

Cost of product revenue decreased by $25.2 million in 2023 to $12.8 million, as compared to 2022. The decrease was primarily due to lower volme of product sales as compared to prior year. Product gross margins increased to 70% in 2023 as compared to 67% in 2022, primarily due to product revenue recognized with no related costs in 2023 related to the utilization of Pfizer's fee and early termination of an enzyme supply agreement with a customer, and was partially offset by variability in the product mix.

2022 compared to 2021

Cost of product revenue increased by $15.8 million in 2022 to $38.0 million, as compared to 2021. The increase was primarily due to a higher volume of product sales and variations in product mix. Product gross margins decreased to 67% in 2022 as compared to 69% in 2021, primarily due to variations in product mix, variation in prices per volume sold and higher shipping costs. Some of these cost increases are a result of the impact of inflation and supply chain pressures seen in 2022.

Research and Development Expenses

Research and development expenses consist of costs incurred for internal projects as well as collaborative research and development activities. These costs primarily consist of (i) employee-related costs, which include salaries and other personnel-related expenses (including stock-based compensation), (ii) various allocable expenses, which include occupancy-related costs, supplies, depreciation of facilities and laboratory equipment, and (iii) external costs. Research and development expenses are expensed when incurred.

2023 compared to 2022

Research and development expenses were $58.9 million in 2023 compared to $80.1 million in 2022, a decrease of $21.2 million, or 26%. This decrease was primarily due $10.0 million decrease in costs associated with lower headcount, $6.4 million decrease in outside services and Chemistry, Manufacturing and Controls (“CMC”) and regulatory expense, $4.1 million in lower lab supplies expense, $1.3 million in lower stock comp expense, and $1.0 million decrease in lease costs due to the assignment of our San Carlos facility lease. These were partially offset by $1.7 million in higher allocable costs.

2022 compared to 2021

Research and development expenses were $80.1 million in 2022 compared to $55.9 million in 2021, an increase of $24.2 million, or 43%. The increase was primarily due to an increase of $7.4 million in costs associated with higher headcount, $4.8 million in higher facilities and repair and maintenance expenses, $5.3 million increase in outside services and CMC and regulatory expenses, $2.6 million in higher lab supplies, $2.1 million in higher depreciation expenses, $1.1 million in higher stock-based compensation expenses and $0.7 million in higher allocable expenses. Some of these cost increases are a result of the impact of inflation seen in 2022.

Selling, General and Administrative Expenses

Selling, general and administrative expenses consist of employee-related costs, which include salaries and other personnel-related expenses (including stock-based compensation), hiring and training costs, consulting and outside services expenses (including audit and legal counsel related costs), marketing costs, building lease costs, and depreciation expenses and amortization expenses.

2023 compared to 2022

Selling, general and administrative expenses were $53.3 million in 2023 compared to $52.2 million in 2022, an increase of $1.1 million, or 2%. This increase was primarily due to $3.6 million higher in payroll-based expenses, $0.6 million in higher legal expense, $0.4 million in higher repairs and maintenance expense, and $0.3 million in higher consulting and outside services. This was partially offset by $3.2 million lower stock based compensation expense and $0.4 million in lower allocable expenses.

2022 compared to 2021

Selling, general and administrative expenses were $52.2 million in 2022 compared to $49.3 million in 2021, an increase of $2.8 million, or 6%. The increase was primarily due to an increase of $6.0 million in costs associated with higher headcount, $1.8 million in higher stock-based compensation costs, $0.8 million in higher outside and temporary services, which was partially offset by a decrease of $3.5 million in allocable expenses due to higher expenses allocated to research and development activities in 2022 and $3.3 million in lower legal fees. Some of these cost increases are a result of the impact of inflation seen in 2022.

Restructuring Charges

Restructuring charges consist of employee severance and other termination benefits due to workforce reduction plans that were initiated during the third quarter of 2023 and in the fourth quarter of 2022. Restructuring charges were $3.3 million and $3.2 million for the years ended December 31, 2023 and 2022, respectively.

Asset Impairment and Other Charges

Asset impairment and other charges for the year ended December 31, 2023 were $10.0 millior, consisting of a $9.2 million long-lived asset impairment charge and a $0.8 million goodwill impairment charge, all of which are non-cash charges. No asset impairment charges were recorded for the years ended December 31, 2022 or 2021.

Interest Income and Other Income (Expense), ne (in thousands, except percentages):

	Year Ended December 31,			Change					
				2023			2022		
	2023	2022	2021	$	%		$	%	
Interest income	$ 4,172	$ 1,441	$ 459	$ 2,731	190	%	$ 982	214	%
Other income (expense), net	(12,274)	124	1,148	(12,398)	(9,998)	%	(1,024)	(89)	%
Total other income (expense), net	$ (8,102)	$ 1,565	$ 1,607	$ (9,667)	(618)	%	$ (42)	(3)	%

Interest Income

Interest income increased by $2.7 million in 2023 compared to 2022, primarily due to higher average interest rates on cash balances. Interest income increased by $1.0 million in 2022 compared to 2021, primarily due to higher average interest rates on cash balances, and was partially offset by earned interest income on a non-marketable debt security in the prior year.

Other Income (Expense), net

Other income (expense), net, decreased by $12.4 million in 2023 compared to 2022, primarily due to impairment of our investments in MAI, seqWell and Arzeda. Other income (expense), net, decreased by $1.0 million in 2022 compared to 2021, primarily due to a lower gain from remeasurement on the carrying value of our investment in MAI recognized in 2022 as compared to 2021.

Provision for Income Taxes (in thousands, except percentages):

	Year Ended December 31,			Change					
				2023			2022		
	2023	2022	2021	$	%		$	%	
Provision for income taxes	$ 69	$ 276	$ 189	$ (207)	(75)	%	$ 87	46	%

The provision for income taxes in 2023 was primarily for current year state income taxes and the accrual of interest and penalties on historic uncertain tax positions.

The provision for income taxes in 2022 was primarily due to the income tax withholding imposed by foreign taxing authorities on income earned in certain countries outside of the Unites Stated and remitted to the United States and the accrual of interest and penalties on historic uncertain tax positions, as well as current year state income taxes.

Starting in 2022, changes to Internal Revenue Code Section 174 made by the Tax Cuts and Jobs Act of 2017 no longer permit an immediate deduction for research and development expenditures in the tax year that such costs are incurred. As a result, the Company capitalized such costs in its 2022 income tax provision resulting in an increase in deferred tax assets and state income taxes. However, as we have recorded a full valuation allowance on our deferred tax assets, this did not have an impact on our net deferred tax assets.

The provision for income taxes in 2021 wasprimarily due to the income tax withholding imposed by foreign taxing authorities on income earned in certain countries outside of the Unites Stated and remitted to the United States and the accrual of interest and penalties on historic uncertain tax positions.

Net Loss

Net loss for 2023 was $76.2 million, or a net loss per basic and diluted share of $1.12. This compared to a net loss of $33.6 million, or $0.51 per basic and diluted share for 2022. The increase in net loss was primarily related to lower product revenues from CDX-616 and one-time charges recognized during 2023 related to asset impairment, including impairment in our investments in non-marketable equity securities, and restructuring charges, which was partially offset by lower operating expenses in 2023.

Net loss for 2022 was $33.6 million, or a net loss per basic and diluted share of $0.51. This compared to a net loss of $21.3 million, or $0.33 per basic and diluted share for 2021. The increase in net loss was primarily related to lower research and development revenues and higher operating expenses.

LIQUIDITY AND CAPITAL RESOURCES

Liquidity is the measurement of our ability to meet working capital needs and to fund capital expenditures. We have historically funded our operations primarily through cash generated from operations, stock option exercises and public and private offerings of our common stock. In addition, pursuant to the Loan Agreement, we received $30.0 million from Innovatus, as Lender, on February 13, 2024 and may become eligible to borrow up to an additional $10.0 million upon the achievement of certain financial milestones. We actively manage our cash usage and investment of liquid cash to ensure the maintenance of sufficient funds to meet our working capital needs. Our cash and cash equivalents are held in U.S. banks.

Our primary uses of capital for the foreseeable future, including the next 12 months, are for compensation and related expenses, research and development expenses including manufacturing costs, laboratory and related supplies, legal and other regulatory expenses, and general overhead costs.

The following summarizes our cash and cash equivalents balance and working capital as of December 31, 2023, 2022 and 2021 (in thousands):

	December 31,		
	2023	**2022**	**2021**
Cash and cash equivalents	$ 65,116	$ 113,984	$ 116,797
Working capital	$ 57,636	$ 113,828	$ 128,517

Sources of Capital

In addition to our existing cash and cash equivalents and revenue generated through our existing operations, we are eligible to earn milestone and other contingent payments for the achievement of defined collaboration objectives and certain royalty payments under our collaboration agreements with Merck, Nestlé, and Novartis of up to $59.0 million in aggregate. In addition, under the GSK CodeEvolver® Agreement, we have the potential to receive additional contingent payments that range from $5.8 million to $38.5 million per project. Our ability to earn these milestone and contingent payments and the timing of achieving these milestones is primarily dependent upon the outcome of our collaborators' research and development activities and is uncertain at this time.

In addition, pursuant to the terms of the Pfizer Supply Agreement, Pfizer paid us a fee of $25.9 million in August 2022which was recorded as deferred revenue. Pursuant to the agreement, 90% of the fee ($23.3 million) is creditable against (i) future orders of CDX-616 used to manufacture its PAXLOVID™ with shipment dates prior to December 31, 2023, and (ii) fees associated with any new development and licensing agreements with Pfizer entered into prior to April 4, 2023. Subsequent to the end of the first quarter of 2023, we entered into a license agreement whereby Pfizer utilized a portion of the $23.3 million credit towards a license to develop future product candidates, for which we recognized $5.0 million as non-cash research and development revenue during the second quarter of 2023. Pfizer's ability to utilize the credit under item (i) above expired on December 31, 2023, and under item (ii) above expired on April 4, 2023. Up to 50% of any portion of the $25.9 million which has not been credited under items (i) and (ii) is creditable against future orders of CDX-616 used to manufacture PAXLOVID™ with shipment dates in 2024, and any portion of the fee that is not utilized within the specific period will be forfeited and recognized as revenue.

We have historically experienced negative cash flows from operations as we continue to invest in key technology development projects and improvements to our CodeEvolver® technology platform, develop and commercialize new and existing products including our ECO Synthesis™ manufacturing platform and expand our business development and collaboration with new customers. Our cash flows from operations will continue to be affected principally by product sales and product gross margins, sales from licensing our technology to major pharmaceutical companies, and collaborative research and development services provided to customers, as well as our headcount costs, primarily in research and development. Our primary source of cash flows from operating activities is cash receipts from our customers for purchases of products, collaborative research and development services, and licensing our technology to major pharmaceutical companies. Our largest uses of cash from operating activities are for employee-related expenditures, rent payments, inventory purchases to support our product sales and non-payroll research and development costs.

Loan Agreement and Term Loans

On February 13, 2024, we entered into the Loan Agreement with Innovatus consisting of two tranches, of which the first tranche of $30.0 million was completed upon execution of the Loan Agreement. We will be eligible to draw on the second tranche of $10.0 million upon achievement of certain milestones including certain pre-specified revenue thresholds. The Term Loan carries an interest-only period of 36 months and will bear an interest at a floating rate of the sum of (a) the greater of (i) prime rate and (ii) 7.50%, plus (b) 3.25%.

Equity Distribution Agreement

In May 2021, we entered into an Equity DistributionAgreement (“EDA”) with Piper Sandler & Co (“PSC”), under which PSC, as our exclusive agent, at our discretion and at such times that we may determine from time to time, may sell over a three-year period from the execution of the EDA up to a maximum of $50.0 million of shares of our common stock. During the year ended December 31, 2023, 3,079,421 shares of our common stock were issued and sold pursuant to the EDA, all during the first half of 2023, and we received net proceeds of $7.9 million. As of December 31, 2023, $41.3 million of shares remained available for sale under the EDA. Sales of our common stock under this arrangement could be subject to business, economic or competitive uncertainties and contingencies, many of which may be beyond our control, and which could cause actual results from the sale of our common stock to differ materially from expectations.

Liquidity

We believe that our existing cash and cash equivalents, combined with our future expectations for product revenues, research and development revenue, and expense management will provide adequate funds for ongoing operations, planned capital expenditures and working capital requirements for at least the next 12 months. We have based this estimate on assumptions that may prove to be wrong, and we could utilize our capital resources sooner than we expect.

However, we may need additional capital if our current plans and assumptions change. In addition, we may choose to seek other sources of capital even if we believe we have generated sufficient cash flows to support our operating needs. Our need for additional capital will depend on many factors, including the financial success of our business, the spending required to develop and commercialize new and existing products including our ECO Synthesis™ manufacturing platform, the effect of any acquisitions of other businesses, technologies or facilities that we may make or develop in the future, our spending on new market opportunities, and the potential costs for the filing, prosecution, enforcement and defense of patent claims, if necessary. If our capital resources are insufficient to meet our capital requirements, and we are unable to enter into or maintain collaborations with partners that are able or willing to fund our development efforts or commercialize any products that we develop or enable, we will have to raise additional funds to continue the development of our technology and products and complete the commercialization of products, if any, resulting from our technologies. If future financings involve the issuance of equity securities, our existing stockholders would suffer dilution. In addition, under our Loan Agreement, we are subject to restrictive covenants that limit our ability to conduct our business and could be subject to additional covenants to the extent we seek other debt financing in the future. We may not be able to raise sufficient additional funds on terms that are favorable to us, if at all. If we fail to raise sufficient funds and fail to generate sufficient revenues to achieve planned gross margins and to control operating costs, 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 development of new products or services, such as our ECO Synthesis™ manufacturing platform, 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, or grant licenses on terms that are not favorable to us. If adequate funds are not available, we will not be able to successfully execute our business plan or continue our business.

Cash Flows

The following is a summary of cash flows for the years ended December 31, 2023, 2022 and 2021 (in thousands):

	Year Ended December 31,		
	2023	2022	2021
Net cash provided by (used in) operating activities	$ (52,638)	$ 11,284	$ (14,267)
Net cash used in investing activities	(4,858)	(13,578)	(21,422)
Net cash provided by (used in) financing activities	8,167	(575)	3,767
Net decrease in cash, cash equivalents and restricted cash	$ (49,329)	$ (2,869)	$ (31,922)

Cash Flows from Operating Activities

The $63.9 million decrease in net cash provided by operating activities in 2023 as compared to 2022 was primarily due to the net effect of decreases in cash received from our customers due to lower revenue in 2023 and with 2022 benefiting from the receipt of a $25.9 million fee from Pfizer that is creditable against future orders, partially offset by decreases in cash paid for cost of revenues and operating expenses.

The $25.6 million increase in net cash provided by operating activities in 2022 as compared to 2021 was primarily due to the receipt of a $25.9 million fee from Pfizer in August 2022 creditable against future orders and increases in cash received from revenue, which was partially offset by increased payments associated with higher operating costs.

Cash Flows from Investing Activities

The $8.7 million decrease in net cash used in investing activities in 2023 as compared to 2022 was primarily due to higher cash utilized for additional investments in equity securities and purchases of property and equipment in the prior year.

The $7.8 million decrease in net cash used in investing activities in 2022 as compared to 2021 was primarily due to higher cash utilized for additional investments in equity securities and purchases of property and equipment in 2021.

Cash Flows from Financing Activities

The $8.7 million increase in net cash provided by financing activities in 2023 as compared to 2022 was primarily due to proceeds from issuance of common stock under the EDA and lower cash paid on taxes related to net share settlement of equity awards.

The $4.3 million decrease in net cash provided by financing activities in 2022 as compared to 2021 was primarily due to higher cash paid on taxes related to net share settlement of equity awards and lower proceeds from exercises of stock options.

OFF-BALANCE SHEET ARRANGEMENTS

As of December 31, 2023, we had no off-balance sheet arrangements as defined in Item 303 of Regulation S-K as promulgated by the SEC.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

Management's discussion and analysis of our financial condition and results of operations are based upon our consolidated financial statements. The consolidated financial statements have been prepared in conformity with generally accepted accounting principles in the United States and include our accounts and the accounts of our wholly owned subsidiaries. The preparation of our consolidated financial statements requires our management to make estimates, assumptions, and judgments that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the applicable periods. Management bases its estimates, assumptions and judgments on historical experience and on various other factors that are believed to be reasonable under the circumstances. Different assumptions and judgments would change the estimates used in the preparation of our consolidated financial statements, which, in turn, could change the results from those reported. Our management evaluates its estimates, assumptions and judgments on an ongoing basis.

The critical accounting policies requiring estimates, assumptions, and judgments that we believe have the most significant impact on our consolidated financial statements are described below.

Revenue Recognition

Our revenues are derived primarily from product revenue and collaborative research and development agreements. The majority of our contracts with customers typically contain multiple products and services.

The majority of our collaborative contracts contain multiple revenue streams such as upfront and/or annual license fees, research and development services, contingent milestone payments upon achievement of contractual criteria, and royalty fees based on the licensees' product revenue or usage, among others. We determine the stand-alone selling price ("SSP") and allocate consideration to distinct performance obligations.

We measure revenue based on the consideration specified in the contract with each customer, net of any sales incentives and taxes collected on behalf of government authorities. We recognize revenue in a manner that best depicts the transfer of promised goods or services to the customer, when control of the product or service is transferred to a customer. We make significant judgments when determining the appropriate timing of revenue recognition.

Product Revenue

Certain of our agreements provide options to customers which they can exercise at a future date, such as the option to purchase our product during the contract duration at discounted prices and an option to extend their contract, among others. In accounting for customer options, we determine whether an option is a material right and this requires us to exercise significant judgment. If a contract provides the customer an option to acquire additional goods or services at a discount that exceeds the range of discounts that we typically give for that product or service, or if the option provides the customer certain additional goods or services for free, the option may be considered a material right. If the contract gives the customer the option to acquire additional goods or services at their normal SSPs, we would likely determine that the option is not a material right and, therefore, account for it as a separate performance obligation when the customer exercises the option. We primarily account for options which provide material rights using the alternative approach available under the Accounting Standards Codification ("ASC") 606, as we concluded we meet the criteria for using the alternative approach. Therefore, the transaction price is calculated as the expected consideration to be received for all the goods and services we expect to provide. We update the transaction price for expected consideration, subject to constraint, each reporting period if our estimate of future goods to be ordered by customers change. Estimating expected consideration to be received under the alternative approach involves significant judgment.

Research and Development Revenue

The majority of our research and development agreements are based on a contractual rate per dedicated project team working on the project. The underlying product that we develop for customers does not create an asset with an alternative use to us and the customer receives benefits as we perform the work towards completion. Thus, our performance obligations are generally satisfied over time as the service is performed. We utilize an appropriate method of measuring progress towards the completion of our performance obligations to determine the timing of revenue recognition. For each performance obligation that is satisfied over time, we recognize revenue using a single measure of progress either based on hours incurred or output of services provided.

Our contracts frequently provide customers with rights to use or access our products or technology, along with other promises or performance obligations. If we determine that the customer cannot benefit from the license without our services, the license will be accounted for as combined with the other performance obligations. If we determine that a license is distinct, we would recognize an allocable portion of the transaction price when the license is transferred to the customer, and the customer can use and benefit from it. We estimate the SSP for license rights by using historical information if licenses have been previously sold to customers and for new licenses, we consider multiple methods, a discounted cash flow method which includes the following key assumptions: the development timelines, revenue forecasts, commercialization expenses, discount rate, and the probability of technical and regulatory success.

At the inception of each arrangement that includes variable consideration such as development milestone payments, we evaluate whether the milestones are considered probable of being reached and estimate the amount to be included in the transaction price using the most likely amount method. If it is probable that a significant revenue reversal would not occur, the associated milestone value is included in the transaction price. Milestone payments that are not within our control or the licensee, such as regulatory approvals, are not considered probable of being achieved until those approvals are received.

Our CodeEvolver® platform technology transfer collaboration agreements typically include license fees, upfront fees, and variable consideration in the form of milestone payments, and sales or usage-based royalties. We have recognized revenues from our platform technology transfer agreements over time.

We also have an agreement under which we have granted a functional license to some elements of our biocatalyst technology. We will recognize revenues for the functional license at a point in time when the control of the license transfers to the customer.

For license agreements that include sales or usage-based royalty payments to us for which the license is the predominant item to which the royalty relates, we do not recognize revenue until the underlying sales of the product or usage has occurred. At the end of each reporting period, we estimate the royalty amount. We recognize revenue at the later of (i) when the related sale of the product occurs, or (ii) when the performance obligation to which some or all of the royalty has been allocated has been satisfied, or partially satisfied.

Investment in Non-Marketable Securities

Investment in Non-Marketable Equity Securities

We measure investments in non-marketable equity securities without a readily determinable fair value using a measurement alternative that measures these securities at the cost method minus impairment, if any, plus or minus changes resulting from observable price changes on a non-recurring basis. Gains and losses on these securities are recognized in other income (expense), net.

We evaluate equity securities for impairment when circumstances indicate that we may not be able to recover the carrying value. We may impair these securities and establish an allowance for a credit loss when we determine that there has been an “other-than-temporary” decline in estimated fair value of the debt or equity security compared to its carrying value. We calculate the estimated fair value of these securities using information from the investee, which may include:

- Audited and unaudited financial statements;
- Projected technological developments of the company;
- Projected ability of the company to service its debt obligations;
- If a deemed liquidation event were to occur;
- Current fundraising transactions;
- Current ability of the company to raise additional financing if needed;
- Changes in the economic environment which may have a material impact on the operating results of the company;
- Contractual rights, obligations or restrictions associated with the investment; and
- Other factors deemed relevant by our management to assess valuation.

The valuation may be reduced if the company's potential has deteriorated significantly. If the factors that led to a reduction in valuation are overcome, the valuation may be readjusted.

Impairment of Long-Lived Assets

We evaluate the carrying values of long-lived assets, which include property and equipment and right-of-use assets, whenever events, changes in business circumstances or our planned use of long-lived assets indicate that their carrying amounts may not be fully recoverable or that their useful lives are no longer appropriate. If these facts and circumstances exist, we assess for recovery by comparing the carrying values of long-lived assets with the future net undiscounted cash flows expected to be generated by the asset. If such assets are considered to be impaired, the impairment to be recognized is measure by the amount by which the carrying amount of the asset exceeds the fair value of the asset.

Recent Accounting Pronouncements

See Note 2, “Basis of Presentation and Summary of Significant Accounting Policies” in the Notes to the Consolidated Financial Statements set forth in Item 8 of this Annual Report on Form 10-K for a full description of recent accounting standards, including the respective dates of adoption and effects on our consolidated financial position, results of operations and cash flows.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Interest Rate Sensitivity

Our unrestricted cash and cash equivalents total $65.1 million at December 31, 2023. We primarily invest these amounts in money market funds which are held for working capital purposes. We do not enter into investments for trading or speculative purposes. As of December 31, 2023, the effect of a hypothetical 10% decrease in market interest rates would have an $0.3 million impact on a potential loss in future interest income and cash flows.

Foreign Currency Risk

Our results of operations and cash flows are subject to fluctuations due to changes in foreign currency exchange rates. In periods when the United States dollar"USD") declines in value as compared to the foreign currencies in which we incur expenses, our foreign-currency based expenses increase when translated into USD. Although substantially all of our sales are denominated in USD, future fluctuations in the value of the USD may affect the price competitiveness of our products outside the United States. Our most significant foreign currency exposure is due to non-functional currency denominated monetary assets, primarily currencies denominated in other than their functional currency. These non-functional currency denominated monetary assets are subject to re-measurement which may create fluctuations in other expense, net, a component in our consolidated statement of operations and in the fair value of the assets in the consolidated balance sheets. As of December 31, 2023, the effect of a hypothetical 10% unfavorable change in exchange rates on currencies denominated in other than their functional currency would result in a potential loss in future earnings in our consolidated statement of operations and a reduction in the fair value of the assets of approximately $41 thousand.

Investment in Non-Marketable Equity Securities

We own investments in non-marketable equity securities without readily determinable fair values. We may value these equity securities based on significant recent arms-length equity transactions with sophisticated non-strategic unrelated investors, providing the terms of these security transactions are substantially similar to the security transactions terms between the investors and us. The impact of the difference in transaction terms on the market value of the portfolio company may be difficult or impossible to quantify.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Codexis, Inc.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

Shareholders and Board of Directors
Codexis, Inc.
Redwood City, California

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Codexis, Inc. (the "Company") as of December 31, 2023 and 2022, the related consolidated statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2023, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2023, in conformity with accounting principles generally accepted in the United States of America.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the Company's internal control over financial reporting as of December 31, 2023, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") and our report dated February 28, 2024 expressed an unqualified opinion thereon.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated financial statements based on our audits. We are a public accounting firm registered with the 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 consolidated financial statements are free of material misstatement, whether due to error or fraud.

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

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of a critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing separate opinions on the critical audit matter or on the accounts or disclosures to which it relates.

Revenue Recognition

As described in Notes 2, 3 and 5 to the consolidated financial statements, the Company enters into contracts with customers that include enzyme supply, licensing, and collaborative research and development agreements. Certain contracts with customers may contain multiple performance obligations, options, up-front and/or annual license fees, fees for research and development services, contingent milestone payments upon achievement of contractual criteria, and royalty fees based on the licensees' product revenue or usage. The Company recognizes revenue in a manner that best depicts the transfer of promised goods or services to the customer when control of the product or service is transferred to a customer. The Company makes significant judgments in determining revenue recognition for certain customer contracts.

We identified the evaluation of management's accounting for revenue from certain new and amended contracts with customers as a critical audit matter due to significant judgments and estimates involved in the identification of distinct performance obligations, allocation of transaction price to distinct performance obligations, determination and estimation of material rights, determination of the pattern of transfer of control for each distinct performance obligation and estimation of variable consideration. Auditing these elements involved especially subjective and complex auditor judgments due to the nature and extent of audit effort required.

The primary procedures we performed to address this critical audit matter included:

- Testing the design, implementation and operating effectiveness of internal controls relating to the Company's accounting for certain new and amended revenue contracts, including controls over identification of distinct performance obligations and material rights, the determination of the timing of revenue recognition, allocation of transaction price to distinct performance obligations, and the estimation of variable consideration.
- Examining a sample of these contracts to test management's identification of significant terms for completeness, including the identification of distinct performance obligations, material rights and variable consideration.
- Evaluating the reasonableness and accuracy of management’s judgments and estimates used in identification and accounting for material rights.
- Assessing the reasonableness of management’s judgments and estimates to calculate variable consideration, and the timing of recognizing the related revenue subject to any constraints.
- Evaluating the appropriateness of management’s allocation of the transaction price to the distinct performance obligations and determination of whether identified performance obligations meet the criteria for over-time revenue recognition.

/s/ BDO USA, P.C.

We have served as the Company's auditor since 2013.

San Francisco, California
February 28, 2024

Report of Independent Registered Public Accounting Firm

Shareholders and Board of Directors
Codexis, Inc.
Redwood City, California

Opinion on Internal Control over Financial Reporting

We have audited Codexis, Inc.'s (the "Company's") internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (the "COSO criteria"). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2023, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated balance sheets of the Company as of December 31, 2023 and 2022, the related consolidated statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2023, and the related notes and our report dated February 28, 2024 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying "Item 9A, Controls and Procedures". Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit of internal control over financial reporting in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed 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. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ BDO USA, P.C.

San Francisco, California
February 28, 2024

Codexis, Inc.
Consolidated Balance Sheets
(In Thousands, Except Per Share Amounts)

	December 31,	
	2023	**2022**
Assets		
Current assets:		
Cash and cash equivalents	$ 65,116	$ 113,984
Restricted cash, current	519	521
Financial assets:		
Accounts receivable	10,036	31,904
Contract assets	815	2,116
Unbilled receivables	9,142	7,016
Total financial assets	19,993	41,036
Less: allowances	(65)	(163)
Total financial assets, net	19,928	40,873
Inventories	2,685	2,029
Prepaid expenses and other current assets	5,218	5,487
Total current assets	93,466	162,894
Restricted cash	1,062	1,521
Investment in non-marketable equity securities ($0 and $13,921 with a related party)	9,700	20,510
Right-of-use assets - Operating leases, net	13,137	39,263
Property and equipment, net	15,487	22,614
Goodwill	2,463	3,241
Other non-current assets	1,246	350
Total assets	$ 136,561	$ 250,393
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 5,947	$ 3,246
Accrued compensation	11,246	11,453
Other accrued liabilities	4,735	15,279
Current portion of lease obligations - Operating leases	3,781	5,360
Deferred revenue	10,121	13,728
Total current liabilities	35,830	49,066
Deferred revenue, net of current portion	640	16,881
Long-term lease obligations - Operating leases	12,243	38,278
Other long-term liabilities	1,233	1,371
Total liabilities	49,946	105,596
Commitments and contingencies (Note 13)		
Stockholders' equity:		
Preferred stock, $0.0001 par value per share; 5,000 shares authorized, none issued and outstanding	—	—
Common stock, $0.0001 par value per share; 200,000 shares authorized; 69,905 and 65,811 shares issued and outstanding at December 31, 2023 and December 31, 2022, respectively	7	6
Additional paid-in capital	584,138	566,081
Accumulated deficit	(497,530)	(421,290)
Total stockholders' equity	86,615	144,797
Total liabilities and stockholders' equity	$ 136,561	$ 250,393

See accompanying notes to consolidated financial statements

Codexis, Inc.
Consolidated Statements of Operations
(In Thousands, Except Per Share Amounts)

	Year Ended December 31,		
	2023	**2022**	**2021**
Revenues:			
Product revenue ($0, $514 and $0 from a related party)	$ 42,906	$ 116,676	$ 70,657
Research and development revenue ($0, $1,245 and $1,955 from a related party)	27,237	21,914	34,097
Total revenues	70,143	138,590	104,754
Costs and operating expenses:			
Cost of product revenue	12,809	38,033	22,209
Research and development	58,885	80,099	55,919
Selling, general and administrative	53,250	52,172	49,323
Restructuring charges	3,284	3,167	—
Asset impairment and other charges	9,984	—	—
Total costs and operating expenses	138,212	173,471	127,451
Loss from operations	(68,069)	(34,881)	(22,697)
Interest income	4,172	1,441	459
Other income (expense), net ($0, $208 and $983 from a related party)	(12,274)	124	1,148
Loss before income taxes	(76,171)	(33,316)	(21,090)
Provision for income taxes	69	276	189
Net loss	$ (76,240)	$ (33,592)	$ (21,279)
Net loss per share, basic and diluted	$ (1.12)	$ (0.51)	$ (0.33)
Weighted average common stock shares used in computing net loss per share, basic and diluted	68,131	65,344	64,568

See accompanying notes to consolidated financial statements

Codexis, Inc.
Consolidated Statements of Stockholders' Equity
(In Thousands)

	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount			
December 31, 2020	64,283	$ 6	$ 536,516	$ (366,419)	$ 170,103
Exercise of stock options	699	—	5,180	—	5,180
Release of stock awards	181	—	—	—	—
Employee stock-based compensation	—	—	11,346	—	11,346
Non-employee stock-based compensation	—	—	247	—	247
Taxes paid related to net share settlement of equity awards	(54)	—	(1,206)	—	(1,206)
Net loss	—	—	—	(21,279)	(21,279)
December 31, 2021	65,109	6	552,083	(387,698)	164,391
Exercise of stock options	410	—	955	—	955
Release of stock awards	373	—	—	—	—
Employee stock-based compensation	—	—	14,398	—	14,398
Non-employee stock-based compensation	—	—	133	—	133
Taxes paid related to net share settlement of equity awards	(81)	—	(1,488)	—	(1,488)
Net loss	—	—	—	(33,592)	(33,592)
December 31, 2022	65,811	6	566,081	(421,290)	144,797
Exercise of stock options	283	—	559	—	559
Release of stock awards	796	—	—	—	—
Employee stock-based compensation	—	—	9,969	—	9,969
Non-employee stock-based compensation	—	—	2	—	2
Issuance of common stock, net of issuance costs of $721	3,080	1	7,931	—	7,932
Taxes paid related to net share settlement of equity awards	(65)	—	(404)	—	(404)
Net loss	—	—	—	(76,240)	(76,240)
December 31, 2023	69,905	$ 7	$ 584,138	$ (497,530)	$ 86,615

See accompanying notes to consolidated financial statements

Codexis, Inc.
Consolidated Statements of Cash Flows
(In Thousands)

	Year Ended December 31,		
	2023	**2022**	**2021**
Operating activities:			
Net loss	$ (76,240)	$ (33,592)	$ (21,279)
Adjustments to reconcile net loss to net cash provided by (used in) operating activities:			
Depreciation	5,518	5,402	3,113
Amortization expense - right-of-use assets - operating and finance leases	4,405	4,849	2,834
Stock-based compensation	9,971	14,531	11,593
Provision (recovery) for credit losses	(65)	4	342
Equity securities earned from research and development activities ($0, ($1,245), and ($1,955) from a related party)	(213)	(1,245)	(1,955)
Unrealized gain on non-marketable securities ($0, ($208), and ($983) from a related party)	—	(208)	(1,272)
Asset impairment and other charges	9,984	—	—
Impairment of investment in non-marketable securities	12,215	—	—
Other non-cash items	4	(29)	(19)
Changes in operating assets and liabilities:			
Financial assets	20,247	(3,225)	(9,156)
Inventories	(656)	(869)	(196)
Prepaid expenses and other assets	(865)	181	(2,268)
Accounts payable	2,287	207	268
Accrued compensation and other accrued liabilities	(14,041)	5,983	6,575
Other long-term liabilities	(5,341)	(5,223)	(4,147)
Deferred revenue ($0, $0, $245 to a related party)	(19,848)	24,518	1,300
Net cash provided by (used in) operating activities	(52,638)	11,284	(14,267)
Investing activities:			
Purchase of property and equipment	(4,418)	(8,307)	(13,828)
Proceeds from sale of property and equipment	751	29	36
Investment in non-marketable securities ($0, $0, and ($7,630) in a related party)	(1,191)	(5,300)	(7,630)
Net cash used in investing activities	(4,858)	(13,578)	(21,422)
Financing activities:			
Proceeds from exercises of stock options	422	955	5,180
Proceeds from issuance of common stock in connection with public offering	8,652	—	—
Costs incurred in connection with issuance of common stock at public offering	(503)	(42)	(207)
Taxes paid related to net share settlement of equity awards	(404)	(1,488)	(1,206)
Net cash provided by (used in) financing activities	8,167	(575)	3,767
Net decrease in cash, cash equivalents and restricted cash	(49,329)	(2,869)	(31,922)
Cash, cash equivalents and restricted cash at the beginning of the year	116,026	118,895	150,817
Cash, cash equivalents and restricted cash at the end of the year	$ 66,697	$ 116,026	$ 118,895
Supplemental disclosure of cash flow information:			
Interest paid	$ 44	$ 34	$ 14
Income taxes	$ 194	$ 100	$ 102
Supplemental non-cash investing and financing activities:			
Capital expenditures incurred but not yet paid	$ 1,068	$ 897	$ 2,533

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the consolidated balance sheets to the total of the same such amounts shown above (in thousands):

	Year Ended December 31,		
	2023	**2022**	**2021**
Cash and cash equivalents	$ 65,116	$ 113,984	$ 116,797
Restricted cash, current and non-current	1,581	2,042	2,098
Total cash, cash equivalents and restricted cash at the end of the period	$ 66,697	$ 116,026	$ 118,895

See accompanying notes to consolidated financial statements

Note 1. Description of Business

In these notes to the consolidated financial statements, the "Company," "we," "us," and "our" refers to Codexis, Inc. and its subsidiaries on a consolidated basis.

We discover, develop, enhance, and commercialize novel, high performance enzymes and other classes of proteins leveraging our proprietary CodeEvolver® directed evolution technology platform.

We previously managed our business as two business segments, Performance Enzymes and Novel Biotherapeutics. During the fourth quarter of 2023, we made changes to the structure of our organization in connection with the restructuring of our business that we announced in July 2023, including the discontinuation of investment in certain development programs, primarily in our biotherapeutics business, consolidation of operations to our Redwood City, California headquarters, and headcount reduction. In connection with these organizational structure changes, corresponding changes were made to how our business is managed, how results are reported internally and how our Chief Executive Officer ("CEO"), our chief operating decision maker, assesses performance and allocates resources. As a result of these changes, our previous Performance Enzymes and Novel Biotherapeutics operating segments were combined into a single reportable segment. Effective October 1, 2023, the Company's operations are managed and reported to the CEO on a consolidated basis. The CEO assesses performance and allocates resources based on the consolidated results of operations. We believe that these changes better align internal resources and external go to market activities in order to create a more efficient and effective organizational structure. Under this new organizational and reporting structure, we managed our business as one reportable segment as of December 31, 2023. Comparative prior period disclosures that reflected the previous two segments' information have been revised to conform to this change in our reportable segment.

Note 2. Basis of Presentation and Summary of Significant Accounting Policies

Basis of Presentation and Principles of Consolidation

The accompanying consolidated financial statements have been prepared in accordance with generally accepted accounting principles in the United States of America ("GAAP") and the applicable rules and regulations of the Securities and Exchange Commission ("SEC") and include the accounts of Codexis, Inc. and its wholly-owned subsidiaries.

The consolidated financial statements include the accounts of Codexis, Inc. and its wholly-owned subsidiaries. All intercompany balances and transactions have been eliminated in consolidation.

Use of Estimates

The preparation of our consolidated financial statements in conformity with GAAP requires us to make estimates, judgments and assumptions that may affect the reported amounts of assets, liabilities, equity, revenues and expenses and related disclosure of contingent assets and liabilities. We regularly assess these estimates which primarily affect revenue recognition, deferred revenue, inventories, valuation of equity investments, goodwill arising out of business acquisitions, accrued liabilities, stock awards, and the valuation allowances associated with deferred tax assets. Actual results could differ from those estimates and such differences may be material to the consolidated financial statements.

Foreign Currency Translation

The USD is the functional currency for our operations outside the United States. Accordingly, non-monetary assets and liabilities originally acquired or assumed in other currencies are recorded in USD at the exchange rates in effect at the date they were acquired or assumed. Monetary assets and liabilities denominated in other currencies are translated into United States dollars at the exchange rates in effect at the balance sheet date. Translation adjustments are recorded in other expense in the consolidated statements of operations. Gains and losses realized from non-USD transactions, including intercompany balances not considered as permanent investments, are included in other expense in the accompanying consolidated statements of operations.

Revenue Recognition

Our revenues are derived primarily from product revenue and collaborative research and development agreements. The majority of our contracts with customers typically contain multiple products and services. We account for individual products and services separately if they are distinct-that is, if a product or service is separately identifiable from other items in the contract and if a customer can benefit from it on its own or with other resources that are readily available to the customer.

In determining the appropriate amount of revenue to be recognized as we fulfill our obligations under our product revenue and collaborative research and development agreements, we perform the following steps: (i) identification of the promised goods or services in the contract; (ii) determination of whether the promised goods or services are performance obligations, including whether they are distinct in the context of the contract; (iii) measurement of the transaction price, including the constraint on variable consideration; (iv) allocation of the transaction price to the performance obligations based on estimated selling prices; and (v) recognition of revenue when (or as) we satisfy each performance obligation.

The majority of our collaborative contracts contain multiple revenue streams such as upfront and/or annual license fees, fees for research and development services, contingent milestone payments upon achievement of contractual criteria, and royalty fees based on the licensees' product revenue or usage, among others. We determine the stand-alone selling price ("SSP") and allocate consideration to distinct performance obligations. Typically, we base our SSPs on our historical sales. If an SSP is not directly observable, then we estimate the SSP taking into consideration market conditions, forecasted sales, entity-specific factors and available information about the customer. We estimate the SSP for license rights by using historical information if licenses have been previously sold to customers and for new licenses, we consider multiple methods, including a discounted cash flow method which includes the following key assumptions: the development timelines, revenue forecasts, commercialization expenses, discount rate, and the probability of technical and regulatory success.

We account for a contract with a customer when there is approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance and collectability of consideration is probable. Non-cancellable purchase orders received from customers to deliver a specific quantity of product, when combined with our order confirmation, in exchange for future consideration, create enforceable rights and obligations on both parties and constitute a contract with a customer.

We measure revenue based on the consideration specified in the contract with each customer, net of any sales incentives and taxes collected on behalf of government authorities. We recognize revenue in a manner that best depicts the transfer of promised goods or services to the customer, when control of the product or service is transferred to a customer. We make significant judgments when determining the appropriate timing of revenue recognition.

The following is a description of principal activities from which we generate revenue:

Product Revenue

Product revenue consist of sales of biocatalysts, pharmaceutical intermediates and Codex® biocatalyst panels and kits. A majority of our product revenue is made pursuant to purchase orders or supply agreements and is recognized either at a point in time when the control of the product has been transferred to the customer typically upon shipment or over time as the product is manufactured because we have a right to payment from the customer under a binding, non-cancellable purchase order, and there is no alternate use of the product for us as it is specifically made for the customer's use.

Certain of our agreements provide options to customers which they can exercise at a future date, such as the option to purchase our product during the contract duration at discounted prices and an option to extend their contract, among others. In accounting for customer options, we determine whether an option is a material right and this requires us to exercise significant judgment. If a contract provides the customer an option to acquire additional goods or services at a discount that exceeds the range of discounts that we typically give for that product or service for the same class of customer, or if the option provides the customer certain additional goods or services for free, the option may be considered a material right. If the contract gives the customer the option to acquire additional goods or services at their normal SSPs, we would likely determine that the option is not a material right and, therefore, account for it as a separate performance obligation when the customer exercises the option. We primarily account for options which provide material rights using the alternative approach available pursuant to the applicable accounting guidance, as we concluded we meet the criteria for using the alternative approach. Therefore, the transaction price is calculated as the expected consideration to be received for all the goods and services we expect to provide under the contract. We update the transaction price for expected consideration, subject to constraint, each reporting period if our estimates of future goods to be ordered by customers change.

Research and Development Revenue

We perform research and development activities as specified in each respective customer agreement. We identify each performance obligation in our research and development agreements at contract inception. We allocate the consideration to each distinct performance obligation based on the SSP of each performance obligation. Performance obligations included in our research and services agreements typically include research and development services for a specified term, periodic reports and small samples of enzyme produced.

The majority of our research and development agreements are based on a contractual rate per dedicated project team working on the project. The underlying product that we develop for customers does not create an asset with an alternative use to us and the customer receives benefits as we perform the work towards completion. Thus, our performance obligations are generally satisfied over time as the service is performed. We utilize an appropriate method of measuring progress towards the completion of our performance obligations to determine the timing of revenue recognition. For each performance obligation that is satisfied over time, we recognize revenue using a single measure of progress either based on hours incurred or output of services provided.

Our contracts frequently provide customers with rights to use or access our products or technology, along with other promises or performance obligations. We must first determine whether the license is distinct from other promises, such as our promise to manufacture a product. If we determine that the customer cannot benefit from the license without our manufacturing capability, the license will be accounted for as combined with the other performance obligations. If we determine that a license is distinct and has significant standalone functionality, we recognize revenues from a functional license at a point in time when the license is transferred to the customer, and the customer can use and benefit from it. We estimate the SSP for license rights by using historical information if licenses have been previously sold to customers and for new licenses, we consider multiple methods, including a discounted cash flow method which includes the following key assumptions: the development timelines, revenue forecasts, commercialization expenses, discount rate, and the probability of technical and regulatory success. For licenses that have been previously sold to other customers, we use historical information to determine SSP.

At the inception of each arrangement that includes variable consideration such as development milestone payments, we evaluate whether the milestones are considered probable of being reached and estimate the amount to be included in the transaction price using the most likely amount method. If it is probable that a significant revenue reversal would not occur, the associated milestone value is included in the transaction price. Milestone payments that are not within our control or the licensee, such as regulatory approvals, are not considered probable of being achieved until those approvals are received. The transaction price is then allocated to each performance obligation on a relative stand-alone selling price basis, for which we recognize revenue as or when the performance obligations under the contract are satisfied. At the end of each subsequent reporting period, we re-evaluate the probability of achievement of such development milestones and any related constraint, and if necessary, adjust our estimate of the overall transaction price. Any such adjustments are recorded on a cumulative catch-up basis, which would affect license, collaboration and other revenues and earnings in the period of adjustment.

Our CodeEvolver® technology platform transfer collaboration agreements typically include license fees, upfront fees, and variable consideration in the form of milestone payments, and sales or usage-based royalties. We have recognized revenues from our platform technology transfer agreements over time as our customer uses our technology.

For license agreements that include sales or usage-based royalty payments to us, we do not recognize revenue until the underlying sales of the product or usage has occurred. At the end of each reporting period, we estimate the royalty amount. We recognize revenue at the later of (i) when the related sale of the product occurs, or (ii) when the performance obligation to which some or all of the royalty has been allocated has been satisfied, or partially satisfied.

Practical Expedients, Elections, and Exemptions

We apply certain practical expedients available which permit us not to adjust the amount of consideration for the effects of a significant financing component if, at contract inception, the expected period between the transfer of promised goods or services and customer payment is one year or less.

We perform monthly services under our research and development agreements, and we use a practical expedient permitting us to recognize revenue at the same time that we have the right to invoice our customer for monthly services completed to date.

We have elected to treat shipping and handling activities as fulfillment costs.

We have elected to record revenue net of sales and other similar taxes.

Contract Assets

Contract assets include amounts related to our contractual right to consideration for completed performance obligations not yet invoiced. Contract assets are reclassified to receivables when the rights become unconditional.

Contract Liabilities

Contract liabilities are recorded as deferred revenues and include payments received in advance of performance under the contract. Contract liabilities are realized when the development services are provided to the customer or control of the products has been transferred to the customer. A portion of our contract liabilities relate to supply arrangements that contain material rights that are recognized using the alternative method, under which the aggregate amount invoiced to the customer for shipped products, including contractual fees, is higher than the amount of revenue recognized based on the transaction price allocated to the shipped products.

Contract Costs

We recognize a non-current asset for the incremental costs of obtaining a contract with a customer if the entity expects to recover such costs and if those costs would not have been incurred if the contract had not been obtained, such as commissions paid to sales personnel. We do not typically incur significant incremental costs because the compensation of our salespeople is not based on contracts closed but on a mixture of company goals, individual goals, and sales goals. If a commission paid is directly related to obtaining a specific contract, our policy is to capitalize and amortize such costs on a systematic basis, consistent with the pattern of transfer of the good or service to which the asset relates, and over a period beyond 12 months. Contract costs are reported in other non-current assets and were not significant in any of the periods presented.

Cost of Product Revenue

Cost of product revenue comprises both internal and third party fixed and variable costs including materials and supplies, labor, facilities, and other overhead costs associated with our product sales. Shipping costs are included in our cost of product revenue. Shipping costs were $1.0 million, $3.0 million, and $1.8 million for the years ended December 31, 2023, 2022, and 2021, respectively.

Fulfillment costs, such as shipping and handling, are recognized at a point in time and are included in cost of product revenue.

Cost of Research and Development Services

Cost of research and development services related to services under research and development agreements approximate the research funding over the term of the respective agreements and is included in research and development expense. Costs of services provided under license and platform technology transfer agreements are included in research and development expenses and are expensed in the periods in which such costs are incurred.

Research and Development Expenses

Research and development expenses consist of costs incurred for internal projects and partner-funded collaborative research and development activities, as well as license and platform technology transfer agreements, as mentioned above. These costs include our direct and research-related overhead expenses, which include salaries and other personnel-related expenses (including stock-based compensation), occupancy-related costs, supplies, and depreciation of facilities and laboratory equipment, as well as external costs, and are expensed as incurred. Costs to acquire technologies that are utilized in research and development and that have no alternative future use are expensed when incurred.

Advertising

Advertising costs are expensed as incurred and included in selling, general and administrative expenses in the consolidated statements of operations.Advertising costs were $0.3 million for each of the years ended December 31, 2023, 2022 and 2021.

Stock-Based Compensation

We use the Black-Scholes-Merton option pricing model to estimate the fair value of stock options granted under our equity incentive plans and for our employee stock purchase plan (“ESPP”). The Black-Scholes-Merton option pricing model requires the use of assumptions, including the expected term of the award and the expected stock price volatility. The expected term is based on historical exercise behavior for similar awards, giving consideration to the contractual terms, vesting schedules and expectations of future employee behavior. We use historical volatility to estimate expected stock price volatility. The risk-free rate assumption is based on United States Treasury instruments whose terms are consistent with the expected term of the stock options. The expected dividend assumption is based on our history and expectation of dividend payouts.

Restricted Stock Units ("RSUs"), Restricted Stock Awards ("RSAs") and performance-contingent restricted stock units ("PSUs") are measured based on the fair market values of the underlying stock on the dates of grant. Performance based options ("PBOs") are measured using the Black-Scholes-Merton option pricing model. The vesting of PBOs and PSUs awarded is conditioned upon the attainment of one or more performance objectives over a specified period and upon continued employment through the applicable vesting date. At the end of the performance period, shares of stock subject to the PBOs and PSUs vest based upon both the level of achievement of performance objectives within the performance period and continued employment through the applicable vesting date.

Stock-based compensation expense is calculated based on awards ultimately expected to vest and is reduced for estimated forfeitures at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. The estimated annual forfeiture rates for stock options, RSUs, PSUs, PBOs, and RSAs are based on historical forfeiture experience.

The estimated fair value of stock options, RSUs, RSAs and shares to be issued under the ESPP are expensed on a straight-line basis over the vesting term of the grant and the estimated fair value of PSUs and PBOs are expensed using an accelerated method over the term of the award once management has determined that it is probable that the performance objective will be achieved. Compensation expense is recorded over the requisite service period based on management's best estimate as to whether it is probable that the shares awarded are expected to vest. Management assesses the probability of the performance milestones being met on a continuous basis.

Cash and Cash Equivalents

We consider all highly liquid investments with maturity dates of three months or less at the date of purchase to be cash equivalents. Cash and cash equivalents consist of cash on deposit with banks and money market funds. The majority of cash and cash equivalents is maintained with major financial institutions in the United States. Deposits with these financial institutions may exceed the amount of insurance provided on such deposits.

Restricted Cash

In 2016, we began the process of liquidating our Indian subsidiary. The local legal requirements for liquidation required us to maintain our subsidiary's cash balance in an account managed by a legal trustee to satisfy our financial obligations. This balance is recorded as current restricted cash on the consolidated balance sheets of $0.5 million as of December 31, 2023 and 2022.

Pursuant to the terms of our lease agreements, we obtained letters of credit collateralized by cash deposit balances of $1.1 million and $1.5 million as of December 31, 2023 and 2022, respectively. These cash deposits balances are recorded as non-current restricted cash on the consolidated balance sheets. For additional information, see Note 13, "Commitments and Contingencies."

Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. In determining fair value, we utilize valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs to the extent possible and we consider counterparty credit risk in our assessment of fair value. Carrying amounts of financial instruments, including cash equivalents, accounts receivable, accounts payable, and accrued liabilities, approximate their fair values as of the balance sheet dates because of their short maturities.

The fair value hierarchy distinguishes between (1) market participant assumptions developed based on market data obtained from independent sources (observable inputs) and (2) an entity's own assumptions about market participant assumptions developed based on the best information available in the circumstances (unobservable inputs). The fair value hierarchy consists of three broad levels, giving the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). The three levels of the fair value hierarchy are described below:

- Level 1: Inputs that are unadjusted, quoted prices in active markets for identical assets or liabilities at the measurement date.
- Level 2: Inputs that are either directly or indirectly observable for the asset or liability through correlation with market data at the measurement date and for the duration of the instrument's anticipated life.

- Level 3: Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities and which reflect management's best estimate of what market participants would use in pricing the asset or liability at the measurement date.

Concentrations of Credit Risk

Financial instruments that potentially subject us to significant concentrations of credit risk consist primarily of cash and cash equivalents, accounts receivable and unbilled receivables, contract assets, non-marketable securities, and restricted cash. Cash that is not required for immediate operating needs is invested principally in money market funds. Cash and cash equivalents are invested through banks and other financial institutions in the United States and India. Such deposits in those countries may be in excess of insured limits. The Company has not experienced material losses on its deposits of cash and cash equivalents.

We perform ongoing credit evaluations of our customer's financial condition whenever deemed necessary. We maintain an allowance for doubtful accounts based on the expected collectability of all financial assets, which takes into consideration an analysis of historical bad debts, specific customer creditworthiness and current economic trends. As of December 31, 2023, we had four customers that accounted for 58% of our accounts receivable balance. As of December 31, 2022, two customers accounted for63% of our accounts receivable balance. We believe the accounts receivable balances from our largest customers do not represent a significant credit risk, based on cash flow forecasts, balance sheet analysis, and past collection experience.

Financial Assets and Allowances

We currently sell enzymes primarily to pharmaceutical and fine chemicals companies throughout the world by the extension of trade credit terms based on an assessment of each customer's financial condition. Trade credit terms are generally offered without collateral and may include an insignificant discount for prompt payment for specific customers. To manage our credit exposure, we perform ongoing evaluations of our customers' financial conditions. In addition, accounts receivable include amounts owed to us under our collaborative research and development agreements.

We recognize accounts receivable at invoiced amounts and we maintain a valuation allowance for credit losses using an impairment model (known as the "current expected credit loss model" or "CECL") based on estimates and forecasts of future conditions requiring recognition of a lifetime of expected credit losses at inception on our financing receivables measured at amortized costs which consisted of accounts receivable, contract assets, and unbilled receivables. We have determined that our financing receivables share similar risk characteristics including: (i) customer origination in the pharmaceutical and fine chemicals industry, (ii) similar historical credit loss pattern of customers (iii) no meaningful trade receivable differences in terms, (iv) similar historical credit loss experience and (v) our belief that the composition of certain assets are comparable to our historical portfolio used to develop loss history. As a result, we measured the allowance for credit loss ("ACL") on a collective basis. Our ACL methodology considers how long the asset has been past due, the financial condition of the customers, which includes ongoing quarterly evaluations and assessments of changes in customer credit ratings, and other market data that we believe are relevant to the collectability of the assets. Nearly all financing receivables are due from customers that are highly rated by major rating agencies and have a long history of no credit loss. We derive our ACL by establishing an impairment rate attributable to assets not yet identified as impaired.

Unbilled Receivable

The timing of revenue recognition may differ from the timing of invoicing to our customers. When we satisfy (or partially satisfy) a performance obligation, prior to being able to invoice the customer, we recognize an unbilled receivable when the right to consideration is unconditional.

Inventories

Inventories are stated at the lower of cost or net realizable value. Cost is determined using a weighted-average approach, assuming full absorption of direct and indirect manufacturing costs, or based on cost of purchasing from our vendors. If inventory costs exceed expected net realizable value due to obsolescence or lack of demand, valuation adjustments are recorded for the difference between the cost and the expected net realizable value.

Concentrations of Supply Risk

We rely on a limited number of suppliers for our products. We believe that other vendors would be able to provide similar products; however, the qualification of such vendors may require substantial start-up time. In order to mitigate any adverse impacts from a disruption of supply, we attempt to maintain an adequate supply of critical single-sourced materials. For certain materials, our vendors maintain a supply for us. We outsource the large-scale manufacturing of our products to contract manufacturers with facilities in Austria and Italy.

Property and Equipment

Property, equipment and leasehold improvements are stated at cost less accumulated depreciation and amortization calculated using the straight-line method over their estimated useful lives as follows:

Asset classification	Estimated useful life
Laboratory equipment	5 years
Computer equipment and software	3 years
Office equipment and furniture	5 years
Leasehold improvements	Lesser of useful life or lease term

Property and equipment classified as construction in process includes equipment that has been received but not yet placed in service. Normal repairs and maintenance costs are expensed as incurred.

Impairment of Long-Lived Assets

We evaluate the carrying values of long-lived assets, which include property and equipment and right-of-use assets, whenever events, changes in business circumstances or our planned use of long-lived assets indicate that their carrying amounts may not be fully recoverable or that their useful lives are no longer appropriate. If these facts and circumstances exist, we assess for recovery by comparing the carrying values of long-lived assets with their future net undiscounted cash flows expected to be generated by the asset. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of the asset exceeds the fair value of the asset. For additional information on the impairment charge recorded for the year ended December 31, 2023, see Note 8, “Balance Sheets Details” and Note 13, “Commitments and Contingencies.”No impairment charges for long-lived assets were recorded during the year ended December 31, 2022.

Investment in Non-Marketable Equity Securities

We measure investments in non-marketable equity securities without a readily determinable fair value using a measurement alternative that measures these securities at the cost method minus impairment, if any, plus or minus changes resulting from observable price changes on a non-recurring basis. Gains and losses on these securities are recognized in other income (expense), net.

We evaluate equity securities for impairment when circumstances indicate that we may not be able to recover the carrying value. We may impair these securities and establish an allowance for a credit loss when we determine that there has been an "other-than-temporary” decline in the estimated fair value of the equity security compared to its carrying value. We calculate the estimated fair value of these securities using information from the investee, which may include:

- Audited and unaudited financial statements;
- Projected technological developments of the company;
- Projected ability of the company to service its debt obligations;
- If a deemed liquidation event were to occur;
- Current fundraising transactions;
- Current ability of the company to raise additional financing if needed;
- Changes in the economic environment which may have a material impact on the operating results of the company;
- Contractual rights, obligations or restrictions associated with the investment; and
- Other factors deemed relevant by our management to assess valuation.

The valuation may be reduced if the company's potential has deteriorated significantly. If the factors that led to a reduction in valuation are overcome, the valuation may be readjusted. For additional information on the impairment charge recorded for the year ende December 31, 2023, see Note 6, “Investments in Non-Marketable Securities.”

Goodwill

Goodwill represents the excess of the consideration transferred over the fair value of net assets of businesses acquired and is assigned to reporting units. We test goodwill for impairment considering amongst other things, whether there have been sustained declines in our share price. If we conclude it is more likely than not that the fair value is less than its carrying amount, a quantitative fair value test is performed. Goodwill had a carrying value of $2.5 million and $3.2 million as of December 31, 2023 and 2022, respectively.

We test goodwill for impairment annually, on the last day of the fourth fiscal quarter, and between annual tests if events and circumstances indicate it is more likely than not that the fair value is less than its carrying amount. The annual impairment test is completed using either: a qualitative "Step 0" assessment based on reviewing relevant events and circumstances; or a quantitative "Step 1" assessment, which determines the fair value. To the extent the carrying amount is less than its estimated fair value, an impairment charge is recorded. Using a relative fair value allocation methodology for assets and liabilities, we compare the carrying amount of net assets and the goodwill to its fair value. If the fair value exceeds its carrying amount, goodwill is considered not impaired. Any excess carrying amount of goodwill over its fair value is recognized as an impairment. We recorded impairment charges related to goodwill of $0.8 million, nil, and nil for the years ended December 31, 2023, 2022, and 2021, respectively. For additional information on the impairment charge recorded for the year ended December 31, 2023, see Note 8, “Balance Sheets Details.”

Lease Accounting

We determine if an arrangement is a lease at inception. Where an arrangement is a lease, we determine if it is an operating lease or a finance lease. At lease commencement, we record a lease liability and ROU asset. Lease liabilities represent the present value of our future lease payments over the expected lease term which includes options to extend or terminate the lease when it is reasonably certain those options will be exercised. The present value of our lease liability is determined using our incremental collateralized borrowing rate at lease inception. ROU assets represent our right to control the use of the leased asset during the lease and are recognized in an amount equal to the lease liability for leases with an initial term greater than 12 months. Over the lease term, we use the effective interest rate method to account for the lease liability as lease payments are made and the ROU asset is amortized to the consolidated statement of operations in a manner that results in straight-line expense recognition. We do not apply lease recognition requirements for short-term leases. Instead, we recognize payments related to these arrangements in the consolidated statement of operations as lease costs on a straight-line basis over the lease term.

Income Taxes

We use the liability method of accounting for income taxes, whereby deferred tax asset or liability account balances are calculated at the balance sheet date using current tax laws and rates in effect for the year in which the differences are expected to affect taxable income. Valuation allowances are provided when necessary to reduce deferred tax assets to the amount that will more likely than not be realized.

We make certain estimates and judgments in determining income tax expense for financial statement purposes. These estimates and judgments occur in the calculation of tax credits, benefits and deductions and in the calculation of certain tax assets and liabilities, which arise from differences in the timing of recognition of revenues and expenses for tax and financial statement purposes. Significant changes to these estimates may result in an increase or decrease to our tax provision in a subsequent period.

In assessing the realizability of deferred tax assets, we consider whether it is more likely than not that some portion or all of the deferred tax assets will be realized on a jurisdiction by jurisdiction basis. The ultimate realization of deferred tax assets is dependent upon the generation of taxable income in the future. We have recorded a valuation allowance against these deferred tax assets in jurisdictions where ultimate realization of deferred tax assets is more likely than not to occur. As of December 31, 2023 and 2022, we maintain a full valuation allowance in all jurisdictions against the net deferred tax assets as we believe that it is more likely than not that the majority of deferred tax assets will not be realized.

We make estimates and judgments about our future taxable income that are based on assumptions that are consistent with our plans and estimates. Should the actual amounts differ from our estimates, the amount of our valuation allowance may be materially impacted. Any adjustment to the deferred tax asset valuation allowance would be recorded in the statements of operations for the periods in which the adjustment is determined to be required.

We account for uncertainty in income taxes as required by the provisions of Accounting Standards Update "ASU") 2009-06, *Income Taxes (Topic 740) Implementation Guidance on Accounting for Uncertainty in Income Taxes and Disclosure Amendments for Nonpublic Entities*, which clarifies the accounting for uncertainty in income taxes recognized in an enterprise's financial statements. The first step is to evaluate the tax position for recognition by determining if the weight of available evidence indicates that it is more likely than not that the position will be sustained on audit, including resolution of related appeals or litigation processes, if any. The second step is to estimate and measure the tax benefit as the largest amount that is more than 50% likely of being realized upon ultimate settlement. It is inherently difficult and subjective to estimate such amounts, as this requires us to determine the probability of various possible outcomes. We consider many factors when evaluating and estimating our tax positions and tax benefits, which may require periodic adjustments and may not accurately anticipate actual outcomes.

The Tax Reform Act of 1986 and similar state provisions limit the use of net operating loss ("NOI") carryforwards in certain situations where equity transactions result in a change of ownership as defined by Internal Revenue Code Section 382. In the event we should experience such a change of ownership, utilization of our federal and state NOL carryforwards could be limited.

Accounting Pronouncements

Recently adopted accounting pronouncements

Aside from those recently issued accounting pronouncements not yet adopted and described below, there have not been any recent accounting pronouncements or changes in accounting pronouncements during the year ended December 31, 2023 that are of significance or potential significance to us.

Recently issued accounting pronouncements not yet adopted

In December 2023, the Financial Accounting Standards Board ("FASB") issued ASU No. 2023-09, *Income Taxes (Topic 740): Improvements to Income Tax Disclosures* The amendments in the ASU are intended to benefit investors by providing more detailed income tax disclosures that would be useful in making capital allocation decisions. This ASU is effective for public companies with annual periods beginning after December 15, 2024, with early adoption permitted. We are currently evaluating the effects of the standard on our consolidated financial statements and related disclosures.

In November 2023, FASB issued ASU No. 2023-07, *Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures*. The amendments in the ASU are intended to improve reportable segment disclosure requirements primarily through enhanced disclosures about significant segment expenses. The standard is effective for fiscal years beginning after December 15, 2023, and interim periods within fiscal years beginning after December 15, 2024, with early adoption permitted. The standard should be applied retrospectively to all prior periods presented in the financial statements. We are currently evaluating the effects of the standard on our consolidated financial statements and related disclosures.

In October 2023, FASB issued ASU No. 2023-06, *Disclosure Improvements: Codification Amendments in Response to the SEC's Disclosure Update and Simplification Initiative* The amendments in the ASU are intended to amend certain disclosure and presentation requirements for a variety of topics within the Accounting Standards Codification ("ASC"). These amendments align the requirements in the ASC to the removal of certain disclosure requirements set out in Regulation S-X and Regulation S-K, as announced by the SEC. The effective date for each amended topic in the ASC is either the date on which the SEC's removal of the related disclosure requirement from Regulation S-X or Regulation S-K becomes effective, or on June 30, 2027, if the SEC has not removed the requirements by that date. Early adoption is prohibited. We are currently evaluating the effects of the standard on our consolidated financial statements and related disclosures.

Note 3. Revenue Recognition

Disaggregation of Revenue

The following table provides information about disaggregated revenue from contracts with customers into the nature of the products and services, and geographic regions, and includes a reconciliation of the disaggregated revenue. The geographic regions that are tracked are the Americas (United States, Canada, and Latin America), EMEA (Europe, Middle East, and Africa), and APAC (Australia, New Zealand, Southeast Asia, and China).

Disaggregated information is as follows (in thousands):

	Year Ended December 31,		
	2023	2022	2021
Major products and service:			
Product revenue	$ 42,906	$ 116,676	$ 70,657
Research and development revenue	27,237	21,914	34,097
Total revenues	$ 70,143	$ 138,590	$ 104,754
Primary geographical markets:			
Americas	$ 13,733	$ 17,000	$ 23,481
EMEA	22,907	56,540	20,187
APAC	33,503	65,050	61,086
Total revenues	$ 70,143	$ 138,590	$ 104,754

For additional information regarding revenue disaggregated by geography, see Note 15, "Segment, Geographical and Other Revenue Information"

Contract Balances

The following table presents balances of contract assets, unbilled receivables, contract costs, and contract liabilities (in thousands):

	December 31, 2023	December 31, 2022
Contract assets	$ 815	$ 2,116
Unbilled receivables	$ 9,904	$ 7,016
Contract costs	$ —	$ 19
Contract liabilities: deferred revenue	$ 10,761	$ 30,609

We recognize accounts receivable when we have an unconditional right to recognize revenue and have issued an invoice to the customer. Our payment terms are generally between 30 and 90 days. We recognize unbilled receivables when we have an unconditional right to recognize revenue and have not issued an invoice to our customer. Unbilled receivables are transferred to accounts receivable on issuance of an invoice. Unbilled receivables are classified separately on the consolidated balance sheets as an asset. We maintain a valuation allowance on accounts receivables and unbilled receivables. As of December 31, 2023, we have $9.1 million of short-term unbilled receivables presented as unbilled receivables within current assets and $0.8 million of long-term unbilled receivables that is included within the other non-current assets line item in the consolidated balance sheets. As of December 31, 2022, we had $7.0 million of short-term unbilled receivables presented as unbilled receivables within current asset.

Contract assets represent our right to recognize revenue for custom products with no alternate use and under binding non-cancellable contracts and are largely related to our procurement of product. We recognize contract assets when we have a conditional right to recognize revenue. The transfer of control of certain products occurs in advance of the invoicing process, which generates contract assets. In addition, we recognize a contract asset related to milestones not eligible for royalty accounting when we assess it is probable of being achieved and there will be no significant reversal of cumulative revenues. Contract assets are classified separately on the consolidated balance sheets as an asset and transferred to accounts receivables when our rights to payment become unconditional.

Contract liabilities, or deferred revenue, represent our obligation to transfer a product or service to the customer, and for which we have received consideration from the customer. We recognize a contract liability when we receive advance customer payments under development agreements for research and development services, upfront license payments, and from upfront customer payments received under product supply agreements. Contract liabilities are classified as a liability on the consolidated balance sheets.

Contract costs relate to incremental costs of obtaining a contract with a customer. Contract costs are amortized along with the associated revenue over the term of the contract.

During the years ended December 31, 2023, 2022 and 2021, we hadno asset impairment charges related to contract assets.

We recognized the following revenues (in thousands):

	Year Ended December 31,	
Revenue recognized in the period for:	**2023**	**2022**
Amounts included in contract liabilities at the beginning of the period:		
Performance obligations satisfied	$ 17,937	$ 2,038
Changes in the period:		
Changes in the estimated transaction price allocated to performance obligations satisfied in prior periods	4,165	279
Performance obligations satisfied from new activities in the period - contract revenue	48,041	136,273
Total revenues	$ 70,143	$ 138,590

Performance Obligations

The following table includes estimated revenue expected to be recognized in the future related to performance obligations that are unsatisfied or partially unsatisfied at the end of the reporting periods. The estimated revenue does not include contracts with original durations of one year or less, amounts of variable consideration attributable to royalties, or contract renewals that are unexercised as of December 31, 2023.

The balances in the table below are partially based on judgments involved in estimating future orders from customers subject to the exercise of material rights pursuant to respective contracts (in thousands):

	2024	**2025**	**2026**	**2027 and Thereafter**	**Total**
Product revenue	$ 10,121	$ 140	$ 140	$ 360	$ 10,761

Note 4. Net Loss per Share

Basic net loss per share is computed by dividing the net loss by the weighted-average number of shares of common stock outstanding, less restricted stock awards ("RSAs") subject to forfeiture. Diluted net loss per share is computed by dividing net loss by the weighted-average number of shares of common stock shares outstanding, less RSAs subject to forfeiture, plus all additional common shares that would have been outstanding, assuming dilutive potential common stock shares had been issued for other dilutive securities. For all periods presented, diluted and basic net loss per share are identical since potential common stock shares are excluded from the calculation, as their effect was anti-dilutive.

Anti-Dilutive Securities

In periods of net loss, the weighted average number of shares outstanding, prior to the application of the treasury stock method, excludes potentially dilutive securities from the computation of diluted net loss per common share because including such shares would have an anti-dilutive effect.

The following shares were not considered in the computation of diluted net loss per share because their effect was anti-dilutive (in thousands):

	Year Ended December 31,		
	2023	**2022**	**2021**
Shares issuable under the Equity Incentive Plans and ESPP[(1)]	9,028	7,442	5,215

[(1)] Included 568,224 of anti-dilutive potential common shares from ESPP for the year ended December 31, 2023.

Note 5. Collaborative Arrangements

GSK Platform Technology Transfer, Collaboration and License Agreement

In July 2014, we entered into a CodeEvolver® Platform Technology Transfer, Collaboration and License agreement (the "GSK CodeEvolver® Agreement") with GSK. Pursuant to the terms of the agreement, we granted GSK a non-exclusive license to use the CodeEvolver® technology platform to develop novel enzymes for use in the manufacture of GSK's pharmaceutical and health care products. We completed the transfer of the CodeEvolver® technology platform to GSK in April 2016 and all revenues relating to the technology transfer have been recognized as of April 2016. Depending upon GSK's successful application of the licensed technology, we have the potential to receive additional contingent payments that range from $5.8 million to $38.5 million per project.

In 2019, we received a $2.0 million milestone payment relating to the advancement of an enzyme developed by GSK using our CodeEvolver® technology platform. In 2021, we received two additional milestone payments from GSK under the agreement. In 2023, we received an additional milestone payment from GSK under the agreement. We recognized research and development revenue of $1.3 million, nil, and $4.3 million in the years ended December 31, 2023, 2022, and 2021, respectively.

Merck Platform Technology Transfer and License Agreement

In August 2015, we entered into a CodeEvolver® technology platform transfer collaboration and license agreement (the "Merck CodeEvolver® Agreement") with Merck, Sharp & Dohme ("Merck") which allows Merck to use the CodeEvolver® technology platform in the field of human and animal healthcare. In 2016, we completed the final phase in the transfer of the CodeEvolver® technology platform to Merck under the Merck CodeEvolver® Agreement.

We recognized research and development revenues of nil, $40 thousand, and $0.6 million in the years ended December 31, 2023, 2022 and 2021, respectively, for various research projects under our collaborative arrangement.

We have the potential to receive payments of up to a maximum of $15.0 million for each commercial active pharmaceutical ingredient ("API") that is manufactured by Merck using one or more novel enzymes developed by Merck using the CodeEvolver® technology platform. The API payments, which are currently not recognized in revenue, are based on the quantity of API developed and manufactured by Merck and will be recognized as usage-based royalties.

In October 2018, we entered into an amendment to the Merck CodeEvolver® Agreement which amended certain licensing provisions and one exhibit. In January 2019, we amended the Merck CodeEvolver® Agreement to install certain CodeEvolver® technology platform upgrades into Merck's platform license installation and maintain those upgrades for a multi-year term that expired in January 2022. The license installation was completed in 2019. No research and development revenues were recognized in the years ended December 31, 2023 and 2022. We recognized $0.1 million in research and development revenues under the terms of the amendment in the year ended December 31, 2021.

Merck Sitagliptin Catalyst Supply Agreement

In February 2012, we entered into a five-year Sitagliptin Catalyst Supply Agreement ("Sitagliptin Supply Agreement") with Merck whereby Merck may obtain commercial scale enzyme for use in the manufacture of Januvia®, its product based on the active ingredient sitagliptin. In December 2015, Merck exercised its options under the terms of the Sitagliptin Supply Agreement to extend the agreement for an additional five years through February 2022. In September 2021, the Sitagliptin Supply Agreement was amended to extend the agreement through December 2026.

Effective as of January 2016, we and Merck amended the Sitagliptin Supply Agreement to prospectively provide for variable pricing based on the cumulative volume of sitagliptin enzyme purchased by Merck. We have previously determined that the variable pricing, which provides a discount based on the cumulative volume of sitagliptin enzyme purchased by Merck, provides Merck material rights and we recognized product revenues using the alternative method wherein we estimated the total expected consideration and allocated it proportionately with the expected sales. Pursuant to the latest amendment of the Sitagliptin Supply Agreement, we have determined that the latest price per volume of sitagliptin enzyme to be purchased by Merck no longer provides Merck material rights, and as such we are recognizing product revenue based on contractually stated prices effective as of February 2022.

We recognized $4.4 million, $5.9 million and $9.8 million in product revenue under this agreement in the years ended December 31, 2023, 2022 and 2021, respectively. This represented 6%, 4%, and 9% of our total revenues in the years ended December 31, 2023, 2022 and 2021, respectively.

During the year ended December 31, 2023, we recorded revenue of $0.7 million from sitagliptin enzyme sales that were recognized over time based on the progress of the manufacturing process. These products will be shipped within the three-month period following the end of 2023.

Enzyme Supply Agreement

In November 2016, we entered into a supply agreement whereby our customer may purchase quantities of one of our proprietary enzymes for use in its commercial manufacture of a product. Pursuant to the supply agreement, we received an upfront payment in December 2016 which was recorded as deferred revenue. Such upfront payment will be recognized over the period of the supply agreement as the customer purchases our proprietary enzyme. We additionally have determined that the volume discounts under the supply agreement provide the customer material rights and we are recognizing revenues using the alternative method. In 2023, due to the early termination of the enzyme supply agreement with the customer, we recognized $3.2 million of product revenue from the release of prior periods' product revenue deferrals and also recognized $1.3 million of product revenue as settlement fee pursuant to the enzyme supply agreement with the same customer.

As of December 31, 2023 and 2022, we had deferred revenue balances from the supply agreement of nil and $3.3 million.

Commercial Agreement

In April 2019, we entered into a multi-year commercial agreement with Tate & Lyle under which Tate & Lyle has received an exclusive license to use a suite of Codexis novel performance enzymes in the manufacture of Tate & Lyle's zero-calorie stevia sweetener, TASTEVA® M, and other stevia products. Under the agreement, we will supply Tate & Lyle with its requirements for these enzymes over a multiple year period and receive royalties on stevia products. In November 2020, we amended the commercial agreement based on Tate & Lyle's intent to use a specific Codexis novel performance enzyme in its production of TASTEVA® M Stevia Sweetener and became eligible to receive milestone payments of up to $1.1 million. In the fourth quarter of 2020, we became eligible to receive a milestone payment of $0.4 million which we subsequently received in February 2021. The commercial agreement with Tate & Lyle was terminated in 2023.

Global Development, Option and License Agreement and Strategic Collaboration Agreement

In October 2017, we entered into the Nestlé License Agreement with Nestlé Health Science and, solely for the purpose of the integration and the dispute resolution clauses of the Nestlé License Agreement, Nestlé Health Science S.A., to advance CDX-6114, our enzyme biotherapeutic product candidate for the potential treatment of PKU.

In January 2019, we received notice from the U.S. Food and Drug Administration ("FDA") that it had completed its review of our IND for CDX-6114 and concluded that we may proceed with the proposed Phase 1b multiple ascending dose study in healthy volunteers in the United States. In February 2019, Nestlé Health Science exercised its option to obtain an exclusive, worldwide, royalty-bearing, sub-licensable license for the global development and commercialization of CDX-6114 for the management of PKU. Upon exercising its option, Nestlé Health Science made an option payment and assumed all responsibilities for future clinical development and commercialization of CDX-6114. In October 2023, we provided notice pursuant to Nestlé License Agreement of our intent to abandon or transfer to Nestlé Health Science (at their option) the patents and patent applications related to CDX-6114 as of December 5, 2023, and Nestlé Health Science notified us that they did not exercise their right to assume responsibility of such patents and patent applications.

In October 2017, we entered into the Nestlé SCA pursuant to which we and Nestlé Health Science are collaborating to leverage the CodeEvolver® technology platform to develop novel enzymes for Nestlé Health Science's established Consumer Care and Medical Nutrition business areas. The term of the Nestlé SCA has expired in December 2023, as we opted out of a renewal period through December 2024.

In January 2020, we entered into a development agreement with Nestlé Health Science pursuant to which we and Nestlé Health Science are collaborating to advance a lead candidate discovered through our Nestlé SCA, CDX-7108, targeting exocrine pancreatic insufficiency, into preclinical and early clinical studies. We, together with Nestlé Health Science, initiated a Phase 1 clinical trial of CDX-7108 in the fourth quarter of 2021, and on February 23, 2023, we and Nestlé Health Science announced interim results. In July 2023, we announced plans to discontinue our development support of CDX-7108.

Under the Nestlé SCA and the development agreement, we recognized $4.1 million, $7.1 million and $6.9 million in research and development revenue in the years ended December 31, 2023, 2022 and 2021, respectively. Both the Nestlé SCA and the development agreement were terminated in January 2024.

Acquisition Agreement

In December 2023, we entered into an acquisition agreement (the "Acquisition Agreement") with Nestlé Health Science, pursuant to which we agreed to assign our interests in CDX-7108 (including associated agreements and intellectual property rights) to Nestlé Health Science. Under the terms of the Acquisition Agreement, Nestlé Health Science will be solely responsible for the continued development and commercialization of CDX-7108, including all associated costs, and Codexis will receive upfront payment, future potential milestone payments and net-sales based royalties. We recognized research and development revenue of $5.0 million for the year ended December 31, 2023 related to the Acquisition Agreement. We received the $5.0 million upfront fee in January 2024.

Strategic Collaboration Agreement

In April 2018, we entered into the Porton Agreement with Porton to license key elements of our biocatalyst technology for use in Porton's global custom intermediate and API development and manufacturing business. Under the Porton Agreement, we are eligible to receive annual collaboration fees and research and development revenues. We received the initial collaboration payments of $0.5 million and $0.5 million within 30 days of the effective date and on the first anniversary of the effective date of the Porton Agreement, respectively. We also received annual collaboration payments of $1.0 million each during the first through fourth anniversaries of the effective date of the Porton Agreement. We completed the technical transfer in the fourth quarter of 2018 and recognized the related revenue in 2018. We recognized revenue related to the functional license provided to Porton at a point in time when control of the license was transferred to the customer. The initial term of the Porton Agreement expired in April 2023 and was not renewed for an extended term. We recognized research and development revenue related to the Porton Agreement of nil, $0.1 million and $1.1 million in the years ended December 31, 2023, 2022 and 2021, respectively.

Platform Technology Transfer and License Agreement

In May 2019, we entered into the Novartis CodeEvolver® Agreement with Novartis. The Novartis CodeEvolver® Agreement allows Novartis to use our proprietary CodeEvolver® technology platform in the field of human healthcare. In July 2021, we announced the completion of the technology transfer period during which we transferred our proprietary CodeEvolver® technology platform to Novartis (the "Technology Transfer Period"). As a part of this technology transfer, we provided to Novartis our proprietary enzymes, proprietary protein engineering protocols and methods, and proprietary software algorithms. In addition, our teams and Novartis scientists participated in technology training sessions and collaborative research projects at our laboratories in Redwood City, California and at a designated Novartis laboratory in Basel, Switzerland. Novartis has now installed the CodeEvolver® technology platform at its designated laboratory.

Pursuant to the agreement, we received an upfront payment of $5.0 million shortly after the effective date of the Novartis CodeEvolver® Agreement. We completed the second technology milestone transfer under the agreement in 2020 and received a milestone payment of $4.0 million. We have also received an aggregate of $5.0 million for the completion of the third technology milestone in 2021. In consideration for the continued disclosure and license of improvements to the technology and materials during a multi-year period that began on the conclusion of the Technology Transfer Period (the "Improvements Term"), Novartis will pay Codexis annual payments over four years which amount to an additional $8.0 million in aggregate. We received an aggregate of $4.0 million for the first two annual payments in 2022 and 2023. The Company also has the potential to receive quantity-dependent, usage payments for each API that is manufactured by Novartis using one or more enzymes that have been developed or are in development using the CodeEvolver® technology platform during the period beginning on the conclusion of the Technology Transfer Period and ending on the expiration date of the last to expire licensed patent. Revenue for the combined initial license and technology transfer performance obligation was recognized overtime based on hours incurred. Revenue allocated to improvements made during the Improvements Term is being recognized during the Improvements Term.

We recognized $1.1 million, $1.0 million and $1.6 million in research and development revenue in the years ended December 31, 2023, 2022 and 2021, respectively.

License Agreement

In December 2019, we entered a license agreement with Roche Sequencing Solutions, Inc. ("Roche") to provide Roche with our evolved T4 DNA ligase high-performance molecular diagnostic enzyme. The royalty bearing license grants Roche worldwide rights to include the evolved T4 DNA ligase in its nucleic acid sequencing products and workflows. Under the license agreement, we received an initial collaboration fee payment of $0.8 million within 45 days of the effective date of the agreement, and we received an additional $0.9 million milestone payment after the completion of technology transfer in October 2020. In February 2024, we entered into a new license agreement with Roche granting them rights to our newly engineered DNA ligase, superseding our prior agreement in December 2019 for our evolved T4 DNA ligase. We are eligible to receive an aggregate of mid-single digit millions in upfront and technical milestones payments. No research and development revenues were recognized in the years ended December 31, 2023 and 2022. We recognized research and development fees of $0.9 million in the year ended December 31, 2021.

Strategic Collaboration and License Agreement

In March 2020, we entered into a Strategic Collaboration and License Agreement (the "Takeda Agreement") with Shire Human Genetic Therapies, Inc., a wholly-owned subsidiary of Takeda Pharmaceutical Co. Ltd. ("Takeda"), pursuant to which we have collaborated with Takeda to research and develop protein sequences for use in gene therapy products for certain diseases in accordance with each applicable program plan.

On execution of the Takeda Agreement, we received an upfront non-refundable cash payment of $8.5 million and we initiated activities under three program plans for Fabry Disease, Pompe Disease, and an undisclosed blood factor deficiency, respectively (the "Initial Programs"). In May 2021, Takeda elected to exercise its option to initiate an additional program for a certain undisclosed rare genetic disorder; as a result we received the option exercise fee during the third quarter of 2021. We completed the research and development services relating to the fourth program with Takeda during the second quarter of 2023.

Pursuant to the Takeda Agreement, we are eligible to receive other payments that include i) clinical development and commercialization-based milestones, per target gene, of up to $104.0 million and (ii) tiered royalty payments based on net sales of applicable products at percentages ranging from the mid-single digits to low single-digits. Takeda announced in April 2023 the discontinuation of these development programs.

Revenue relating to the functional licenses provided to Takeda was recognized at a point in time when the control of the license transferred to the customer. We recognized research and development revenue related to the Takeda Agreement of $2.0 million, $4.9 million and $7.4 million in the years ended December 31, 2023, 2022, and 2021, respectively. As of December 31, 2023 and 2022, we had deferred revenue balances of nil and $0.9 million, respectively.

Master Collaboration and Research Agreement, Stock Purchase Agreement and Enzyme Supply Agreement

In June 2020, we entered into a Stock Purchase Agreement with Molecular Assemblies, Inc. ("MAI") in which we purchased1,587,050 shares of MAI's Series A preferred stock for $1.0 million. In connection with the June 2020, transaction, John Nicols, our former President and Chief Executive Officer, joined MAI's board of directors. See Note 14, "Related Party Transactions" for additional information on our investment in MAI.

Concurrently with our initial equity investment, we entered into the MAI Agreement, pursuant to which we performed services utilizing our CodeEvolver® technology platform to improve DNA polymerase enzymes in exchange for compensation in the form of additional shares of MAI's Series A and B preferred stock which are valued based on the observed transaction price of similar securities of MAI issued to third parties. Under the MAI Agreement, we will have the right to use and sell the engineered enzymes to third parties for any purpose other than for the synthesis of native DNA. Under the MAI Agreement, we would make a $0.5 million payment to MAI upon our achievement of a milestone of $5.0 million in aggregate commercial sales to third parties of the engineered enzymes or any product incorporating or derived from the engineered enzymes for any purpose other than the synthesis of native DNA. As contemplated in the MAI Agreement, we executed the Commercial License and Enzyme Supply Agreement with MAI ("MAI Supply Agreement") in July 2022 following the completion of certain timelines specified in the SOW.

We completed the R&D service with MAI pursuant to the MAI Agreement during the first quarter of 2022. In December 2021, we received the primary milestone payment pursuant to the MAI Agreement of $1.0 million in the form of an additional1,587,049 shares of MAI Series B preferred stock. Upon execution of the MAI Supply Agreement in July 2022, we received the commercialization and enzyme supply agreement milestone payment pursuant to the MAI Agreement of $1.0 million in the form of an additional1,587,049 shares of MAI Series B preferred stock. Pursuant to the MAI Agreement, we recognized $1.2 million and $2.0 million in research and development revenue from transactions with MAI in the years ended December 31, 2022 and 2021, respectively. Payment for the services rendered was received in the form of additional MAI Series A and Series B preferred stock. We received an aggregate of 1,587,049 and 3,491,505 shares of MAI's Series A and B preferred stock in the years ended December 31, 2022 and 2021, respectively.

In April 2022, we received a purchase order from MAI for the delivery of certain enzyme products to MAI in 2022. In July 2022, we and MAI executed the MAI Supply Agreement that will enable MAI to utilize an evolved terminal deoxynucleotidyl transferase ("TdT") enzyme in MAI's Fully Enzymatic Synthesis™ ("FES™") technology. We recognized $0.2 million and $0.5 million in product revenue in the years ended December 31, 2023 and2022, respectively.

Pfizer Enzyme Supply Agreement

During 2021 and 2022, we received purchase orders from Pfizer, Inc. ("Pfizer") for large quantities of our proprietary enzyme product, CDX-616, for use by Pfizer in the manufacture of a critical intermediate for its proprietary active pharmaceutical ingredient, nirmatrelvir, used by Pfizer in combination with the active pharmaceutical ingredient ritonavir, as its PAXLOVID™ (nirmatrelvir tablets; ritonavir tablets) product for the treatment of COVID-19 infections in humans.

We are a party to an Enzyme Supply Agreement with Pfizer Ireland Pharmaceuticals, a subsidiary of Pfizer, Inc. (the "Pfizer Supply Agreement"), covering the manufacture, sale and purchase of CDX-616 for use by Pfizer in the manufacture of nirmatrelvir. Under the terms of the Pfizer Supply Agreement, Pfizer paid us a fee of $25.9 million in August 2022 which was recorded as deferred revenue. Pursuant to the agreement, 90% of the fee ($23.3 million) is creditable against (i) future orders of CDX-616 used to manufacture its PAXLOVID™ with shipment dates prior to December 31, 2023, and (ii) fees associated with

any new development and licensing agreements with Pfizer entered into prior to April 4, 2023. On March 31, 2023, we entered into a license agreement whereby Pfizer utilized a portion of the $23.3 million credit towards a license to develop future product candidates, for which we recognized $5.0 million as non-cash research and development revenue in the second quarter of 2023. Pfizer's ability to utilize the credit under item (i) above expired on December 31, 2023, and under item (ii) above expired on April 4, 2023. We also recognized $2.0 million of non-cash research and development revenue, and credited against the $25.9 million fee, for other services provided to Pfizer during the year ended December 31, 2023. Up to 50% of any portion of the $25.9 million which has not been credited under items (i) and (ii) is creditable against future orders of CDX-616 used to manufacture PAXLOVID™ with shipment dates in 2024.

During the fourth quarter of 2023, and pursuant to the Pfizer Supply Agreement, we released the prior year deferrals for the unused portion of the retainer fee that is not creditable beyond 2023 and we recognized product revenue of $8.2 million in the year ended December 31, 2023. We recognized product revenue of $75.4 million and $34.5 million in the years ended December 31, 2022 and 2021, respectively, from the sale of quantities of CDX-616 to Pfizer. Product revenues recognized by us from the Pfizer Supply Agreement represented 12%, 54%, and 33% of our total revenues for the years ended December 31, 2023, 2022, and 2021 respectively.

As of December 31, 2023 and 2022, we had $9.5 million and $24.4 million, respectively, in deferred revenue related to the $25.9 million fee received from Pfizer.

Note 6. Investments in Non-Marketable Securities

Non-Marketable Debt Securities

We classify non-marketable debt securities, which are accounted for as available-for-sale, within Level 3 in the fair value hierarchy because we estimate the fair value based on a qualitative analysis using the most recent observable transaction price and other significant unobservable inputs including volatility, rights, and obligations of the securities we hold.

We determine gains or losses on the sale or extinguishment of non-marketable debt securities using a specific identification method. Unrealized gains and losses from bifurcated embedded derivatives, which represent share-settled redemption features, are recorded as other expense, net, in the consolidated statements of operations. Unrealized gains and losses on non-marketable debt securities are recorded as a component of other comprehensive loss until realized. Realized gains or losses are recorded as a component of other income (expense), net.

In November 2020, we purchased convertible subordinated notes issued by Arzeda Corp. (“Arzeda”), an early-stage computational protein design company, for $1.0 million and the investment was classified as available-for-sale non-marketable interest-bearing debt securities. In July 2021, we converted the non-marketable debt security with a carrying value of $1.3 million into 207,070 shares of Series B-2 preferred stock of Arzeda. During the year ended December 31, 2021, we recognized $0.3 million in interest income from interest earned on our investment in this debt security.

There were no investments in non-marketable debt securities as of December 31, 2023 and 2022.

Non-Marketable Equity Securities

Our non-marketable equity securities are investments in privately held companies without readily determinable market value and primarily relate to our investments in MAI, seqWell and Arzeda. These investments are accounted for under the measurement alternative and are measured at cost minus impairment, if any, plus or minus changes resulting from observable price changes for identical or similar securities of the same issuer. Non-marketable equity securities are measured at fair value on a non-recurring basis and classified within Level 2 in the fair value hierarchy when we estimate the fair value of these investments using the observable transaction price paid by third party investors for the same or similar security of the same issuers. The fair value of non-marketable equity securities are classified within Level 3 when we estimate fair value using unobservable inputs such as when we remeasure due to impairment and we use discount rates, market data of comparable companies, and rights and obligations of the securities the Company holds, among others. We adjust the carrying value of non-marketable equity securities which have been remeasured during the period and recognize resulting gains or losses as a component of other income (expense), net in the consolidated statements of operations.

In November 2023, the 207,070 shares of Arzeda’s Series B preferred stock were converted into41,414 common stock pursuant to the Stock Purchase Agreement.

In March 2023, we purchased an additional 985,545 shares of Series B preferred stock for $0.8 million in MAI, a privately held life sciences company. As of December 31, 2023, we held an aggregate of 19,277,914 shares of MAI's Series A and B preferred stock that we have earned or purchased from MAI. See Note 14,“Related Party Transactions” for additional information on our investment in MAI.

In March 2022, we entered into a Stock Purchase Agreement with seqWell Inc. ("seqWell"), a privately held life sciences company, pursuant to which we purchased1,000,000 shares of seqWell's Series C preferred stock for $5.0 million. In March 2023, we entered into a Master Collaboration Agreement and Research Agreement with seqWell (the "seqWell Agreement"), pursuant to which we are providing research and experimental screening and protein engineering activities in exchange for compensation in the form of additional shares of seqWell's common stock. In addition to our initial equity investment and the shares we have received under the seqWell Agreement, in September 2023, we purchased an additional 88,256 shares of seqWell's Series C-1 preferred stock and44,128 common stock warrants for $0.4 million. We received 205,279 shares of seqWell's common stock from research and development services with seqWell and we recognized $0.2 million in research and development revenue from these services in the year ended December 31, 2023. As of December 31, 2023, we held an aggregate of 1,088,256 shares of Series C and C-1 preferred stock, 205,279 shares of common stock and44,128 of common stock warrants that we have earned or purchased from seqWell.

For the year ended December 31, 2023, we recognized an impairment charge of $12.2 million and included this as adjustment to the carrying value of our investments in seqWell, Arzeda and MAI. This adjustment, which is presented within other income (expense), net in the consolidated statements of operations, included the write-down of the carrying value of our investment in seqWell by $3.0 million during the third quarter of 2023 to its estimated fair value as determined based on valuation methods using the recent transaction price of similar preferred stock securities issued by seqWell and adjusted for the rights and obligations of the preferred stock securities the Company holds. The $1.2 million of impairment charge on our investment in Arzeda is related to the write-down to its estimated fair value based on the latest observed transaction price of Arzeda's preferred stock securities issued during the fourth quarter of 2023 and the subsequent conversion of our existing Series B preferred stock into Arzeda's common stock during the fourth quarter of 2023. The other $8.0 million of impairment charge represents the difference between the estimated fair value and carrying value of our investment in MAI as of December 31, 2023 based on quantitative and qualitative analysis. This analysis involved use of judgment, estimates and assumptions, such as the near-term prospects of the investee in the market in which it operates, evaluation of the investee's financial condition in relation to its outstanding obligations, and probabilities of securing additional capital through various alternative scenarios.

For the year ended December 31, 2022, we recognized a $0.2 million unrealized gain in other income, net, and included as adjustment to the carrying value of our investment in MAI, for the remeasurement of the additional 1,587,049 shares of Series B preferred stock received as a milestone payment during the third quarter of 2022 based on the latest observed transaction price of MAI's preferred stock.

Other than as disclosed above, there were no remeasurement events for our investments in non-marketable equity securities in 2023 and 2022We recognized no realized gains or losses during the years ended December 31, 2023 and 2022.

The following table presents the carrying value of our non-marketable equity securities (in thousands):

	December 31, 2023	December 31, 2022
MAI	$ 6,693	$ 13,921
seqWell	2,625	5,000
Arzeda	82	1,289
Other investments in non-marketable equity securities	300	300
Total non-marketable equity securities	$ 9,700	$ 20,510

Note 7. Fair Value Measurements

The following tables present the financial instruments that were measured at fair value on a recurring basis within the fair value hierarchy (in thousands):

	December 31, 2023			
	Level 1	Level 2	Level 3	Total
Money market funds	$ 56,374	$ —	$ —	$ 56,374

	December 31, 2022			
	Level 1	Level 2	Level 3	Total
Money market funds	$ 77,309	$ —	$ —	$ 77,309

During the years ended December 31, 2023 and 2022, we didnot recognize any significant credit losses nor other-than-temporary impairment losses on non-marketable securities.

Note 8. Balance Sheet Details

Cash Equivalents

Cash equivalents consisted of the following (in thousands):

	December 31, 2023		December 31, 2022	
	Adjusted Cost	Estimated Fair Value	Adjusted Cost	Estimated Fair Value
Money market funds[1]	$ 56,374	$ 56,374	$ 77,309	$ 77,309

[1] Money market funds are classified in cash and cash equivalents on our consolidated balance sheets. Average contractual maturities (in days) is not applicable.

As of December 31, 2023, the total cash and cash equivalents balance of $65.1 million consisted of money market funds of $56.4 million and cash of $8.7 million held with major financial institutions. As of December 31, 2022, the total cash and cash equivalents balance of $114.0 million consisted of money market funds of $77.3 million and cash of $36.7 million held with major financial institutions.

Inventories

Inventories consisted of the following (in thousands):

	December 31,	
	2023	2022
Raw materials	$ 108	$ 108
Work in process	7	91
Finished goods	2,570	1,830
Total inventories	$ 2,685	$ 2,029

Prepaid expenses and other current assets

As of December 31, 2023, prepaid expenses and other current assets consists of prepaid expenses of $4.6 million and other current assets of $0.6 million. As of December 31, 2022, prepaid expenses and other current assets consists of prepaid expenses of $4.8 million and other current assets of $0.7 million.

Property and Equipment, net

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

	December 31,	
	2023	2022
Laboratory equipment[1]	$ 37,216	$ 39,679
Leasehold improvements	11,912	16,633
Computer equipment and software	2,565	3,039
Office equipment and furniture	1,469	1,345
Construction in progress[2]	1,636	1,739
Property and equipment	54,798	62,435
Less: accumulated depreciation and amortization	(39,311)	(39,821)
Property and equipment, net	$ 15,487	$ 22,614

[1] Fully depreciated property and equipment with a cost of $.0 million and $1.5 million were retired during the years ended December 31, 2023 and 2022, respectively.
[2] Construction in progress includes equipment received but not yet placed into service pending installation.

In July 2023, we announced our plan to consolidate operations from our San Carlos facility to our headquarters in Redwood City. As part of this plan, we entered into agreements to sell certain laboratory equipment located in our San Carlos facility through an asset auction and as part of the lease assignment of the San Carlos Space to Vaxcyte (see further discussion at Note 13, "Commitments and Contingencies"). These certain items of laboratory equipment met the assets held for sale criteria and were sold during the fourth quarter of 2023. Using a fair value estimate based of Level 3 inputs in the fair value hierarchy, the Company determined that the carrying value of these assets exceeds fair value less costs to sell, which resulted in a write-down of $1.5 million, presented within the asset impairment and other charges line item in the consolidated statements of operations in the year ended December 31, 2023.

During the year ended December 31, 2023, the Company recorded a ron-cash impairment charge of $4.7 million associated with the San Carlos facility leasehold improvements. For additional information, see Note 13, "Commitments and Contingencies."

Depreciation expense included in both research and development expenses and selling, general and administrative expenses in the consolidated statements of operations was as follows (in thousands):

	Year Ended December 31,		
	2023	2022	2021
Depreciation expense	$ 5,518	$ 5,402	$ 3,113

Goodwill

	December 31,	
	2023	2022
Goodwill at beginning of period	$ 3,241	$ 3,241
Impairment	(778)	—
Goodwill at end of period	$ 2,463	$ 3,241

Goodwill was previously allocated to each of the Company's reporting units. In July 2023, we announced a restructuring of our business and that we are discontinuing investment in certain development programs, primarily in Novel Biotherapeutics. As a result of this plan, the Company determined that a triggering event had occurred that required an interim goodwill impairment test during the third quarter of 2023. The fair value estimate used in the interim goodwill impairment test was primarily based on Level 3 inputs in the fair value hierarchy. Based on the results of the impairment evaluation, the Company determined that the goodwill within the Novel Biotherapeutics reporting unit was impaired, which resulted in a non-cash impairment charge of $0.8 million to write off all of the associated goodwill. The impairment charge is recorded within the asset impairment and other charges in the condensed consolidated statements of operation in the year ended December 31, 2023. Goodwill had a carrying value of $2.5 million and $3.2 million as of December 31, 2023 and 2022, respectively.

Other Accrued Liabilities

Other accrued liabilities consisted of the following (in thousands):

	December 31,	
	2023	2022
Accrued professional and outside service fees	$ 2,330	$ 3,495
Accrued purchases	1,402	10,852
Other	1,003	932
Total other accrued liabilities	$ 4,735	$ 15,279

Note 9. Stock-based Compensation

Equity Incentive Plans

In January 2023, our board of directors (the "Board") approved the 2022 Employment Inducement Award Plan (the "2022 Inducement Plan") which provides for the grant of non-qualified stock options, restricted stock awards ("RSAs"), restricted stock units ("RSUs"), performance awards, other stock awards and dividend equivalents to eligible employees with respect to an aggregate of up to 2,000,000 shares of our common stock. In June 2023, the 2022 Inducement Plan was terminated upon the approval of an amendment to the Company's 2019 Incentive Award Plan (the "2019 Plan") at the annual meeting of the Company's stockholders (the "Annual Meeting") in June 2023.

In 2019, the Board and stockholders approved the 2019 Plan. The 2019 Plan superseded and replaced in its entirety our 2010 Equity Incentive Plan (the "2010 Plan") which was effective in March 2010, and no further awards will be granted under the 2010 Plan; however, the terms and conditions of the 2010 Plan will continue to govern any outstanding awards thereunder. The 2010 Plan provided for the grant of incentive stock options, non-statutory stock options, RSUs, RSAs, PSUs, PBOs, stock appreciation rights, and stock purchase rights to our employees, non-employee directors and consultants. The 2019 Plan provides for the grant of stock options, including incentive stock options and non-qualified stock options, stock appreciation rights, RSA, RSUs, performance-contingent restricted stock units ("PSUs"), performance based options ("PBOs"), other stock or cash based awards and dividend equivalents to eligible employees and consultants of the Company or any parent or subsidiary, as well as members of the Board.

The number of shares of our common stock that were initially available for issuance under the 2019 Plan is equal to the sum of (i) 7,897,144 shares, and (ii) any shares subject to awards granted under the 2010 Plan that were outstanding as of April 22, 2019 and thereafter terminate, expire, lapse or are forfeited. In June 2019, 8.1 million shares authorized for issuance under the 2019 Plan were registered under the Securities Act of 1933, as amended (the "Securities Act"). In April 2023, the Board approved an amendment to the 2019 Plan (the "2019 Amended Plan") which became effective upon stockholders' approval at the Annual Meeting in June 2023. The 2019 Amended Plan included the (i) increase in the number of shares available by 8,000,000 shares, such that an aggregate of 15,897,144 shares are reserved for issuance under the 2019 Amended Plan and any shares subject to awards granted under the 2010 Plan, and (ii) increase in the number of shares that may be granted as incentive stock options under the 2019 Amended Plan such that an aggregate of 22,000,000 shares of common stock may be granted as incentive stock options under the 2019 Amended Plan.

As of December 31, 2023, total shares remaining available for issuance under the 2019 Plan were 9.1 million shares.

Employee Stock Purchase Plan

In April 2023, the Board approved an employee stock purchase plan (the "ESPP") which became effective upon approval at the Annual Meeting in June 2023. The ESPP allows eligible employees of the Company to purchase shares of our common stock through payroll deductions over 24-month offering periods. The per share purchase price will be the lower of 85% of the closing trading price per share of our common stock on the first trading date of an offering period in which a participant is enrolled or 85% of the closing trading price per share on the purchase date. Participant purchases are limited to a maximum of $25,000 of fair value of our stock per calendar year. The Company is authorized to grant up to 2,000,000 shares of common stock under the ESPP. The first offering period of the ESPP commenced in December 2023 and as of December 31, 2023, the Company had not issued any shares of common stock under the ESPP. We recognized $25 thousand of stock-based compensation expenses related to the ESPP in the year ended December 31, 2023.

Stock Options

The option exercise price for incentive stock options must be at least 100% of the fair value of our common stock on the date of grant and the option exercise price for non-statutory stock options is at least 85% of the fair value of our common stock on the date of grant, as determined by the Board. If, at the time of a grant, the optionee directly or by attribution owns stock possessing more than 10% of the total combined voting power of all of our outstanding capital stock, the exercise price for these options must be at least 110% of the fair value of the underlying common stock. Stock options granted to employees generally have a maximum term of ten years and vest over four years from the date of grant, of which 25% vest at the end of one year, and 75% vest monthly over the remaining three years. We may grant options with different vesting terms from time to time. Unless an employee's termination of service is due to disability or death, upon termination of service, any unexercised vested options will be forfeited at the end of three months or the expiration of the option, whichever is earlier.

Restricted Stock Units ("RSUs")

We also grant employees RSUs, which generally vest over either a three year period with 33% of the shares subject to the RSUs vesting on each yearly anniversary of the vesting commencement date or over a four-year period with 25% of the shares subject to the RSU vesting on each yearly anniversary of the vesting commencement date, in each case contingent upon such employee's continued service on such vesting date. RSUs are generally subject to forfeiture if employment terminates prior to the release of vesting restrictions. We may grant RSUs with different vesting terms from time to time.

Performance-contingent Restricted Stock Units ("PSUs") and Performance Based Options ("PBOs")

In prior years, the compensation committee of the Board approved grants of PBOs and PSUs to our executives, and solely in respect of non-executive employees, delegated to our CEO the authority to approve grants of PSUs. The PSUs and PBOs vest based upon both the successful achievement of certain corporate operating milestones in specified timelines and continued employment through the applicable vesting date. When the performance goals are deemed to be probable of achievement for these types of awards, recognition of stock-based compensation expense commences. Once the number of shares eligible to vest is determined, those shares vest in two equal installments with 50% vesting upon achievement, as determined by the compensation committee of the Board, and the remaining 50% vesting on the first anniversary of achievement, in each case, subject to the recipient's continued service through the applicable vesting date. If the performance goals are achieved at the threshold level, the number of shares eligible to vest in respect of the PSUs and PBOs would be equal to half the number of PSUs granted and one-quarter the number of shares underlying the PBOs granted. If the performance goals are achieved at the target level, the number of shares eligible to vest in respect of the PSUs and PBOs would be equal to the number of PSUs granted and half of the shares underlying the PBOs granted. If the performance goals are achieved at the superior level, the number of shares eligible to vest in respect of the PSUs would be equal to two times the number of PSUs granted and equal to the number of PBOs granted. The number of shares issuable upon achievement of the performance goals at the levels between the threshold and target levels for the PSUs and PBOs or between the target level and superior levels for the PSUs would be determined using linear interpolation. Achievement below the threshold level would result in no shares being eligible to vest in respect of the PSUs and PBOs.

No PSUs and PBOs were granted in 2023. In 2022, we awarded PSUs ("2022 PSUs") and PBOs ("2022 PBOs"), each of which commence vesting based upon the achievement of various weighted performance goals, including finance and corporate strategy, performance enzymes and biotherapeutics deliverables, research plans, and organizational development. In the first quarter of 2023, the compensation committee of the Board determined that the 2022 PSUs and 2022 PBOs performance goals had been achieved at 85.0% and 42.5% of the target level, respectively, and recognized stock-based compensation expenses accordingly. Accordingly, 50% of the shares underlying the 2022 PSUs and PBOs vested in the first quarter of 2023 and 50% of the shares underlying the 2022 PSUs and PBOs will vest in the first quarter of 2024, in each case, subject to the recipient's continued service on each vesting date.

In 2021, we awarded PSUs ("2021 PBOs") and PBOs ("2021 PBOs"), each of which commence vesting based upon the determination of the compensation committee of the Board of the achievement of various weighted performance goals, including total revenues, product revenue, performance enzymes pipeline advancements, biotherapeutics pipeline advancements, organization and infrastructure upgrades, and significant events that can be publicly announced. In the first quarter of 2022, we determined that the 2021 PSUs and 2021 PBOs performance goals had been achieved at 146% and 73% of the target level, respectively, and recognized stock-based compensation expenses accordingly. Accordingly, 50% of the shares underlying the 2021 PSUs and PBOs vested in the first quarter of 2022 and 50% of the shares underlying the 2021 PSUs and PBOs vested in the first quarter of 2023, in each case, subject to the recipient's continued service on each vesting date.

Stock-Based Compensation Expense

Stock-based compensation expense is included in the consolidated statements of operations as follows (in thousands):

	Year Ended December 31,		
	2023	**2022**	**2021**
Costs of product revenue	$ 354	$ 452	$ 224
Research and development	2,631	3,907	2,663
Selling, general and administrative	6,986	10,172	8,706
Total	$ 9,971	$ 14,531	$ 11,593

The following table presents total stock-based compensation expense by security type included in the consolidated statements of operations (in thousands):

	Year Ended December 31,		
	2023	2022	2021
Stock options	$ 3,962	$ 4,167	$ 2,764
RSUs and RSAs	4,447	4,807	2,768
PSUs	1,649	3,268	2,333
PBOs	(112)	2,289	3,728
ESPP	25	—	—
Total	$ 9,971	$ 14,531	$ 11,593

In connection with the retirement of John Nicols, our former President and Chief Executive Officer, in August 2022, and the Transition and Separation Agreement between Mr. Nicols and the Company, certain supplementary modifications were made to Mr. Nicols' vested and unvested stock option and PBOs awards including voluntary forfeiture of certain unvested stock option and PBOs awards and the extension of the post-termination exercise period of certain vested stock option and PBOs awards. During the year ended December 31, 2022, we recorded a one-time, non-cash incremental compensation expense of $1.0 million, net of the required reversal of previously recognized stock-based compensation expenses attributed to unvested shares, in selling, general and administrative expenses related to these stock option award modifications.

Grant Award Activities:

Stock Option Awards

We estimated the fair value of stock options using the Black-Scholes-Merton option-pricing model based on the date of grant.The following summarizes the weighted-average assumptions used to estimate the fair value of employee stock options granted:

	Year Ended December 31,		
	2023	2022	2021
Expected life (years)	5.8	5.7	5.6
Volatility	66.2 %	62.1 %	52.5 %
Risk-free interest rate	4.0 %	3.1 %	0.8 %
Expected dividend yield	0.0 %	0.0 %	0.0 %

The following summarizes the weighted-average assumptions used to estimate the fair value of50,000, nil, and 9,000 shares of stock options granted to non-employees for services valued at $0.1 million, nil, and $0.1 million during the years ended December 31, 2023, 2022, and 2021 respectively:

	Year Ended December 31,		
	2023	2022	2021
Expected life (years)	5.8	0.0	5.6
Volatility	70.1 %	— %	54.1 %
Risk-free interest rate	4.7 %	— %	0.9 %
Expected dividend yield	0.0 %	0.0 %	0.0 %

The weighted average grant date fair value per share of non-employee stock options granted respectively in 2023, 2022, and 2021 was $1.05, nil and $11.29, respectively.

The following tables summarizes stock option activities:

	Number of Shares	Weighted Average Exercise Price Per Share
	(In Thousands)	
Outstanding at December 31, 2020	3,385	$ 7.19
Granted	286	$ 26.85
Exercised	(664)	$ 6.96
Forfeited/Expired	(72)	$ 17.99
Outstanding at December 31, 2021	2,935	$ 8.90
Granted	2,000	$ 8.90
Exercised	(410)	$ 2.33
Forfeited/Expired	(275)	$ 19.01
Outstanding at December 31, 2022	4,250	$ 8.88
Granted	2,046	$ 5.23
Exercised	(283)	$ 1.97
Forfeited/Expired	(839)	$ 12.08
Outstanding at December 31, 2023	5,174	$ 7.31

	Number of Shares	Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value
	(In Thousands)		(In Years)	(In Thousands)
Outstanding at December 31, 2023	5,174	$ 7.31	6.7	$ 198
Exercisable at December 31, 2023	2,231	$ 8.61	3.6	$ 79
Vested and expected to vest at December 31, 2023	4,748	$ 7.42	6.4	$ 170

The weighted average grant date fair value per share of employee stock options granted in 2023, 2022, and 2021 were $8.31, $4.99 and $12.80, respectively. The total intrinsic value of options exercised in 2023, 2022, and 2021 were $0.7 million, $3.1 million and $14.9 million, respectively.

As of December 31, 2023, there was $8.2 million of unrecognized stock-based compensation, net of expected forfeitures, related to unvested stock options, which we expect to recognize over a weighted average period of 2.9 years.

Restricted Stock Awards ("RSAs")

The following table summarizes RSA activities:

	Number of Shares	Weighted Average Grant Date Fair Value Per Share
	(In Thousands)	
Non-vested balance at December 31, 2020	96	$ 11.44
Granted	46	$ 21.91
Vested	(62)	$ 11.31
Non-vested balance at December 31, 2021	80	$ 17.53
Granted	159	$ 7.53
Vested	(58)	$ 18.42
Non-vested balance at December 31, 2022	181	$ 8.45
Granted	277	$ 2.89
Vested	(133)	$ 9.04
Non-vested balance at December 31, 2023	325	$ 3.48

The total fair value, as of the vesting date, of RSAs vested in fiscal years 2023, 2022 and 202 were $0.4 million, $0.5 million and $1.3 million respectively.

As of December 31, 2023, there was $0.6 million of unrecognized stock-based compensation cost related to non-vested RSAs, which we expect to recognize over a weighted average period of 0.7 years.

Restricted Stock Units ("RSUs")

The following table summarizes RSU activities:

	Number of Shares	Weighted Average Grant Date Fair Value Per Share
	(In Thousands)	
Non-vested balance at December 31, 2020	176	$ 14.17
Granted	163	$ 26.59
Vested	(70)	$ 13.57
Forfeited/Expired	(37)	$ 21.89
Non-vested balance at December 31, 2021	232	$ 21.83
Granted	518	$ 17.46
Vested	(106)	$ 21.21
Forfeited/Expired	(126)	$ 19.55
Non-vested balance at December 31, 2022	518	$ 18.15
Granted	1,049	$ 5.24
Vested	(204)	$ 18.42
Forfeited/Expired	(343)	$ 9.71
Non-vested balance at December 31, 2023	1,020	$ 7.66

The total fair value, as of the vesting date, of RSUs vested in fiscal years 2023, 2022 and 2021 were $1.1 million, $1.8 million and $1.8 million respectively.

As of December 31, 2023, there was $4.1 million of unrecognized stock-based compensation cost related to non-vested RSUs, which we expect to recognize over a weighted average period of 2.0 years.

Performance-Contingent Restricted Stock Units ("PSUs")

The following table summarizes PSU activities:

	Number of Shares	Weighted Average Grant Date Fair Value Per Share
	(In Thousands)	
Non-vested balance at December 31, 2020	131	$ 15.34
Granted	82	$ 26.16
Vested	(66)	$ 16.14
Forfeited/Expired	(19)	$ 19.38
Non-vested balance at December 31, 2021	128	$ 21.24
Granted	686	$ 9.55
Vested	(107)	$ 20.52
Forfeited/Expired	(40)	$ 19.93
Non-vested balance at December 31, 2022	667	$ 9.41
Vested	(315)	$ 11.02
Forfeited/Expired	(75)	$ 12.49
Other	15	$ 25.05
Non-vested balance at December 31, 2023	292	$ 7.69

The total fair value, as of the vesting date, of PSUs vested in the years ended December 31, 2023, 2022, and 2021 were $.6 million, $2.1 million, and $1.3 million, respectively.

As of December 31, 2023, there was $0.2 million of unrecognized stock-based compensation cost related to non-vested PSUs, which we expect to recognize over a weighted average period of 0.2 years.

Performance Based Options ("PBOs")

We estimated the fair value of PBOs using the Black-Scholes-Merton option-pricing model based on the date of grant.No PBOs were granted to employees for their services during the year ended December 31, 2023. The following summarize the weighted-average assumptions used to estimate the fair value of PBOs granted:

	Year Ended December 31,			
	2022		2021	
Expected life (years)	5.6		5.5	
Volatility	54.9	%	51.9	%
Risk-free interest rate	1.8	%	0.7	%
Expected dividend yield	0.0	%	0.0	%

The following tables summarizes PBOs activities:

	Number of Shares	Weighted Average Grant Date Fair Value Per Share
	(In Thousands)	
Outstanding at December 31, 2020	1,560	$ 5.05
Granted	433	$ 12.23
Exercised	(35)	$ 9.02
Forfeited/Expired	(118)	$ 12.23
Outstanding at December 31, 2021	1,840	$ 4.11
Granted	733	$ 9.89
Forfeited/Expired	(747)	$ 8.29
Outstanding at December 31, 2022	1,826	$ 4.70
Forfeited/Expired	(178)	$ 9.73
Outstanding at December 31, 2023	1,648	$ 5.64

	Number of Shares	Weighted Average Exercise Price Per Share	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value
	(In Thousands)		(In Years)	(In Thousands)
Exercisable at December 31, 2023	1,627	$ 10.96	4.4	$ —
Vested and expected to vest at December 31, 2023	1,646	$ 11.06	4.5	$ —

The total fair value of exercised PBOs for 2023, 2022 and 2021, wasnil, nil, and $0.3 million, respectively.

As of December 31, 2023, there was$15.9 thousand of unrecognized stock-based compensation cost related to non-vested PBOs, which we expect to recognize over a weighted average period of 0.2 years.

Employee Stock Purchase Plan ("ESPP")

The fair value of shares to be issued under the ESPP is computed using the Black-Scholes-Merton option pricing model at the commencement of the offering period. The following summarizes the weighted-average assumptions used to estimate the fair value of ESPP for the initial offering period:

	Year Ended December 31,	
	2023	
Expected life (years)		0.4
Volatility	89.6	%
Risk-free interest rate	5.3	%
Expected dividend yield	0.0	%

Note 10. Capital Stock

Equity Distribution Agreement

In May 2021, we filed a Registration Statement on Form S-3 with the SEC, that automatically became effective upon its filing, under which we may sell common stock, preferred stock, debt securities, warrants, purchase contracts, and units from time to time in one or more offerings. On February 27, 2023, we filed a post-effective amendment to that Registration Statement on Form S-3. Pursuant to that post-effective amendment, we registered an aggregate $200.0 million of securities. In May 2021, we entered into an Equity Distribution Agreement ("EDA") with Piper Sandler & Co ("PSC"), under which PSC, as our exclusive agent, at our discretion and at such times that we may determine from time to time, may sell over a three-year period from the execution of the EDA up to a maximum of $50.0 million of shares of our common stock. Under the terms of the EDA, PSC may sell the shares at market prices by any method that is deemed to be an "at the market offering" as defined in Rule 415 under the Securities Act of 1933, as amended.

We are not required to sell any shares at any time during the term of the EDA. The EDA will terminate upon the earlier of: (i) the issuance and sale of all shares through PSC on the terms and conditions of the EDA, or (ii) the termination of the EDA in accordance with its terms. Either party may terminate the EDA at any time upon written notification to the other party in accordance with the EDA, and upon such notification, the offering will terminate. Under no circumstances shall any shares be sold pursuant to the EDA after the date which is three years after the registration statement is first declared effective by the SEC. We agreed to pay PSC a commission of 3% of the gross sales price of any shares sold pursuant to the EDA. With the exception of certain expenses, we will pay PSC up to 8% of the gross sales price of the shares sold pursuant to the EDA for a combined amount of commission and reimbursement of PSC's expenses and fees.

During the year ended December 31, 2023, 3,079,421 shares of our common stock were issued and sold pursuant to the EDA. During the year ended December 31, 2023, we received gross proceeds of $8.7 million or $7.9 million in net proceeds after PSC's commissions and direct offering expenses of $0.7 million. As of December 31, 2023, $41.3 million of shares remained available for sale under the EDA. During the year ended December 31, 2022, no shares of our common stock were sold pursuant to the EDA.

Note 11. 401(k) Plan

In January 2005, we implemented a 401(k) Plan covering certain employees. Currently, all of our United States based employees over the age of 18 are eligible to participate in the 401(k) Plan. Under the 401(k) Plan, eligible employees may elect to reduce their current compensation up to a certain annual limit and contribute these amounts to the 401(k) Plan. We may make matching or other contributions to the 401(k) Plan on behalf of eligible employees. We recorded employer matching contributions expense of $1.4 million, $1.6 million, and $1.1 million in the years ended December 31, 2023, 2022, and 2021, respectively.

Note 12. Income Taxes

Our loss before provision for income taxes were as follows (in thousands):

	Year Ended December 31,		
	2023	2022	2021
United States	$ (76,169)	$ (33,269)	$ (21,037)
Foreign	(2)	(47)	(53)
Loss before provision for income taxes	$ (76,171)	$ (33,316)	$ (21,090)

The tax provision for the years ended December 31, 2023 and 2022 consists primarily of current year state and foreign income taxes. The tax provision for the year ended December 31, 2021 consists primarily of taxes attributable to foreign operations. The components of the provision for income taxes are as follows (in thousands):

	Year Ended December 31,		
	2023	2022	2021
Current provision:			
State	$ 27	$ 141	$ —
Foreign	42	142	198
Total current provision	69	283	198
Deferred benefit:			
Foreign	—	(7)	(9)
Total deferred benefit	—	(7)	(9)
Provision for income taxes	$ 69	$ 276	$ 189

Reconciliation of the provision for income taxes calculated at the statutory rate to our provision for income taxes is as follows (in thousands):

	Year Ended December 31,		
	2023	2022	2021
Tax benefit at federal statutory rate	$ (15,995)	$ (6,996)	$ (4,429)
State taxes	(2,208)	(494)	(2,235)
Research and development credits	(925)	(1,793)	(1,132)
Foreign operations taxed at different rates	—	78	80
Stock-based compensation	1,967	239	(2,698)
Other nondeductible items	438	(238)	711
Executive compensation	152	80	257
Change in valuation allowance	16,640	9,400	9,635
Provision for income taxes	$ 69	$ 276	$ 189

Deferred income taxes reflect the net tax effects of (a) temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes, and (b) operating losses and tax credit carryforwards.

Significant components of our deferred tax assets and liabilities are as follows (in thousands):

	December 31,	
	2023	2022
Deferred tax assets:		
Net operating losses	$ 72,586	$ 69,915
Credits	16,412	14,806
Deferred revenues	176	1,123
Stock-based compensation	4,445	4,967
Reserves and accruals	2,774	2,487
Property and Equipment	457	—
Intangible assets	532	866
Capital losses	424	413
R&D Capitalization	26,821	16,502
Lease liability	3,608	9,586
Other assets	2,542	125
Total deferred tax assets:	130,777	120,790
Valuation allowance	(127,835)	(111,183)
Deferred tax liabilities:		
Right-of-use assets	(2,958)	(8,624)
Property and Equipment	—	(736)
Other	—	(263)
Total deferred tax liabilities:	(2,958)	(9,623)
Net deferred tax liabilities	$ (16)	$ (16)

ASC 740 requires that the tax benefit of NOLs, temporary differences and credit carryforwards be recorded as an asset to the extent that management assesses that realization is "more likely than not." Realization of the future tax benefits is dependent on our ability to generate sufficient taxable income within the carryforward period. Because of our history of operating losses, management believes that recognition of the deferred tax assets arising from the above-mentioned future tax benefits is currently not more likely than not to be realized and, accordingly, has provided a valuation allowance against our deferred tax assets. Accordingly, the net deferred tax assets in all our jurisdictions have been fully reserved by a valuation allowance. The net valuation allowance increased by $16.7 million during the year ended December 31, 2023, increased by $9.4 million during the year ended December 31, 2022, and increased by $9.6 million during the year ended December 31, 2021. At such time as it is determined that it is more likely than not that the deferred tax assets are realizable, the valuation allowance will be reduced.

The following table sets forth our federal, state and foreign NOL carryforwards and federal research and development tax credits as of December 31, 2023 (in thousands):

	December 31, 2023	
	Amount	Expiration Years
Net operating losses, federal	$ 182,918	2026-2037
Net operating losses, federal	$ 118,569	Do not expire
Net operating losses, state	$ 147,481	2028-2041
Tax credits, federal	$ 17,815	2023-2041
Tax credits, state	$ 19,223	Do not expire

Current U.S. federal and California tax laws include substantial restrictions on the utilization of NOLs and tax credit carryforwards in the event of an ownership change of a corporation. Accordingly, the Company's ability to utilize NOLs and tax credit carryforwards may be limited as a result of such ownership changes. We performed an analysis in 2023 and determined that there was not a limitation that would result in the expiration of carryforwards before they are utilized.

Income tax expense or benefit from continuing operations is generally determined without regard to other categories of earnings, such as discontinued operations and other comprehensive income. An exception is provided in ASC 740 when there is aggregate income from categories other than continuing operations and a loss from continuing operations in the current year. In this case, the tax benefit allocated to continuing operations is the amount by which the loss from continuing operations reduces the tax expenses recorded with respect to the other categories of earnings, even when a valuation allowance has been established against the deferred tax assets. In instances where a valuation allowance is established against current year losses, income from other sources is considered when determining whether sufficient future taxable income exists to realize the deferred tax assets.

In 2014, we determined that the undistributed earnings of our India subsidiary will be repatriated to the United States, and accordingly, we have provided a deferred tax liability totaling $16 thousand as of December 31, 2023 and 2022, for local taxes that would be incurred upon repatriation.

We apply the provisions of ASC 740 to account for uncertain income taxes. A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows (in thousands):

	December 31,		
	2023	2022	2021
Balance at beginning of year	$ 18,571	$ 15,261	$ 12,683
Additions based on tax positions related to current year	2,164	3,553	2,206
Additions to tax position of prior years	—	—	372
Reductions to tax position of prior years	(531)	(243)	—
Balance at end of year	$ 20,204	$ 18,571	$ 15,261

We recognize interest and penalties as a component of our income tax expense. Total interest and penalties recognized in the consolidated statements of operations were $42 thousand, $42 thousand and $61 thousand in 2023, 2022 and 2021, respectively. Total penalties and interest recognized in the balance sheet was $0.6 million, $0.5 million and $0.5 million as of December 31, 2023, 2022 and 2021, respectively. The total unrecognized tax benefits that, if recognized currently, would impact our company's effective tax rate were $0.3 million as of December 31, 2023, 2022 and 2021. We do not expect any material changes to our uncertain tax positions within the next 12 months. We are not subject to examination by United States federal or state tax authorities for years prior to 2002 and foreign tax authorities for years prior to 2014.

Note 13. Commitments and Contingencies

Operating Leases

Our headquarters are located in Redwood City, California, where we occupy approximately 77,300 square feet of office and laboratory space in multiple buildings within the same business park operated by Metropolitan Life Insurance Company ("MetLife"). Our lease agreement with MetLife ("RWC Lease") includes approximately 28,200 square feet of space located at 200 and 220 Penobscot Drive, Redwood City, California (the "200/220 Penobscot Space") and approximately 37,900 square feet of space located at 400 Penobscot Drive, Redwood City, California (the "400 Penobscot Space") (the 200/220 Penobscot Space and the 400 Penobscot Space are collectively referred to as the "Penobscot Space"), and approximately 11,200 square feet of space located at 501 Chesapeake Drive, Redwood City, California (the "501 Chesapeake Space").

We entered into the initial lease with MetLife for our facilities in Redwood City in 2004 and the RWC Lease has been amended multiple times since then to adjust the leased space and terms of the Lease. In February 2019, we entered into an Eighth Amendment to the Lease (the "Eighth Amendment") with MetLife with respect to the Penobscot Space and the 501 Chesapeake Space to extend the term of the Lease for additional periods. Pursuant to the Eighth Amendment, the term of the lease of the Penobscot Space has been extended through May 2027. The lease term for the 501 Chesapeake Space has been extended to May 2029. We have one (1) option to extend the term of the lease for the Penobscot Space for five (5) years, and one (1) separate option to extend the term of the lease for the 501 Chesapeake Space for five (5) years.

Pursuant to the terms of the RWC Lease, we exercised our right to deliver a letter of credit in lieu of a security deposit. The letter of credit is collateralized by deposit balances held by the bank in the amount of $1.1 million as of December 31, 2023 and 2022, and are recorded as non-current restricted cash on the consolidated balance sheets.

In January 2021, we entered into a lease agreement with ARE-San Francisco No. 63, LLC ("ARE") to lease a portion of a facility consisted of approximately 36,593 rentable square feet in San Carlos, California to serve as additional office and research and development laboratory space (the "San Carlos Space"). The lease had a 10-year term from the lease commencement date of November 30, 2021 with one option to extend the term for an additional period of 5 years.

In July 2023, we announced our plan to consolidate operations from our San Carlos facility to our headquarters in Redwood City. On September 1, 2023, the Company entered into an Assignment and Assumption of Lease (the "Assignment Agreement") with Vaxcyte, Inc. ("Vaxcyte") to assign to Vaxcyte all of the Company's right, title and interest in, under and to the San Carlos Space and the Lease Agreement, dated as of January 29, 2021. On September 6, 2023, the Company, Vaxcyte and ARE entered into a Consent to Assignment and First Amendment (the "Consent") pursuant to which ARE consented to the Assignment Agreement and the assignment by the Company and the assumption by Vaxcyte of the Company's interest as tenant in the lease and agreed to release the Company from all of its obligations under the lease that accrue from and after the assignment. Under the Assignment Agreement, the Company prepaid to ARE (i) the base rent, as defined in the lease agreement, and (ii) certain amounts payable to ARE in connection with tenant improvements completed by ARE pursuant to the lease, which amounted to $3.1 million. We provided ARE with a $0.5 million security deposit in the form of a letter of credit, which was released in November 2023 following the effectiveness of the lease assignment on October 1, 2023.

As a result of the Assignment Agreement, the Company remeasured the lease obligation for the San Carlos Space as $3.1 million, or the present value of the remaining lease payments, which consist of the remaining rent through the effectiveness of the lease assignment and certain amounts payable to ARE pursuant to the Assignment Agreement, and wrote off the remaining lease liability of $19.6 million and the corresponding right of use asset balance. Simultaneously, the Company determined that indicators of impairment existed because the lease assignment will impact the utilization of the related right of use assets and leasehold improvements in the San Carlos Space, and therefore performed a recoverability test by estimating future undiscounted net cash flows expected to be generated from the use of these assets. As there were no substantial future cash inflows associated with these assets, the carrying values of these assets were deemed unrecoverable. As a result, the Company recognized a non-cash impairment charge of $7.7 million, of which $4.7 million is related to leasehold improvements and $3.0 million for the right of use assets, presented within the asset impairment and other charges line item in the consolidated statements of operations in the year ended December 31, 2023.

The tables below show the balance of right-of-use assets and lease obligations as of January 1, 2023 and the balance as of December 31, 2023, including the changes during the period (in thousands):

	Right-of-use Assets - Operating Lease, net
Right-of-use assets - Operating leases, net, at January 1, 2023	$ 39,263
Amortization of right-of-use assets	(4,405)
Additions	898
Remeasurement due to lease modification	(19,622)
Impairment	(2,997)
Right-of-use assets - Operating leases, net, at December 31, 2023	$ 13,137

	Lease Obligations - Operating Leases
Lease obligations - Operating leases, net, at January 1, 2023	$ 43,638
Lease payments	(9,897)
Interest accretion	1,905
Remeasurement due to lease modification	(19,622)
Lease obligations - Operating leases, net, at December 31, 2023	$ 16,024

We are required to restore certain areas of the Redwood City facility that we are renting to its original form. We are expensing the asset retirement obligation over the term of the Redwood City lease. We review the estimated obligation each reporting period and make adjustments if our estimates change. As a result of the lease assignment for the San Carlos Space, discussed further above, we wrote off the related asset retirement obligation of $0.2 million in 2023. We recorded asset retirement obligations of $0.3 million and $0.5 million as of December 31, 2023 and 2022, respectively, which are included in other liabilities on the consolidated balance sheets. Accretion expense related to our asset retirement obligations was nominal in the years ended December 31, 2023 and 2022.

Lease and other information

Lease costs amounts included in measurement of lease obligations and other information related to non-cancellable operating leases and finance leases were as follows (in thousands):

	Year Ended December 31,		
	2023	**2022**	**2021**
Finance lease costs	$ —	$ 18	$ 106
Operating lease cost	6,310	7,321	4,396
Short-term lease costs[1]	—	40	70
Total lease cost[2]	$ 6,310	$ 7,379	$ 4,572

[1] Short-term lease costs on leases with terms of over one month and less than one year.
[2] The Company had no variable lease costs.

Amounts included in measurement of lease obligations (in thousands):

	Year Ended December 31,		
	2023	**2022**	**2021**
Cash paid:			
Operating cash flows from operating leases	$ 9,897	$ 6,506	$ 4,197
Non-cash activity:			
Operating Lease - Right-of-use assets obtained in exchange for lease liabilities	$ —	$ —	$ 25,445

	Operating Lease
Other information:	
Weighted-average remaining lease term (in years)	3.8
Weighted-average discount rate	6.6 %

As of December 31, 2023, our maturity analysis of annual undiscounted cash flows of the non-cancellable operating leases are as follows (in thousands):

Years ending December 31,	**Operating Leases**
2024	$ 4,727
2025	4,868
2026	5,014
2027	2,533
2028	760
Thereafter	318
Total minimum lease payments	18,220
Less: imputed interest	2,196
Lease obligations	$ 16,024

Reconciliation of operating lease liabilities as shown within the audited consolidated balance sheets:	
Current portion of lease obligations - Operating leases	$ 3,781
Long-term lease obligations - Operating leases	12,243
Total operating lease liabilities	$ 16,024

Other Commitments

We enter into supply and service arrangements in the normal course of business. Supply arrangements are primarily for fixed-price manufacture and supply. Service agreements are primarily for the development of manufacturing processes and certain studies. Commitments under service agreements are subject to cancellation at our discretion which may require payment of certain cancellation fees. The timing of completion of service arrangements is subject to variability in estimates of the time required to complete the work.

The following table provides quantitative data regarding our other commitments. Future minimum payments reflect amounts that we expect to pay including potential obligations under services agreements subject to risk of cancellation by us (in thousands):

	Payments Due by Period		
	Total	2024	2025 and Thereafter
Facility maintenance agreement	$ 701	$ 701	$ —

Credit Facility

On June 30, 2017, we entered into a credit facility (the "Credit Facility") with Western Alliance Bank consisting of term loans ("Term Debt") up to $10.0 million, and advances ("Advances") under a revolving line of credit ("Revolving Line of Credit") up to $5.0 million with an accounts receivable borrowing base of 80% of eligible accounts receivable. The right to take draws on the Term Debt expired on December 31, 2022. In March 2023, we terminated the Credit Facility with Western Alliance Bank.

On February 13, 2024, we entered into the Loan Agreement with Innovatus. See further discussion at Note 18, "Subsequent Events."

Legal Proceedings

We may be involved in legal actions in the ordinary course of business, including inquiries and proceedings concerning business practices and intellectual property infringement, employee relations and other claims. We will recognize a loss contingency in the consolidated financial statements when it is probable a liability has been incurred and the amount of the loss can be reasonably estimated. We will disclose any loss contingencies that do not meet both conditions if there is a reasonable possibility that a material loss may have been incurred. Gain contingencies are not recorded until they are realized.

In April 2022, we reached a settlement resolving a non-material dispute involving the Company's trademark. The terms of the settlement are not material to our business or the results of operations. We are currently not a party to any material pending litigation or other material proceedings.

Indemnifications

We are required to recognize a liability for the fair value of any obligations we assume upon the issuance of a guarantee. We have certain agreements with licensors, licensees and collaborators that contain indemnification provisions. In such provisions, we typically agree to indemnify the licensor, licensee and collaborator against certain types of third party claims. The maximum amount of the indemnifications is not limited. We accrue for known indemnification issues when a loss is probable and can be reasonably estimated. There were no accruals for expenses related to indemnification issues for any periods presented.

Note 14. Related Party Transactions

Molecular Assemblies, Inc.

In June 2020, we entered into a Stock Purchase Agreement with MAI, a privately held life sciences company, pursuant to which we purchased 1,587,050 shares of MAI's Series A preferred stock for $1.0 million. Mr. Nicols, our former President and CEO until August 2022, also joined MAI's board of directors in June 2020 and remained on MAI's board until September 2023. Concurrently with our initial equity investment, we entered into a Master Collaboration and Research Agreement with MAI (the "MAI Agreement"), pursuant to which performed services utilizing our CodeEvolver® technology platform to improve DNA polymerase enzymes in exchange for compensation in the form of additional shares of MAI's Series A and B preferred stock which are valued based on the observed transaction price of similar securities that MAI issued to third parties. We completed the R&D service with MAI pursuant to the MAI Agreement during the first quarter of 2022. In addition to our initial equity investment and the shares we have received under the MAI Agreement, in April 2021, we purchased an additional 1,000,000 shares of MAI's Series A preferred stock for $0.6 million and in September 2021, we purchased 9,198,423 shares of MAI's Series B preferred stock for $7.0 million.

In April 2022, we received a purchase order from MAI for the delivery of certain enzyme products to MAI in 2022. In July 2022, we and MAI executed the MAI Supply Agreement that will enable MAI to utilize an evolved terminal deoxynucleotidyl transferase (TdT) enzyme in MAI's Fully Enzymatic Synthesis™ (or FES™) technology.

Revenues recognized from transactions with MAI in the year ended December 31, 2023, and subsequent to the related party period which ended in August 2022, are included in the consolidated statement of operations. We recognized $1.2 million and $2.0 million in research and development revenue pursuant to the MAI Agreement in the years ended December 31, 2022 and 2021, respectively. We recognized $0.5 million in product revenue from transactions with MAI in the year ended December 31, 2022 and during the related party period.

Note 15. Segment, Geographical and Other Revenue Information

Segment Information

We previously managed our business as two business segments, Performance Enzymes and Novel Biotherapeutics. During the fourth quarter of 2023, we made changes to the structure of our organization in connection with the restructuring of our business that we announced in July 2023, including the discontinuation of investment in certain development programs, primarily in our biotherapeutics business, consolidation of operations to our Redwood City, California headquarters, and headcount reduction. In connection with these organizational structure changes, corresponding changes were made to how our business is managed, how results are reported internally and how our CEO, our chief operating decision maker, assesses performance and allocates resources. As a result of these changes, our previous Performance Enzymes and Novel Biotherapeutics operating segments were combined into a single reportable segment.

Effective October 1, 2023, the Company's operations are managed and reported to the CEO on a consolidated basis. The CEO assesses performance and allocated resources based on the consolidated results of operations. We believe that these changes better align internal resources and external go to market activities in order to create a more efficient and effective organizational structure. Under this new organizational and reporting structure, we managed our business as one reportable segment as of December 31, 2023. Comparative prior period disclosures that reflected the previous two segments' information have been revised to conform to this change in our reportable segment.

Significant Customers

Customers that each accounted for 10% or more of our total revenues were as follows:

	Percentage of Total Revenues For the Year Ended December 31,					
	2023		2022		2021	
Customer A	22	%	56	%	33	%
Customer B	13	%	*		*	
Customer C	*		*		11	%

** Percentage was less than 10%*

Customers that each accounted for 10% or more of accounts receivable balances as of the periods presented are as follows:

	As of December 31,	
	2023	2022
Customer A	*	53 %
Customer B	*	10 %
Customer C	12 %	*
Customer D	21 %	*
Customer E	13 %	*
Customer F	12 %	*

** Percentage was less than 10%*

Geographical Information

Geographic revenues are identified by the location of the customer and consist of the following (in thousands):

	Year Ended December 31,		
	2023	2022	2021
Revenues			
Americas[1]	$ 13,733	$ 17,000	$ 23,481
EMEA[2][3]	22,907	56,540	20,187
APAC[4]	33,503	65,050	61,086
Total revenues	$ 70,143	$ 138,590	$ 104,754

[1] United States revenue was $13.7 million, $17.0 million, and $23.4 million, for the years ended December 31, 2023, 2022, and 2021, respectively.
[2] Ireland revenue was $0.5 million, $37.2 million, and $1.4 million, for the years ended December 31, 2023, 2022, and 2021, respectively.
[3] Switzerland revenue was $11.1 million, $9.2 million, and $10.1 million, for the for the years ended December 31, 2023, 2022, and 2021, respectively.
[4] China revenue was $20.3 million, $48.6 million, and $43.5 million, for the years ended December 31, 2023, 2022, and 2021, respectively.

Identifiable long-lived assets by location was as follows (in thousands):

	December 31,	
	2023	2022
United States	$ 28,624	$ 61,877

Identifiable goodwill was as follows (in thousands):

	December 31,	
	2023	2022
Goodwill at beginning of period	$ 3,241	$ 3,241
Impairment	(778)	—
Goodwill at end of period	$ 2,463	$ 3,241

Note 16. Allowance for Credit Losses

The following table summarizes the financial assets allowance for credit losses (in thousands):

	December 31,		
	2023	2022	2021
Balance at beginning of period	$ 163	$ 416	$ 74
Provision for credit losses	—	54	342
Write-offs	(33)	(257)	—
Adjustment to existing allowance	(65)	(50)	—
Balance at end of period	$ 65	$ 163	$ 416

The following tables summarize accounts receivable by aging category (in thousands):

	December 31, 2023					
	Current	31-60 Days	61-90 Days	91 Days and Over	Total over 31 Days	Total Balance
Accounts receivable	$ 9,583	$ 209	$ 77	$ 167	$ 453	$ 10,036

	December 31, 2022					
	Current	31-60 Days	61-90 Days	91 Days and Over	Total over 31 Days	Total Balance
Accounts receivable	$ 28,896	$ 1,747	$ 469	$ 792	$ 3,008	$ 31,904

Note 17. Restructuring Charges

In July 2023, in alignment with our enhanced strategic focus, we announced a restructuring of our business, including a plan for a workforce reduction of approximately 25%. During the year ended December 31, 2023, we recorded a restructuring charge related to this workforce reduction of $3.1 million related to severance and related benefit costs. The plan was substantially completed in September 2023 and severance costs were paid through the fourth quarter of 2023. We do not expect to record any significant future charges related to the restructuring plan.

In November 2022, we announced a plan for a workforce reduction of approximately 18% to realign and optimize our workforce requirements in alignment with our refined corporate strategy. The plan was substantially completed in December 2022 and severance costs were paid through the third quarter of 2023. During the years ended December 31, 2023 and 2022, we recorded restructuring charges of $0.2 million and $3.2 million, respectively, related to severance, bonus and other termination benefits in connection with the workforce reduction announced in November 2022.

We do not expect to record any future charges related to the restructuring plans initiated in 2023 and 2022.

Note 18. Subsequent Events

On February 13, 2024, we entered into a 5-year loan and security agreement (the "Loan Agreement") with Innovatus Life Sciences Lending Fund I, LP ("Innovatus"), an affiliate of Innovatus Capital Partners, LLC, for an aggregate principal amount of up to $40.0 million (the "Term Loans"). The Term Loans consist of two tranches, of which the first tranche of $30.0 million was completed on February 13, 2024. We will be eligible to draw on the second tranche of $10.0 million upon achievement of certain milestones including certain pre-specified revenue thresholds. The Term Loan carries an interest-only period of 36 months and will bear an interest at a floating rate of the sum of (a) the greater of (i) prime rate and (ii) 7.50%, plus (b) 3.25%. In connection with the Term Loans, we are required to issue to Innovatus a warrant to purchase an aggregate of 424,028 shares of the Company's common stock at an exercise price of $2.83 per share. The Loan Agreement contains customary representations and warranties and covenants, subject to customary carve outs, and includes financial covenants related to liquidity and net product revenue, with the latter beginning with the period ending September 30, 2024.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURES

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Our management, under the supervision of our Chief Executive Officer and Chief Financial Officer and with the participation of our disclosure committee, evaluated the effectiveness of the design and operation of our disclosure controls and procedures as of December 31, 2023. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of December 31, 2023 at the reasonable assurance level.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rules 13a-15(f) and 15d-15(f). Internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external reporting purposes in accordance with United States generally accepted accounting principles.

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2023 based on the guidelines established in *Internal Control-Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on the results of our evaluation, our management concluded that our internal control over financial reporting was effective as of December 31, 2023. We reviewed the results of management's assessment with our Audit Committee.

Our internal control over financial reporting as of December 31, 2023 has been audited by BDO USA, P.C., an independent registered public accounting firm, as stated in their report which is included in Item 8 of this Annual Report.

Inherent Limitations on Effectiveness of Controls

In designing and evaluating the disclosure controls and procedures, management recognizes that any controls and procedures, even if determined effective and no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives to prevent or detect misstatements. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints and that management is required to apply judgment in evaluating the benefits of possible controls and procedures relative to their costs. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting (as defined in Rule 13a-15(f) of the Exchange Act) identified in connection with the evaluation required by paragraph (d) of Rule 13a-15 or 15d-15 of the Exchange Act, which occurred during the fourth fiscal quarter of the year ended December 31, 2023, which has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

Rule 10b5-1 Trading Arrangements

During the three months ended December 31, 2023, none of the directors or executive officers of the Companyadopted or terminated any contracts, instructions, or written plans for the purchase or sale of our securities that were intended to meet the affirmative defense conditions of Rule 10b5-1(c) or any other "non-Rule 10b5-1 trading arrangement."

ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

Not applicable.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

We have adopted a code of ethics applicable to our principal executive, financial and accounting officers and all persons performing similar functions. A copy of our code of ethics is available on our principal corporate website at www.codexis.com in the Investors section under “Corporate Governance."

The information required by this item is incorporated by reference from the information that will be set forth in the 2024 Proxy Statement.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this item is incorporated by reference from the information that will be set forth in the 2024 Proxy Statement.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this item is incorporated by reference from the information that will be set forth in the 2024 Proxy Statement.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS,

AND DIRECTOR INDEPENDENCE

The information required by this item is incorporated by reference from the information that will be set forth in the 2024 Proxy Statement.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The information required by this item is incorporated by reference from the information that will be set forth in the 2024 Proxy Statement.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

1. Financial Statements: See "Index to Consolidated Financial Statements" in Part II, Item 8 of this Annual Report on Form 10-K

2. Exhibits: The exhibits listed in the accompanying index to exhibits are filed or incorporated by reference as part of this Annual Report on Form 10-K.

EXHIBIT INDEX

Exhibit No.	Description
1.1	Equity Distribution Agreement, dated as of May 7, 2021, between Codexis, Inc. and Piper Sandler & Co. (incorporated by reference to Exhibit 1.1 to the Company's Current Report on Form 8-K, filed on May 7, 2021).
3.1	Amended and Restated Certificate of Incorporation of Codexis, Inc. filed with the Secretary of the State of the State of Delaware on April 27, 2010 and effective as of April 27, 2010 (incorporated by reference to Exhibit 3.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2010, filed on May 28, 2010).
3.2	Certificate of Designations of Series A Junior Participating Preferred Stock of Codexis, Inc., filed with the Secretary of State of the State of Delaware on September 4, 2012 (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K, filed on September 4, 2012).
3.3	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of Codexis, Inc., filed with the Secretary of the State of the State of Delaware on June 14, 2023 (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K, filed on June 16, 2023).
3.4	Amended and Restated Bylaws of Codexis, Inc. effective as of February 8, 2024 (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K, filed on February 9, 2024).
4.1	Reference is made to Exhibits 3.1 through 3.4.
4.2	Form of the Company's Common Stock Certificate (incorporated by reference to Exhibit 4.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2012, filed on August 9, 2012).
4.3	Form of Warrant to Purchase Common Stock for Codexis, Inc., issued pursuant to the Loan and Security Agreement by and between the Company and Innovatus Life Sciences Fund I, LP. (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K, filed on February 13, 2024).
4.4	Description of Codexis' Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934.
10.1A*	Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of February 1, 2004.
10.1B*	Amendment to Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of June 1, 2004.
10.1C*	Amendment to Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of March 9, 2007.
10.1D*	Amendment to Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of March 31, 2008.
10.1E	Fourth Amendment to Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of September 17, 2010 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2010, filed on November 4, 2010).
10.1F	Fifth Amendment to Lease Agreement by and between the Company and Metropolitan Life Insurance Company dated as of March 16, 2011 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2011, filed on May 6, 2011).
10.1G	Sixth Amendment to Lease by and between the Company and Metropolitan Life Insurance Company dated as of September 27, 2012 (incorporated by reference to Exhibit 10.6 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2012, filed on November 7, 2012).

Exhibit No.	Description
10.1H	Seventh Amendment to Lease by and between the Company and Metropolitan Life Insurance Company dated as of October 11, 2016 (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2016, filed on November 8, 2016).
10.1I***	Eighth Amendment to Lease, dated as of February 8, 2019, by and between the Company and Metropolitan Life Insurance Company (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2019, filed on May 8, 2019).
10.2+*	Codexis, Inc. 2010 Equity Incentive Award Plan and Form of Stock Option Agreement.
10.3A+	Codexis, Inc. 2019 Incentive Award Plan (incorporated by reference to Exhibit 99.1 to the Company's Registration Statement on Form S-8 (File No. 333-232262) filed with the SEC on June 21, 2019).
10.3B+	Form of Restricted Stock Unit Award Grant Notice and Restricted Stock Unit Award Agreement under 2019 Incentive Award Plan (incorporated by reference to Exhibit 99.2 to the Company's Registration Statement on Form S-8 (File No. 333-232262) filed with the SEC on June 21, 2019).
10.3C+	Form of Stock Option Grant Notice and Stock Option Agreement under 2019 Incentive Award Plan (incorporated by reference to Exhibit 99.3 to the Company's Registration Statement on Form S-8 (File No. 333-232262) filed with the SEC on June 21, 2019).
10.3D+	Form of Stock Option Grant Notice and Stock Option Agreement under 2019 Incentive Award Plan (incorporated by reference to Exhibit 99.4 to the Company's Registration Statement on Form S-8 (File No. 333-232262) filed with the SEC on June 21, 2019).
10.3E+	Form of Performance Stock Unit Award Grant Notice and Performance Stock Unit Award Agreement under 2019 Incentive Award Plan (incorporated by reference to Exhibit 99.5 to the Company's Registration Statement on Form S-8 (File No. 333-232262) filed with the SEC on June 21, 2019).
10.3F+	Form of Restricted Stock Award Grant Notice and Restricted Stock Award Agreement under 2019 Incentive Award Plan (incorporated by reference to Exhibit 99.6 to the Company's Registration Statement on Form S-8 (File No. 333-232262) filed with the SEC on June 21, 2019).
10.3G+	Amendment to the Codexis, Inc. 2019 Incentive Award Plan (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K, filed on June 16, 2023).
10.4A+	Codexis, Inc. 2022 Employment Inducement Award Plan (incorporated by reference to Exhibit 99.1 to the Company's Registration Statement on Form S-8 (File No. 333-269163) filed with the SEC on January 9, 2023).
10.4B+	Form of Stock Option Grant Notice and Stock Option Agreement under the 2022 Employment Inducement Award Plan (incorporated by reference to Exhibit 99.2 to the Company's Registration Statement on Form S-8 (File No. 333-269163) filed with the SEC on January 9, 2023).
10.4C+	Form of Restricted Stock Unit Award Grant Notice and Restricted Stock Unit Award Agreement under the 2022 Employment Inducement Award Plan (incorporated by reference to Exhibit 99.3 to the Company's Registration Statement on Form S-8 (File No. 333-269163) filed with the SEC on January 9, 2023).
10.5+	Codexis, Inc. 2023 Employee Stock Purchase Plan (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K, filed on June 16, 2023).
10.6	Form of Indemnification Agreement between the Company and each of its directors, officers and certain employees (incorporated by reference to Exhibit 10.4 to the Company's Annual Report on Form 10-K for the year ended December 31, 2022, filed on February 27, 2023).
10.7+	Form of Amended and Restated Change in Control Severance Agreement between the Company and certain of its officers (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2019, filed on November 6, 2019).

Exhibit No.	Description
10.8	Asset Purchase Agreement, dated October 28, 2010, by and among the Company, Codexis Mayflower Holdings, LLC and Maxygen, Inc. (incorporated by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K, filed on October 28, 2010).
10.9A+	Employment Agreement by and between the Company and Ross Taylor effective as of August 4, 2019(incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2019, filed on November 6, 2019).
10.9B+	Transition and Separation Agreement by and between the Company and Ross Taylor, dated as of February 3, 2023(incorporated by reference to Exhibit 10.8B to the Company's Annual Report on Form 10-K for the year ended December 31, 2022, filed on February 27, 2023).
10.10A+	Employment Agreement by and between the Company and John Nicols effective as of May 28, 2012 (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2012, filed on August 9, 2012).
10.10B+	Amendment to Employment Agreement between the Company and John Nicols, dated April 21, 2016 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2016, filed on August 9, 2016).
10.10C+	Amendment to Employment Agreement between the Company and John Nicols, dated November 16, 2017 (incorporated by reference to Exhibit 10.8E to the Company's Annual Report on Form 10-K for the year ended December 31, 2017, filed on March 15, 2018).
10.10D+	Amendment to Employment Agreement between the Company and John Nicols, effective as of June 28, 2019 (incorporated by reference to Exhibit 10.4 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2019, filed on November 6, 2019).
10.10E+	Transition and Separation Agreement by and between the Company and John Nicols, dated as of July 18, 2022 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2022, filed on November 4, 2022).
10.11†	Acquisition Agreement by and among the Company, Societé des Produits Nestlé S.A., formerly known as Nestec Ltd. ("Nestlé Health Science"), effective as of December 26, 2023.
10.12A	Lease Agreement by and between the Company and ARE-SAN FRANCISCO NO. 63, LLC dated as of January 29, 2021 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2021, filed on May 7, 2021).
10.12B†	Assignment and Assumption of Lease by and between the Company and Vaxcyte, Inc. dated as of September 1, 2023 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2023, filed on November 3, 2023).
10.12C†	Consent to Assignment and First Amendment to Lease Agreement by and between the Company, Vaxcyte Inc. and ARE-San Francisco No. 63, LLC dated as of September 6, 2023 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2023, filed on November 3, 2023).
10.13+	Employment Agreement by and between the Company and Stephen Dilly dated as of August 9, 2022 (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2022, filed on November 4, 2022).
10.14A+	Offer Letter by and between the Company and Kevin Norrett dated as of September 12, 2022 (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2022, filed on November 4, 2022).
10.14B+	Change in Control Severance Agreement by and between the Company and Kevin Norrett dated September 12, 2022 (incorporated by reference to Exhibit 10.4 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2022, filed on November 4, 2022).

Exhibit No.	Description
10.15A+	Offer Letter by and between the Company and Margaret Fitzgerald dated as of October 5, 2022 (incorporated by reference to Exhibit 10.13A to the Company's Annual Report on Form 10-K for the year ended December 31, 2022, filed on February 27, 2023).
10.15B+	Change in Control Severance Agreement by and between the Company and Margaret Fitzgerald dated October 10, 2022 (incorporated by reference to Exhibit 10.13A to the Company's Annual Report on Form 10-K for the year ended December 31, 2022, filed on February 27, 2023).
10.16A+	Offer Letter by and between the Company and Sriram Ryali dated as of December 30, 2023(incorporated by reference to Exhibit 10.13A to the Company's Annual Report on Form 10-K for the year ended December 31, 2022, filed on February 27, 2023).
10.16B+	Change in Control Severance Agreement by and between the Company and Sriram Ryali dated January 27, 2023(incorporated by reference to Exhibit 10.13A to the Company's Annual Report on Form 10-K for the year ended December 31, 2022, filed on February 27, 2023).
10.17	Loan and Security Agreement by and between the Company and Innovatus Life Sciences Fund I, LP., effective as of February 13, 2024
23.1	Consent of BDO USA, P.C., independent registered public accounting firm.
24.1	Power of Attorney (see signature page to this Annual Report on Form 10-K).
31.1	Certification of Principal Executive Officer Required Under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended.
31.2	Certification of Principal Financial Officer Required Under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended.
32.1**	Certification of Principal Executive Officer and Principal Financial Officer Required Under Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended, and 18 U.S.C. §1350.
97.1	Codexis, Inc. Clawback Policy effective August 24, 2023
101	The following materials from Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2023 formatted in Inline Extensible Business Reporting Language (iXBRL) includes: (i) Consolidated Balance Sheets at December 31, 2023 and December 31, 2022, (ii) Consolidated Statements of Operations for the years ended December 31, 2023, December 31, 2022 and December 31, 2021, (iii) Consolidated Statements of Cash Flows for the years ended December 31, 2023, December 31, 2022 and December 31, 2021, (vi) Consolidated Statements of Stockholders' Equity for the years ended December 31, 2023, December 31, 2022 and December 31, 2021 and (vii) Notes to Consolidated Financial Statements.
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document

Exhibit No.	Description
104	The cover page from the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2023, formatted in Inline XBRL and contained in Exhibit 101.

+ Indicates a management contract or compensatory plan or arrangement.

† Confidential treatment has been granted for certain information contained in this exhibit. Such information has been omitted and filed separately with the Securities and Exchange Commission.

* Filed as exhibits to the registrant's Registration Statement on Form S-1 (File No. 333-164044), effective April 21, 2010, and incorporated herein by reference.

** Pursuant to Item 601(b)(32) of Regulation S-K this exhibit is furnished rather than filed with this report.

*** Portions of the exhibit, marked by brackets, have been omitted because the omitted information is (i) not material and (ii) customarily and actually treated as private or confidential.

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.

CODEXIS, INC.

Date: February 28, 2024

By: /s/ Stephen Dilly
President and Chief Executive Officer
(Principal Executive Officer)

POWER OF ATTORNEY

Each person whose individual signature appears below hereby authorizes and appoints Stephen Dilly, Sriram Ryali and Margaret Fitzgerald, and each of them, with full power of substitution and resubstitution and full power to act without the other, as his or her true and lawful attorney-in-fact and agent to act in his or her name, place and stead and to execute in the name and on behalf of each person, individually and in each capacity stated below, and to file any and all amendments to this annual report on Form 10-K and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing, ratifying and confirming all that said attorneys-in-fact and agents or any of them or their or his substitute or substitutes may lawfully do or cause to be done by virtue thereof.

Pursuant to the requirements of the 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/ Stephen Dilly Stephen Dilly	President, Chief Executive Officer and Director (Principal Executive Officer)	Date:	February 28, 2024
/s/ Sriram Ryali Sriram Ryali	Chief Financial Officer (Principal Financial and Accounting Officer)	Date:	February 28, 2024
/s/ Byron L. Dorgan Byron L. Dorgan	Chairman of the Board of Directors	Date:	February 28, 2024
/s/ Jennifer Aaker Jennifer Aaker	Director	Date:	February 28, 2024
/s/ Esther Martinborough Esther Martinborough	Director	Date:	February 28, 2024
/s/ Alison Moore Alison Moore	Director	Date:	February 28, 2024
/s/ H. Stewart Parker H. Stewart Parker	Director	Date:	February 28, 2024
/s/ Rahul Singhvi Rahul Singhvi	Director	Date:	February 28, 2024
/s/ David V. Smith David V. Smith	Director	Date:	February 28, 2024
/s/ Dennis P. Wolf Dennis P. Wolf	Director	Date:	February 28, 2024

Exhibit 4.4

DESCRIPTION OF THE REGISTRANT'S SECURITIES REGISTERED PURSUANT TO SECTION 12 OF THE SECURITIES EXCHANGE ACT OF 1934

As of February 28, 2024, Codexis, Inc. ("we," "us" or "our") had one class of securities registered under Section 12 of the Securities Exchange Act of 1934, as amended: our common stock, $0.0001 par value per share ("common stock").

Description of Common Stock

The following description of our common stock is a summary and does not purport to be complete. It is subject to and qualified in its entirety by reference to our amended and restated certificate of incorporation, our certificate of designations of Series A Junior Participating Preferred Stock and our amended and restated bylaws, each of which are incorporated by reference as an exhibit to the Annual Report on Form 10-K of which this Exhibit 4.4 is a part. We encourage you to read our amended and restated certificate of incorporation, our certificate of designations of Series A Junior Participating Preferred Stock, our amended and restated bylaws and the applicable provisions of the Delaware General Corporation Law for additional information.

Authorized Capital Stock

Our authorized capital stock consists of:

- 200,000,000 shares of common stock, $0.0001 par value per share; and
- 5,000,000 shares of preferred stock, $0.0001 par value per share, of which 100,000 shares have been designated as Series A Junior Participating Preferred Stock.

Voting Rights

Each holder of our common stock is entitled to one vote for each share on all matters submitted to a vote of the stockholders, including the election of directors. Our stockholders do not have cumulative voting rights in the election of directors. Accordingly, holders of a majority of the voting shares are able to elect all of the directors. In addition, the affirmative vote of holders of 66 2/3% of the voting power of all of the then outstanding voting stock will be required to take certain actions, including amending certain provisions of our amended and restated certificate of incorporation, such as the provisions relating to amending our amended and restated bylaws, the classified board and director liability.

Dividends

Subject to preferences that may be applicable to any then outstanding preferred stock, holders of our common stock are entitled to receive dividends, if any, as may be declared from time to time by our board of directors out of legally available funds.

Liquidation

In the event of our liquidation, dissolution or winding up, holders of our common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities and the satisfaction of any liquidation preference granted to the holders of any then outstanding shares of preferred stock.

Rights and Preferences

Holders of our common stock have no preemptive, conversion, subscription or other rights, and there are no redemption or sinking fund provisions applicable to our common stock. The rights, preferences and privileges of the holders of our common stock are subject to and may be adversely affected by the rights of the holders of shares of any series of our preferred stock that we may designate in the future.

Preferred Stock – Limitations on Rights of Holders of Common Stock

Our board of directors has the authority, without further action by our stockholders, to issue up to 5,000,000 shares of preferred stock in one or more series and to fix the rights, preferences, privileges and restrictions thereof. These rights, preferences and privileges could include dividend rights, conversion rights, voting rights,

terms of redemption, liquidation preferences, sinking fund terms and the number of shares constituting any series or the designation of such series, any or all of which may be greater than the rights of common stock. The issuance of our preferred stock could adversely affect the voting power of holders of common stock and the likelihood that such holders will receive dividend payments and payments upon our liquidation. In addition, the issuance of preferred stock could have the effect of delaying, deferring or preventing a change in control of our company or other corporate action.

Anti-Takeover Effects of Provisions of our Amended and Restated Certificate of Incorporation, our Amended and Restated Bylaws and Delaware Law

Some provisions of Delaware law and our amended and restated certificate of incorporation and our amended and restated bylaws contain provisions that could make the following transactions more difficult: acquisition of us by means of a tender offer; acquisition of us by means of a proxy contest or otherwise; or removal of our incumbent officers and directors. It is possible that these provisions could make it more difficult to accomplish or could deter transactions that stockholders may otherwise consider to be in their best interest or in our best interests, including transactions that might result in a premium over the market price for our shares.

These provisions, summarized below, are expected to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with our board of directors. We believe that the benefits of increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure us outweigh the disadvantages of discouraging these proposals because negotiation of these proposals could result in an improvement of their terms.

Delaware Anti-Takeover Statute

We are subject to the provisions of Section 203 of the Delaware General Corporation Law. Under Section 203, we would generally be prohibited from engaging in any business combination with any interested stockholder for a period of three years following the time that this stockholder became an interested stockholder unless:

- prior to this time, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding shares owned by persons who are directors and also officers, and by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- at or subsequent to such time, the business combination is approved by the board of directors and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock that is not owned by the interested stockholder.

Under Section 203, a “business combination” includes:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;
- any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder, subject to limited exceptions;
- any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder; or
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 defines an interested stockholder as an entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by such entity or person.

Undesignated Preferred Stock

The ability to authorize undesignated preferred stock makes it possible for our board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change control of us. These and other provisions may have the effect of deterring hostile takeovers or delaying changes in control or management of our company.

Special Stockholder Meetings

Our amended and restated certificate of incorporation provides that a special meeting of stockholders may be called only by our chairman of the board of directors, Chief Executive Officer or President, or by a resolution adopted by a majority of our board of directors.

Requirements for Advance Notification of Stockholder Nominations and Proposals

Our amended and restated bylaws establish advance notice procedures with respect to stockholder proposals and the nomination of candidates for election as directors, other than nominations made by or at the direction of the board of directors or a committee of the board of directors.

Elimination of Stockholder Action by Written Consent

Our amended and restated certificate of incorporation eliminates the right of stockholders to act by written consent without a meeting.

Classified Board; Election and Removal of Directors; Filling Vacancies

Our board of directors is divided into three classes. The directors in each class will serve for a three-year term, one class being elected each year by our stockholders, with staggered three-year terms. Only one class of directors will be elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms. Because our stockholders do not have cumulative voting rights, our stockholders holding a majority of the shares of common stock outstanding will be able to elect all of our directors. Our amended and restated certificate of incorporation provides for the removal of any of our directors (i) with cause by the affirmative vote of the holders of a majority of the voting power of all the then-outstanding shares of voting stock entitled to vote at an election of directors, or (ii) without cause by the affirmative vote of the holders of at least a 66 2/3% of the voting power of all the then-outstanding shares of voting stock entitled to vote at an election of directors. Furthermore, any vacancy on our board of directors, however occurring, including a vacancy resulting from an increase in the size of the board of directors, may only be filled by a resolution of the board of directors unless the board of directors determines that such vacancies shall be filled by the stockholders. This system of electing and removing directors and filling vacancies may tend to discourage a third party from making a tender offer or otherwise attempting to obtain control of us, because it generally makes it more difficult for stockholders to replace a majority of the directors.

Amendment of Charter Provisions

The amendment of any of the above provisions, except for the provision making it possible for our board of directors to issue preferred stock, would require approval by holders of at least 66-2/3% of the voting power of our then outstanding voting stock.

The provisions of the Delaware General Corporation Law, our amended and restated certificate of incorporation and our amended and restated bylaws could have the effect of discouraging others from attempting hostile takeovers and, as a consequence, they may also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. These provisions may also have the effect of preventing changes in our management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders may otherwise deem to be in their best interests.

Limitations of Liability and Indemnification Matters

Our amended and restated certificate of incorporation contains provisions that limit the liability of our directors for monetary damages to the fullest extent permitted by Delaware law. Consequently, our directors will

not be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duties as directors, except liability for:

- any breach of the director's duty of loyalty to us or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the Delaware General Corporation Law; or
- any transaction from which the director derived an improper personal benefit.

Our amended and restated certificate of incorporation provides that we may, and our amended and restated bylaws provide that we are required to, indemnify our directors and officers, in each case to the fullest extent permitted by Delaware law. Our amended and restated bylaws also provide that we shall advance expenses incurred by a director or officer in advance of the final disposition of any action or proceeding, and permit us to secure insurance on behalf of any officer, director, employee or other agent for any liability arising out of his or her actions in that capacity regardless of whether we would otherwise be permitted to indemnify him or her under Delaware law. We have entered and expect to continue to enter into agreements to indemnify our directors, executive officers and other employees as determined by our board of directors. With specified exceptions, these agreements provide for indemnification for related expenses including, among other things, attorneys' fees, judgments, fines and settlement amounts incurred by any of these individuals in any action or proceeding. We believe that these bylaw provisions and indemnification agreements are necessary to attract and retain qualified persons as directors and officers. We also maintain directors' and officers' liability insurance.

The limitation of liability and indemnification provisions in our amended and restated certificate of incorporation and amended and restated bylaws may discourage stockholders from bringing a lawsuit against our directors and officers for breach of their fiduciary duty. They may also reduce the likelihood of derivative litigation against our directors and officers, even though an action, if successful, might benefit us and our stockholders. Further, a stockholder's investment may be adversely affected to the extent that we pay the costs of settlement and damage.

The Nasdaq Global Select Market Listing

Our common stock is listed on The Nasdaq Global Select Market under the symbol "CDXS."

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is EQ Shareowner Services.

ACQUISITION AGREEMENT

between

SOCIÉTÉ DES PRODUITS NESTLÉ S.A.

and

CODEXIS, INC.

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ACQUISITION AGREEMENT

This Acquisition Agreement (this "**Agreement**") dated as of December 26, 2023 (the "**Effective Date**") is entered into between CODEXIS, INC., a corporation incorporated and existing under the laws of the State of Delaware, having an office located at 200 Penobscot Drive, Redwood City, CA 94063, USA **(**"**Seller**" or "**Codexis**"), and Société des Produits Nestlé S.A., a *société anonyme* organized and existing under the laws of Switzerland, having an office located at 55 Avenue Nestlé, 1800 Vevey, Switzerland **(**"**Buyer**" or "**NHSc**").

RECITALS

WHEREAS, Buyer (as successor in interest to Nestec Ltd.), and Seller are parties to that certain Strategic Collaboration Agreement, dated as of October 12, 2017 (as amended through the date hereof, the "**Strategic Collaboration Agreement**" or "**SCA**"), pursuant to which the parties agreed to collaborate to discover enzymes as candidates for use as healthcare products and to perform initial preclinical evaluation of the efficacy of such enzymes;

WHEREAS, Buyer and Seller are parties to that certain Development Agreement, dated as of January 1, 2020 (as amended through the date hereof, the "**Development Agreement**" and, together with the Strategic Collaboration Agreement and including, if either or both such agreements expire or are otherwise terminated, all terms, conditions, and obligations in each that survive such expiration or other termination, the "**Existing Agreements**"), pursuant to which the parties agreed to conduct certain development activities with respect to certain enzymes discovered pursuant to the Strategic Collaboration Agreement;

WHEREAS, the parties desire for Buyer to have the right to further develop and commercialize those certain lipase enzymes that were discovered under the Strategic Collaboration Agreement and that were further developed pursuant to the Development Agreement, including that certain lipase enzyme currently identified as CDX-7108 **(**"**CDX-7108**" and, together with [***], the "**Lipase Project Enzyme**");

WHEREAS, pursuant to the terms of the Existing Agreements, each party has agreed not to Develop or Commercialize the Lipase Project Enzyme, including the use of any Jointly Owned Invention in connection therewith, unless agreed by the parties in a separate written agreement;

WHEREAS, Seller wishes to sell and assign to Buyer certain identified Patent Rights, Contracts, and other assets related to the Lipase Project Enzyme, and Buyer wishes to purchase and assume from Seller such assets and certain corresponding liabilities, and Seller otherwise wishes to authorize Buyer's Development and Commercialization of, the Lipase Project Enzyme, in each case, subject to the terms and conditions set forth herein;

WHEREAS, Buyer and Seller have also developed the A&P Enzymes (as defined below) under the Existing Agreements; and

WHEREAS, Seller has agreed to grant Buyer an option to acquire certain assets related to the A&P Enzymes and the right to Develop and Commercialize the A&P Enzymes upon the payment of an agreed upon purchase price, in each case, subject to the terms and conditions set forth herein;

NOW, **THEREFORE**, in consideration of the mutual covenants and agreements hereinafter set forth and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

ARTICLE I
PURCHASE AND SALE

Section 1.01 Purchase and Sale of Assets. Subject to the terms and conditions set forth herein, at the Closing, Seller shall, and shall cause its Affiliates to, sell, convey, assign, transfer, and deliver to Buyer (or its designated Affiliate), and Buyer shall purchase from Seller and its Affiliates, all of Seller's (or its applicable Affiliate's) right, title, and interest in, to, and under all of the following (the "**Purchased Assets**"):

(a) the patents and patent applications set forth on Section 1.01(a) of the Disclosure Schedules (the " **Purchased Patents**"), and all of Seller's and its Affiliates interest in, to and under the Purchased Patents, including the right to sue for past infringement;

(b) all Contracts set forth on Section 1.01(b) of the Disclosure Schedules (the " **Assigned Contracts**") and the rights to assert claims and take other actions in respect of breaches or other violations of the foregoing occurring after the Closing;

(c) the inventory and other materials set forth on Section 1.01(c) of the Disclosure Schedules (the " **Inventory**");

(d) all Jointly Owned Inventions relating [***] to the Lipase Project Enzyme (the "**Purchased Know-How**");

(e) all Regulatory Documentation owned [***] by Seller and its Affiliates [***] relating to the other Purchased Assets (the " **Acquired Regulatory Documentation**"); and

(f) all other Books and Records owned [***] by Seller and its Affiliates relating [***] to the other Purchased Assets, [***] (collectively, the "**Acquired Books and Records**"). For clarity, Acquired Books and Records shall specifically exclude all Tax Returns and related workpapers including or relating to the Purchased Assets. Books and Records that do not relate [***] to the other Purchased Assets may be redacted to exclude information that does not relate to the other Purchased Assets.

Section 1.02 Excluded Assets. Other than the Purchased Assets, Buyer expressly understands and agrees that it is not purchasing or acquiring, and Seller is not selling or assigning, any other assets or properties of Seller or its Affiliates, and all such other assets and properties shall be excluded from the Purchased Assets and remain the sole and exclusive property of Seller and/or its Affiliates (collectively, the " **Excluded Assets**"). Excluded Assets include, but are not limited to, the assets, properties and rights specifically set forth on Section 1.02 of the Disclosure Schedules.

Section 1.03 Assumed Liabilities.

(a) Subject to the terms and conditions set forth herein, including Section 1.03(b), at the Closing, Buyer shall assume and agree to pay, perform, and discharge when due any and all Liabilities of Seller arising out, of or relating to, ownership of the Purchased Assets or operation of the Business on or after the Closing (collectively, the "**Assumed Liabilities**"), including, but not limited to, the following:

(i) all Liabilities arising under the Assigned Contracts from and after the Closing Date (but, for clarity, this does not limit any Liabilities under any Assigned

Contract (or portion thereof) that is or was a Liability of Buyer or any of its Affiliates prior to the Closing Date pursuant to any Existing Agreement or other agreement between the parties); and

(ii) all Liabilities for (A) Taxes relating to the Purchased Assets for any taxable period (or any portion thereof) beginning on or after the Closing Date ([***]) and (B) Taxes for which Buyer is liable pursuant to Section 5.09.

(b) Buyer shall not assume and shall not be responsible to pay, perform or discharge any Liabilities of Seller or its Affiliates other than the Assumed Liabilities (collectively, the "**Excluded Liabilities**"), which Excluded Liabilities shall include, but not necessarily be limited to:

(i) any Liabilities arising out of or relating to Seller's ownership of the Purchased Assets prior to the Closing Date or attributable to any breach of any Assigned Contract on the part of Seller or its Affiliate prior to the Closing Date (but excluding all Liabilities under any Assigned Contract (or portion thereof) that is or was a Liability of Buyer or any of its Affiliates pursuant to any Existing Agreement or other agreement between the parties hereto);

(ii) any Liabilities [***];

(iii) any Liabilities [***];

(iv) any Liabilities arising out of or relating to the Excluded Assets; and

(v) any Liabilities (A) for Taxes relating to the Purchased Assets for any taxable period (or any portion thereof) ending on or prior to the Closing Date; (B) [***].

Section 1.04 Purchase Price. The aggregate purchase price for the Purchased Assets shall be the sum of (a) $5,000,000 (the "**Initial Purchase Price**"); *plus* (b) the amount of any Milestone Earnout Payments due and payable under Section *1.05, plus* (c) the amount of any Sales Earnout Payments due and payable under Section 1.06 (such sum, the "**Purchase Price**").

Section 1.05 Milestone Earnout. Buyer shall pay to Seller the following one-time, non-refundable, non-creditable milestone payments (each, a "**Milestone Earnout Payment**") upon and subject to the achievement of each identified event below (each, a "**Milestone**"):

(a) upon [***] (the "**[***] Milestone**"): $[***];

(b) upon [***] (the "**[***] Milestone**"): $[***];

(c) upon [***]: $[***];

(d) upon [***]: $[***];

(e) upon consummation of any Sell-On Transaction [***]: an amount equal to [***] of all Sell-On Transaction Profits;

(f) upon consummation of any Sell-On Transaction [***]: an amount equal to [***] of all Sell-On Transaction Profits; and

(g) upon consummation of any Sell-On Transaction [***]: an amount equal to [***] of all Sell-On Transaction Profits.

For the avoidance of doubt, each of the Milestone Earnout Payments set forth above will be payable only one time, upon the first occurrence of the corresponding Milestone, and no additional payment will be due in the event of any repeated occurrence of such Milestone, including in relation to more than one Product. Under no circumstances shall Buyer be obligated to pay Seller more than $[***] in the aggregate pursuant to subsections (a) through (d) of this Section 1.05.

Buyer shall provide Seller with [***] notice of the achievement of any Milestone, as well as [***] notice after each time Buyer or any of its Affiliates actually receives any Sell-On Transaction Profits (including pursuant to the release of any proceeds from escrow or provided as part of an earnout). Following the receipt of such notice of achievement of a Milestone or notice of receipt of Sell-On Transaction Profits, Seller shall issue an invoice to Buyer for the corresponding Milestone Earnout Payment or documenting that portion of the Sell-On Transaction Profits owed by Buyer to Seller (each such amount, the "**Sell-On Transaction Payment**"). Each Milestone Earnout Payment or Sell-On Transaction Payment owing pursuant to this Section 1.05 shall be due by Buyer within [***] following Buyer's receipt of an invoice therefor. Buyer shall pay each Milestone Earnout Payment and Sell-On Transaction Payment by wire transfer of immediately available funds to Seller in accordance with the wire transfer instructions provided by Seller in writing prior to the due date for such payment.

In the event that Buyer consummates any Sell-On Transaction, Buyer shall remain responsible for the payment of the Earnout Payments to Seller [***] in accordance with the terms of this Agreement.

Section 1.06 Sales Earnout.

(a) Base Line Calculation. Within [***] after the Launch Date, Buyer shall provide to Seller a report detailing the aggregate Net Sales of Zenpep (including Combination Products with Zenpep as the Covered Component) during the [***] period [***] (the "**Baseline Zenpep [***] Sales**"). Buyer shall include in such report sufficient details to show Buyer's calculation of such Net Sales, including each subpart thereof. Buyer shall also provide Seller with all supporting documentation [***] requested by Seller [***] to confirm such calculations and amounts. If Seller does not dispute in writing the Baseline Zenpep [***] Sales amount set forth in Buyer's report within [***] after the delivery thereof, such Baseline Zenpep [***] Sales amount shall be deemed final and binding on the parties. If Seller disagrees with the Baseline Zenpep [***] Sales amount as set forth in Buyer's report, Seller shall deliver a written notice of dispute to Buyer setting forth in reasonable detail the specific amount(s) disputed, [***], and its proposed calculation of such disputed amount(s), together with reasonable supporting documentation (collectively, the "**Baseline Disputed Items**") within [***] after the delivery of Buyer's report and the parties shall negotiate in good faith a mutually agreeable final Baseline Zenpep [***] Sales amount to be used by the parties. If the parties are not able to agree upon the Baseline Zenpep [***] Sales amount within [***] after Seller provides Buyer with such notice of the dispute, then Seller shall engage an independent certified public accounting firm of internationally recognized standing that is reasonably acceptable to Buyer to audit the calculations. The audit shall be limited to the Baseline Disputed Items that remain unresolved after the parties' good faith negotiations (the "**Unresolved Baseline Disputed Items**"). The

accounting firm shall be required to enter into a reasonable and customary confidentiality and non-use agreement with Buyer to protect the confidentiality of Buyer's books and records. Buyer and its Affiliates shall make the relevant books and records available during normal business hours for examination by the accounting firm. Except as may otherwise be agreed, the accounting firm shall be provided access to such books and records at Buyer's or its Affiliates' facilities where such books and records are normally kept. Upon completion of the audit, the accounting firm shall provide both parties a written report disclosing (i) whether or not Buyer's report is correct with respect to the Unresolved Baseline Disputed Items, (ii) if any Unresolved Baseline Disputed Item is not correct, the auditor's determination of the value for such Unresolved Baseline Disputed Item, and (iii) the specific details concerning any discrepancies. The decision of the accounting firm shall be final and binding on the parties absent manifest error. The parties shall initially share the costs of the auditor equally; following completion of the auditor, if (1) the value of the Baseline Zenpep [***] Sales determined by the auditor is [***] than the value of the Baseline Zenpep [***] Sales as put forth by Buyer in its initial report on the Baseline Zenpep [***] Sales, then Buyer shall pay the entire costs of the auditor, including reimbursing Seller for any amounts paid to such auditor by Seller or its Affiliates and (2) the value of the Baseline Zenpep [***] Sales Items determined by the auditor is [***] of the value of the Baseline Zenpep [***] Sales as put forth by Buyer in its initial report on the Baseline Zenpep [***] Sales, [***]. The accounting firm shall not provide Seller with [***] access to Buyer's confidential information. The "**[***] Baseline**" is equal to the product of (i) the Baseline Zenpep [***] Sales as determined pursuant to this Section 1.06(a); *multiplied by* (ii) [***]. The "**Quarterly Baseline**" is equal to the quotient of (A) the [***] Baseline; *divided by* (B) four.

(b) Sales Earnout Payments. For each Calendar Quarter, the "**Earnout Sales**" means the difference of (i) the Net Sales for such Calendar Quarter, less (ii) the Quarterly Baseline, provided that if such amount is less than $0, the Earnout Sales for the Calendar Quarter will be deemed to be $0. During the Earnout Period, for each Calendar Quarter occurring on or after the Launch Date (including the Calendar Quarter in which the Launch Date occurs), Buyer shall pay to Seller an amount equal to [***] of the Earnout Sales (the "**Sales Earnout Payments**" and, collectively with the Milestone Earnout Payments, the "**Earnout Payments**") in accordance with Section 1.06(d).

(c) Combination Products. If Buyer, any of its Affiliates, or any Licensee sells any Earnout Product in the form of a Combination Product, Net Sales of such Combination Product for the purpose of determining the Baseline Zenpep [***] Sales pursuant to Section 1.06(a) and Sales Earnout Payments due to Seller pursuant to Section 1.06(b) will be calculated as follows:

(i) [***];

(ii) [***];

(iii) [***]; or

(iv) [***].

[***].

(d) Payment Terms and Earnout Statements.

(i) Buyer shall pay all Sales Earnout Payments due under this Agreement for each Calendar Quarter within [***] after the end of such Calendar Quarter. Buyer shall make all payments in U.S. dollars by wire transfer of immediately available funds to bank account(s) as designated in writing by Seller from time to time. For the purpose of converting the local currency in which any Net Sales arise into U.S. dollars, the rate of exchange to be applied will be the rate of exchange [***].

(ii) If any Earnout Payment is not received by Seller when due, Buyer shall pay to Seller interest on the overdue payment from the date such payment was due to the date of actual payment at an annual rate equal to [***] percentage points above the U.S. prime interest rate, as reported by The Wall Street Journal (New York edition) for the first Business Day of the month in which such due date occurs, or if lower, the maximum amount permitted under applicable Law.

(iii) On or before the due date for all payments to Seller pursuant to Section 1.06(d)(i), Buyer shall provide Seller with a statement (an "**Earnout Statement**") showing for the relevant Calendar Quarter on an Earnout Product-by-Earnout Product basis:

(A) the Gross Sales for the sale of Earnout Products; and

(B) the calculation of Deductions, Net Sales, and Sales Earnout Payments with respect to such Earnout Products, subject to Section 1.06(c) with respect to Combination Products; and

(C) the exchange rate used for calculating any Sales Earnout Payments.

Upon Seller's request, Buyer shall provide Seller with such additional documentation as may be reasonably requested by Seller that is [***] for the information included in each Earnout Statement.

Section 1.07 Reports and Reporting. No later than [***] following the end of each Calendar Quarter, Buyer shall provide Seller with a report of Net Sales booked by Buyer on an Earnout Product-by-Earnout Product basis, during such Calendar Quarter ended (each, a "**Quarterly Estimate**"). For the avoidance of doubt, the Quarterly Estimates are provided for informational purposes only and shall be subject in all respects to the Earnout Statements provided for the applicable Calendar Quarter. No later than [***] after the expiration of each Calendar Year, Buyer shall furnish Seller with a written report (each, an "**Annual Report**") setting forth: (a) through and including the Calendar Year in which the first Launch Date occurs, [***] its, its Affiliates,' and its Licensees' progress on the Development, Manufacture, and Commercialization of all Products for the Calendar Year just ended, including [***] their progress and efforts towards the achievement of each Milestone; (b) Buyer's then-current estimates as to the date of achievement for the [***] Milestone and the [***] Milestone; and (c) its, its Affiliates,' and its Licensees' projections of Net Sales and Sales Earnout Payments for the then-current Calendar Year; provided [***]. [***]. Upon Seller's reasonable advance notice (which in no event shall be less than [***]), Buyer shall make its relevant management personnel reasonably available to Seller's personnel to discuss in greater detail each Annual Report, the information therein, and related questions Seller may have; provided that such access shall be during normal local business hours [***].

Section 1.08 Allocation of Purchase Price. The Purchase Price and the Assumed Liabilities (and any other amounts, if any, properly included for Tax purposes) shall be allocated in accordance with Section 1060 of the Internal Revenue Code of 1986, as amended (the "**Code**") among the Purchased Assets for all U.S. federal income tax purposes as shown on the allocation schedule set forth on Section 1.08 of the Disclosure Schedules (the "**Allocation Schedule**"). Neither the parties nor any of their respective Affiliates shall take any position on any Tax Return or in any Tax contest, proceeding, audit, appeals or litigation which is inconsistent with the agreed upon allocation unless otherwise required by a final determination within the meaning of Section 1313(a) of the Code (or any similar provision of state, local or non-U.S. Tax Law).

Section 1.09 Non-Assignable Assets; Previously Transferred Assets.

(a) Notwithstanding anything to the contrary in this Agreement, this Agreement shall not constitute a sale, assignment, or transfer of any Purchased Asset if such sale, assignment, or transfer: (i) violates applicable Law; or (ii) without the consent or waiver of a Person who is not a party to this Agreement or an Affiliate of a party to this Agreement would result in a breach or violation of an Assigned Contract, result in the termination, cancellation, or revocation of an Assigned Contract, or result in the creation of any lien on any Purchased Asset, and such consent or waiver has not been obtained prior to the Closing.

(b) Following the Closing, Seller and Buyer shall use [***] efforts, and shall cooperate with each other, to obtain any such required consent or waiver, or any release, substitution, or amendment required to assign all Liabilities under any and all Assigned Contracts or other Liabilities that constitute Assumed Liabilities; [***]. Once such consent, waiver, release, substitution, or amendment is obtained, Seller shall promptly sell, assign, and transfer to Buyer the relevant Purchased Asset to which such consent, waiver, release, substitution, or amendment relates [***].

(c) To the extent that any Purchased Asset or Assumed Liability cannot be transferred to Buyer pursuant to this Section 1.09, Buyer and Seller shall use [***] efforts to enter into such arrangements (such as subleasing, sublicensing, or subcontracting) to provide to the parties the economic and, to the extent permitted under applicable Law, operational equivalent of the transfer of such Purchased Asset or Assumed Liability to Buyer as of the Closing. Buyer shall, to the extent it receives the benefits of the applicable Purchased Asset, as agent or subcontractor for Seller, pay, perform, and discharge fully the liabilities and obligations related to such Purchased Asset or Assumed Liability from and after the Closing Date. To the extent permitted under applicable Law, Seller shall, at Buyer's expense, hold in trust for and pay to Buyer promptly upon receipt thereof, all income, proceeds, and other monies received by Seller from and after the Closing Date, to the extent related to such Purchased Asset in connection with the arrangements under this Section 1.09. [***].

(d) The Parties acknowledge that the Assigned Contracts and Inventory set forth in Section 1.09(d) of the Disclosure Schedules, and Assumed Liabilities specifically related thereto were assigned and transferred to, and assumed by, Buyer prior to the date of this Agreement (such Assigned Contracts and Inventory, the "**Previously Transferred Assets**" and such Assumed Liabilities, the "**Previously Assumed Liabilities**"). Such Previously Transferred Assets shall be Purchased Assets and, as applicable, Assigned Contracts and Inventory for all purposes of this Agreement, other than the obligation of Seller to assign and transfer the same at Closing, and

such Previously Assumed Liabilities shall be Assumed Liabilities for all purposes of this Agreement, other than the obligation of Buyer to assume the same at Closing.

Section 1.10 Withholding Taxes. [***]. [***]. The parties shall use [***] efforts to cooperate to mitigate or eliminate any such withholding. To the extent that amounts are so withheld and paid over to the appropriate Tax authority by Buyer, such withheld amounts shall be treated for all purposes of this Agreement as having been paid to the person in respect of which such deduction and withholding was made.

Section 1.11 Exploitation of Products. Seller agrees and acknowledges that [***]. Seller acknowledges and agrees that (a) [***], (b) [***], (c) [***], and (d) the parties solely intend the express provisions of this Agreement (and, for the avoidance of doubt, not the Existing Agreements) to govern their contractual relationship with respect to the Purchased Assets and the Products. [***].

ARTICLE II
CLOSING

Section 2.01 Closing. Subject to the terms and conditions of this Agreement, the consummation of the transactions contemplated by this Agreement (the "**Closing**") shall take place remotely by exchange of documents and signatures (or their electronic counterparts), on January 5 th, 2024 at 8:00 a.m. PST, provided that all of the conditions to Closing set forth in ARTICLE VI are either satisfied or waived by the party entitled to the benefits of such conditions on such date (other than conditions, which by their nature, are to be satisfied on the Closing Date, but subject to the satisfaction of such conditions on the Closing Date or waiver by the party entitled to the benefits of such conditions), or at such other time or place or in such other manner as Seller and Buyer may mutually agree upon in writing. The date on which the Closing is to occur is herein referred to as the "**Closing Date**." Each party shall use [***] efforts to satisfy all conditions to Closing set forth in ARTICLE VI that are within such party's control, obtain all internal approvals and complete all internal procedures necessary to proceed to Closing, and otherwise proceed to Closing as soon as possible after the Effective Date.

Section 2.02 Closing Deliverables.

(a) At the Closing, Seller shall deliver to Buyer the following:

(i) a bill of sale in the form of **Exhibit C** attached hereto and made a part hereof (the "**Bill of Sale**") duly executed by Seller, transferring the Inventory, Acquired Books and Records, and any other tangible Purchased Assets to Buyer;

(ii) an assignment and assumption agreement in the form of **Exhibit D** attached hereto and made a part hereof (the "**Assignment and Assumption Agreement**") duly executed by Seller, effecting the assignment to and assumption by Buyer of the Purchased Assets and the Assumed Liabilities;

(iii) an assignment in the form of **Exhibit E** attached hereto and made a part hereof (the "**Patent Assignment**") duly executed by Seller, transferring all of Seller's right, title, and interest in and to the Purchased Patents to Buyer; and

(iv) a license agreement in the form of **Exhibit F** attached hereto and made a part hereof (the "**Expression System License Agreement**" and, collectively with this

Agreement, the Assignment and Assumption Agreement, and the Patent Assignment, the " **Transaction Documents**") duly executed by Seller;

(v) a duly executed signature page to the A&P Acquisition Agreement, to be held in escrow subject to and in accordance with Section 9.02;

(vi) a properly completed IRS Form W-9; and

(vii) a certificate, dated the Closing Date and signed by a duly authorized officer of Seller, that each of the conditions set forth in Section 6.01(a) and Section 6.01(b) have been satisfied.

(b) At the Closing, Buyer shall deliver to Seller the following:

(i) the Assignment and Assumption Agreement duly executed by Buyer;

(ii) the Patent Assignment duly executed by Buyer;

(iii) the Expression System License Agreement duly executed by Buyer;

(iv) the Initial Purchase Price by wire transfer of immediately available funds to Seller in accordance with the wire transfer instructions set forth on Section 2.02(b)(iv) of the Disclosure Schedules; and

(v) a certificate, dated the Closing Date and signed by a duly authorized officer of Buyer, that each of the conditions set forth in Section 6.02(a) and Section 6.02(b) have been satisfied.

Section 2.03 Delivery of Records. Promptly and in any event within [***] after the Closing Date, Seller shall deliver to Buyer copies of the Acquired Regulatory Documentation and the Acquired Books and Records via virtual data room or other file-share platform reasonably acceptable to Buyer (or such other method as mutually agreed by the parties), provided that Seller shall have no obligation to deliver to Buyer any such Acquired Regulatory Documentation or Acquired Books and Records that are already in Buyer's or its Affiliates possession or that are publicly available.

ARTICLE III
REPRESENTATIONS AND WARRANTIES OF SELLER

Except as set forth in the Disclosure Schedules, Seller represents and warrants to Buyer that the statements contained in this ARTICLE III are true and correct as of the date hereof.

Section 3.01 Organization and Authority of Seller. Seller is a corporation duly organized, validly existing, and in good standing under the Laws of the State of Delaware. Seller has all necessary corporate power and authority to enter into this Agreement and the other Transaction Documents to which Seller is a party, to carry out its obligations hereunder and thereunder, and to consummate the transactions contemplated hereby and thereby. The execution and delivery by Seller of this Agreement and any other Transaction Document to which Seller is a party, the performance by Seller of its obligations hereunder and thereunder, and the consummation by Seller of the transactions contemplated hereby and thereby have been duly authorized by all requisite corporate action on the part of Seller. This Agreement and the Transaction Documents constitute legal, valid, and binding obligations of Seller enforceable against Seller

in accordance with their respective terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium, or similar Laws affecting creditors' rights generally and by general principles of equity (regardless of whether enforcement is sought in a proceeding at law or in equity).

Section 3.02 No Conflicts or Consents. The execution, delivery, and performance by Seller of this Agreement and the other Transaction Documents to which it is a party, and the consummation of the transactions contemplated hereby and thereby, do not and will not: (a) violate or breach any provision of the certificate of incorporation or by-laws of Seller; (b) violate or breach any provision of any Law or Governmental Order applicable to Seller or the Purchased Assets; (c) except as set forth in Section 3.02 of the Disclosure Schedules, require the consent, notice, or other action by any Person under, conflict with, violate or breach, constitute a default under, or result in the acceleration of any Assigned Contract; or (d) except as set forth in Section 3.02 of the Disclosure Schedules, require any consent, permit, Governmental Order, filing, or notice from, with, or to any Governmental Authority; except, in the cases of clauses (b) and (c), where the violation, breach, conflict, default, acceleration, or failure to obtain consent or give notice would not have a Material Adverse Effect and, in the case of clause (d), where such consent, permit, Governmental Order, filing, or notice which, in the aggregate, would not have a Material Adverse Effect.

Section 3.03 Intellectual Property. Section 3.03 of the Disclosure Schedules contains a current and complete list of all Purchased Patents, specifying as to each, as applicable: the title; the jurisdiction by or in which it has been issued, registered, or filed; the patent, registration or application serial number; and the issue, registration, or filing date. The Purchased Patents constitute all currently-existing Patents owned by Seller that [***] for the Manufacturing or use of CDX-7108 as it currently exists, other than any Patents covered by the Expression System License Agreement. Except for the Purchased Patents and any Patents covered by the Expression System License Agreement, Seller Controls no Patents that [***] for the Manufacturing or use of, CDX-7108 as it currently exists. Other than with respect to any ownership right, title, or interest of Buyer or any of its Affiliates, Seller owns all right, title, and interest in and to the Purchased Patents and Seller has not granted any license or other right under any of the Purchased Patents to any Third Party other than to service providers under the Assigned Contracts. All assignments and other instruments necessary to establish and record Seller's ownership interest in the Purchased Patents have been executed, delivered, and filed with the relevant Governmental Authorities and authorized registrars. All required filings and fees related to the Purchased Patents due and payable prior to the Effective Date have been submitted with and paid to the relevant Governmental Authorities and authorized registrars. To Seller's Knowledge, (a) no Person is infringing any Purchased Patents, and (b) except as set forth on Section 3.03(b) of the Disclosure Schedules, there are no actual or threatened claims that (i) the currently-listed inventorship of the Purchased Patents is incorrect, (ii) CDX-7108 (as existing on the date hereof) infringes any Third Party intellectual property rights or (iii) the use of the Codexis Expression System (as defined in the Expression System License Agreement) to manufacture any Cell Bank (as defined in the Expression System License Agreement) or CDX-7108 as it currently exists infringes any Third Party intellectual property rights.

Section 3.04 Assigned Contracts.

(a) Correct and complete copies of each Assigned Contract, have been made available to Buyer and its Representatives, including all amendments and modifications and side agreements relating thereto.

(b) Except as set forth on Section 3.04 of the Disclosure Schedules: (i) each of the Assigned Contracts represents a legal, valid and binding obligation of Seller and, to Sellers' Knowledge, each other party thereto, and is enforceable against Seller and, to Seller's Knowledge, each other party thereto, in accordance with its terms, and is in full force and effect, and (ii) none of Seller or, to Seller's Knowledge, any other party thereto is in material breach of, or material default under, or has provided or received any notice of any intention to terminate, any of the Assigned Contracts, or has committed or failed to perform any act which, with or without notice, lapse of time or both would constitute a material breach of or material default under any of the Assigned Contracts.

Section 3.05 Title to Inventory. Seller has good and valid title to all Inventory included in the Purchased Assets, free and clear of any lien, charge, claim, pledge, security interest, or other similar encumbrance ("collectively, "**Encumbrances**"), except for: (a) liens for Taxes not yet due and payable or being contested in good faith by appropriate procedures; (b) mechanics', carriers', workmen's, repairmen's, warehouse, or other like liens arising or incurred in the ordinary course of business; and (c) liens arising under original purchase price conditional sales contracts with third parties entered into in the ordinary course of business (collectively, "**Permitted Encumbrances**").

Section 3.06 Legal Proceedings; Governmental Orders.

(a) Except as set forth in Section 3.06(a) of the Disclosure Schedules, there are no material claims, actions, suits, investigations, or other legal proceedings (collectively, "**Actions**") pending or, to Seller's Knowledge, threatened against or by Seller or its Affiliates relating to or affecting the Purchased Assets or the Assumed Liabilities.

(b) Except as set forth in Section 3.06(b) of the Disclosure Schedules, there are no outstanding Governmental Orders against, relating to, or affecting the Purchased Assets, which would have a Material Adverse Effect.

Section 3.07 Brokers. No broker, finder, or investment banker is entitled to any brokerage, finder's, or other fee or commission in connection with the transactions contemplated by this Agreement or any other Transaction Document based upon arrangements made by or on behalf of Seller or any of its Affiliates.

Section 3.08 No Other Representations and Warranties. Except for the representations and warranties contained in this ARTICLE III (including the related portions of the Disclosure Schedules), neither Seller nor any other Person has made or makes any other express or implied representation or warranty, either written or oral, on behalf of Seller, including any representation or warranty as to the accuracy or completeness of any information, documents, or material regarding the Products and the Purchased Assets furnished or made available to Buyer and its Representatives in any form (including any information, documents, or material delivered or made available to Buyer on behalf of Seller for purposes of this Agreement), or as to the future revenue, profitability, or success of the Products, or any representation or warranty arising from statute or otherwise in Law.

ARTICLE IV
REPRESENTATIONS AND WARRANTIES OF BUYER

Except as set forth in the Disclosure Schedules, Buyer represents and warrants to Seller that the statements contained in this ARTICLE IV are true and correct as of the date hereof

Section 4.01 Organization and Authority of Buyer. Buyer is a *société anonyme* duly organized, validly existing and in good standing under the Laws of Switzerland. Buyer has all necessary corporate power and authority to enter into this Agreement and the other Transaction Documents to which Buyer is a party, to carry out its obligations hereunder and thereunder, and to consummate the transactions contemplated hereby and thereby. The execution and delivery by Buyer of this Agreement and any other Transaction Document to which Buyer is a party, the performance by Buyer of its obligations hereunder and thereunder, and the consummation by Buyer of the transactions contemplated hereby and thereby have been duly authorized by all requisite corporate action on the part of Buyer. This Agreement and the Transaction Documents constitute legal, valid, and binding obligations of Buyer enforceable against Buyer in accordance with their respective terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium, or similar Laws affecting creditors' rights generally and by general principles of equity (regardless of whether enforcement is sought in a proceeding at law or in equity).

Section 4.02 No Conflicts; Consents. The execution, delivery, and performance by Buyer of this Agreement and the other Transaction Documents to which it is a party, and the consummation of the transactions contemplated hereby and thereby, do not and will not: (a) violate or breach any provision of the certificate of incorporation or by-laws of Buyer; (b) violate or breach any provision of any Law or Governmental Order applicable to Buyer; (c) require the consent, notice or other action by any Person under, conflict with, violate or breach, constitute a default under, or result in the acceleration of any agreement to which Buyer is a party; or (d) require any consent, permit, Governmental Order, filing, or notice from, with, or to any Governmental Authority by or with respect to Buyer.

Section 4.03 Solvency; Sufficiency of Funds. Immediately after giving effect to the transactions contemplated hereby, Buyer shall be solvent and shall: (a) be able to pay its debts as they become due; (b) own property that has a fair saleable value greater than the amounts required to pay its debts (including a reasonable estimate of the amount of all Liabilities); and (c) have adequate capital to carry on its business. No transfer of property is being made and no obligation is being incurred in connection with the transactions contemplated hereby with the intent, on the part of Buyer, to hinder, delay, or defraud either present or future creditors of Buyer or Seller. In connection with the transactions contemplated hereby, Buyer has not incurred, nor plans to incur, debts beyond its ability to pay as they become absolute and matured.

Section 4.04 Legal Proceedings. There are no Actions pending or, to Buyer's knowledge, threatened against or by Buyer that challenge or seek to prevent, enjoin, or otherwise delay the transactions contemplated by this Agreement.

Section 4.05 Brokers. No broker, finder, or investment banker is entitled to any brokerage, finder's, or other fee or commission in connection with the transactions contemplated by this Agreement or any other Transaction Document based upon arrangements made by or on behalf of Buyer or any of its Affiliates.

Section 4.06 Independent Investigation. Buyer has conducted its own independent investigation, review, and analysis of the Products and the Purchased Assets, and acknowledges that it has been provided adequate access to the personnel, properties, assets, premises, books and records, and other documents and data of Seller for such purpose. Buyer acknowledges and agrees that: (a) in making its decision to enter into this Agreement and to consummate the transactions contemplated hereby, Buyer has relied solely upon its own investigation and the express representations and warranties of Seller set forth in ARTICLE III of this Agreement (including related portions of the Disclosure Schedules); and (b)

neither Seller nor any other Person has made any representation or warranty as to Seller, the Products, the Purchased Assets, or this Agreement, except as expressly set forth in ARTICLE III of this Agreement (including the related portions of the Disclosure Schedules).

Section 4.07 Other Representations and Warranties. Except for the representations and warranties contained in this ARTICLE IV, neither Buyer nor any other Person has made or makes any other express or implied representation or warranty, either written or oral, on behalf of Buyer, including any representation or warranty as to the accuracy or completeness of any information, documents, or material furnished or made available to Seller and its Representatives in any form (including any information, documents, or material delivered or made available to Seller on behalf of Buyer for purposes of this Agreement) or any representation or warranty arising from statute or otherwise in Law.

ARTICLE V
COVENANTS

Section 5.01 Certain Activities Prior to the Closing. From the Effective Date until the Closing, except as otherwise provided in this Agreement, or consented to in writing by Buyer (which consent shall not be unreasonably withheld, conditioned, or delayed), Seller shall use [***] efforts to maintain and preserve intact all Purchased Assets, and, without limiting the generality of the foregoing, shall not during such period:

(a) sell, assign, lease, transfer, abandon, fail to maintain, permit to lapse, grant any license or sublicense under or with respect to, or otherwise dispose of any of the Purchased Assets;

(b) create, incur or otherwise allow the imposition of any Encumbrance upon any of the Purchased Assets, except for Permitted Encumbrances; or

(c) agree in writing to do any of the foregoing.

Section 5.02 Supplement to Disclosure Schedules. From time to time prior to the Closing, Seller shall have the right (but not the obligation) to supplement or amend the Disclosure Schedules hereto with respect to any matter hereafter arising after the Effective Date (each a "**Schedule Supplement**"), in which case, Seller shall promptly, and in any event prior to Closing, deliver a revised version of the Disclosure Schedules to Buyer. [***].

Section 5.03 Confidentiality.

(a) Nondisclosure. Each party agrees that, during the Term and thereafter, a party (the " **Receiving Party**") receiving Confidential Information of the other party (the "**Disclosing Party**") (or that has received any such Confidential Information from the other party prior to the Effective Date) shall (i) maintain in confidence such Confidential Information using not less than the efforts such Receiving Party uses to maintain in confidence its own proprietary industrial information of similar kind and value, which shall be no less than a reasonable degree of care, (ii) not disclose such Confidential Information to any Third Party without the prior written consent of the Disclosing Party, except for disclosures expressly permitted below, and (iii) not use such Confidential Information for any purpose except those permitted by this Agreement. Each Receiving Party will promptly notify the Disclosing Party upon gaining knowledge of any material use or disclosure of Confidential Information of the other party not permitted pursuant to this Section 5.03. [***]. For the further avoidance of doubt, all Licensed Know-How is and shall

be Confidential Information of Seller. The obligations in this Section 5.03 shall not apply with respect to any portion of the Confidential Information that the Receiving Party may receive to the extent that such information:

(i) is publicly disclosed by the Disclosing Party, either before or after it is disclosed to the Receiving Party hereunder;

(ii) was known to the Receiving Party or any of its Affiliates, without any obligation to keep it confidential or any restriction on its use, prior to disclosure by the Disclosing Party, and such prior knowledge can be properly documented by the Receiving Party;

(iii) is subsequently disclosed to the Receiving Party or any of its Affiliates by a Third Party lawfully in possession thereof and without any obligation to keep it confidential or any restriction on its use;

(iv) is published by a Third Party or otherwise becomes publicly available or enters the public domain, either before or after it is disclosed to the Receiving Party without the Receiving Party's breach of the terms of this Agreement; or

(v) is independently developed by employees or contractors of the Receiving Party or any of its Affiliates without the aid, application, or use of Confidential Information of the Disclosing Party, and such independent development can be properly documented by the Receiving Party.

(b) Authorized Disclosure. The Receiving Party may disclose Confidential Information belonging to the Disclosing Party only to the extent such disclosure is reasonably necessary in the following instances:

(i) complying with applicable Laws and regulations (including the rules and regulations of the Securities and Exchange Commission or any national securities exchange) and with judicial or administrative process, if in the reasonable opinion of the Receiving Party's counsel, such disclosure is so required for such compliance and the Receiving Party discloses no more than required in its reasonable judgment, and further provided that with respect to judicially or administratively required disclosures, the Receiving Party (to the extent legally permissible) shall promptly inform the other party of such required disclosure and use [***] efforts to provide the other party an opportunity to challenge or limit the disclosure obligations; and

(ii) disclosure to its Affiliates, and to its bona fide actual or potential (A) permitted Licensees, (B) investment bankers, investors, lenders, or acquirers, or permitted assignees under Section 11.06, in each case, solely for diligence purposes, and (C) each of the parties' respective Representatives, in each case of (A), (B), and (C), each of whom prior to disclosure must be bound by obligations of confidentiality and non-use no less restrictive than the obligations set forth in this Section 5.03; provided, however, that the Receiving Party shall remain responsible for any failure by any Person who receives Confidential Information pursuant to this Section 5.03(b)(ii) to treat such Confidential Information as required under this Section 5.03.

If and whenever any Confidential Information is disclosed in accordance with this Section 5.03(b), such disclosure shall not cause any such information to cease to be Confidential Information, except to the extent that such disclosure results in a public disclosure of such information (other than by breach of this Agreement).

(c) Tax Filings. Notwithstanding any provision of this Agreement to the contrary, each party (and their Affiliates) shall be free to disclose this Agreement, the contents hereof, and the transactions contemplated hereby to any Governmental Authority in connection with the filing of any Tax Return and in any Tax audits, assessments, or administrative or judicial proceedings or other Actions relating to Tax Returns or Taxes.

Section 5.04 Public Announcements. Unless otherwise required by applicable Law, no party to this Agreement shall make any public announcements in respect of this Agreement or the transactions contemplated hereby without the prior written consent of the other party (which consent shall not be unreasonably withheld, conditioned, or delayed), and the parties shall cooperate as to the timing and contents of any such announcement. Notwithstanding the foregoing, Seller may, following the Effective Date, issue a press release regarding this Agreement and the transactions contemplated hereby containing the information and generally in the form as set forth in **Exhibit G** attached to and made a part of this Agreement. The contents of any announcement or similar publicity, which has been reviewed and approved by the reviewing party (including the press release referred to in the prior sentence), can be re-released by either party without a requirement for re-approval.

Section 5.05 Exclusivity.

(a) During the Restricted Period, Seller shall not, and shall not permit any of its Affiliates to, directly or indirectly engage in, for its own benefit or for, with, or through any other Person, [***], any other company, partnership, proprietorship, enterprise, organization or business venture of any kind whatsoever engaged in the Development, Manufacture, Commercialization or other Exploitation of any lipase-containing product in the field of pancreatic enzyme replacement therapy (the "**Restricted Business**") [***]. Notwithstanding the foregoing, Seller may own, directly or indirectly, solely as an investment, securities of any Person traded on any national securities exchange if Seller is not a controlling Person of, or a member of a group which controls, such Person and does not, directly or indirectly, own [***] or more of any class of securities of such Person. The "**Restricted Period**" shall commence on the Closing Date and shall continue until the third (3rd) anniversary of the Closing Date; provided [***].

(b) Each party acknowledges that a breach or threatened breach by it of this Section 5.05 could give rise to irreparable harm to the other party, for which monetary damages may not be an adequate remedy, and hereby agrees that in the event of a breach or a threatened breach by such party of any such obligations, the other party shall, in addition to any and all other rights and remedies that may be available to it in respect of such breach, be entitled to seek equitable relief, including a temporary restraining order, an injunction, specific performance, and any other relief that may be available from a court of competent jurisdiction (without any requirement to post bond, which such party hereby waives).

(c) Each party acknowledges that the restrictions contained in this Section 5.05 are reasonable and necessary to protect the legitimate interests of the other party and constitute a material inducement to each party to enter into this Agreement and consummate the transactions contemplated by this Agreement. In the event that any covenant contained in this Section 5.05

should ever be adjudicated to exceed the time, geographic, product, or service or other limitations permitted by applicable Law in any jurisdiction, then any court is expressly empowered to reform such covenant, and such covenant shall be deemed reformed, in such jurisdiction to the maximum time, geographic, product, or service or other limitations permitted by applicable Law. The covenants contained in this Section 5.05 and each provision hereof are severable and distinct covenants and provisions. The invalidity or unenforceability of any such covenant or provision as written shall not invalidate or render unenforceable the remaining covenants or provisions hereof, and any such invalidity or unenforceability in any jurisdiction shall not invalidate or render unenforceable such covenant or provision in any other jurisdiction.

Section 5.06 Patent Prosecution and Maintenance.

(a) Following the Closing Date, Buyer shall have the sole right to Prosecute all Purchased Patents and Resultant Patents, including any Patent Term Extensions or Supplementary Protection Certificates thereto, and shall be solely responsible for the cost and expense thereof. Buyer shall have the sole right to determine the strategy and material aspects of Prosecution of the Purchased Patents and Resultant Patents, including where and when applications for Purchased Patents and Resultant Patents will be filed, and claims to be included, excluded, or modified in Purchased Patents and Resultant Patents applications, or on the selection of internal or external patent counsel or patent agents to be used for filing, Prosecuting and maintaining the Purchased Patents and Resultant Patents.

(b) Seller shall provide to Buyer all reasonable assistance requested by Buyer in connection with Prosecution under this Section 5.06, including allowing Buyer reasonable access to Seller's and its Affiliates' files and documents and Seller's and its Affiliates' then-current personnel and inventors who may have possession of information relevant to the Prosecution. Any such cooperation by Seller and its Affiliates with respect to the Purchased Patents and Resultant Patents or any such Prosecution shall be at Buyer's cost and expense and Buyer shall reimburse Seller for such reasonable and documented costs and expenses of Seller and its Affiliates.

Section 5.07 Patent Enforcement.

(a) Buyer shall have the sole right to enforce the Purchased Patents and Resultant Patents and intellectual property rights in Purchased Know-How, including for past infringement, against Third Party infringers (and enter into settlement agreements with such Third Party infringers). Any recovery obtained in any such enforcement action (or settlement thereof) shall belong to Buyer and Buyer shall treat that portion of the recovery that is attributable to lost sales or disgorged profits (net of any non-reimbursed costs and expenses directly related to such enforcement action (or settlement thereof)) as Net Sales hereunder. Buyer shall be responsible for all costs and expenses associated with such enforcement.

(b) Seller shall provide to Buyer all reasonable assistance requested by Buyer in connection with any Action under this Section 5.07, including allowing Buyer reasonable access to Seller's and its Affiliates' files and documents and Seller's and its Affiliates' then-current personnel who may have possession of information relevant to the Action. Any such cooperation by Seller with respect to the Purchased Patents and Resultant Patents or any such Action shall be at Buyer's cost and expense and Buyer shall reimburse Seller for such reasonable and documented costs and expenses of Seller.

Section 5.08 Bulk Sales Laws. The parties hereby waive compliance with the provisions of any bulk sales, bulk transfer or similar Laws of any jurisdiction that may otherwise be applicable with respect to the sale of any or all of the Purchased Assets to Buyer.

Section 5.09 VAT. The Purchase Price is exclusive of VAT. Any party receiving a supply under this Agreement hereby covenants that it will pay any such VAT correctly charged in addition to any amounts due under this Agreement. The supplying party agrees that it will raise a Tax invoice (or equivalent document) to support the charge to VAT. Where the prevailing legislation requires a VAT reverse charge, then the receiving party covenants that it shall correctly account for VAT in respect of the services received. To the extent that any VAT is chargeable on any Purchased Assets transferred pursuant to this Agreement, Seller shall deliver to Buyer: (i) a valid VAT invoice where required by applicable Law or practice and (ii) any other documentation as may be reasonably requested by Buyer to assist it to recover the VAT chargeable or payable, in each case, in such form and within such timing as may be required by Law. An amount equal to the amount of VAT chargeable or payable by Seller on the Purchased Assets transferred shall be paid in addition to the consideration provided in this Agreement, by Buyer to Seller within [***] of receipt of a valid VAT invoice (or where no invoice is required, within [***] of demand) or, if later, [***] before the date on which the obligation to account for VAT would have had to be discharged in order to avoid liability to interest or a charge or penalty. Seller shall account for all amounts in respect of VAT paid to it by Buyer to the appropriate Governmental Authorities in compliance with applicable Laws. Both parties shall use [***] efforts to avail of VAT zero-rating, reduced rating or exemption that could apply. In the event that the local competent Tax authority determines that VAT is chargeable, Buyer in the first instance shall undertake all reasonable steps to refute any such assertions by the local Tax authority. Each party shall be responsible for any Taxes due on their own account, including any penalties or interest accruing due to incorrect VAT treatment of the supplies of goods or services made by that party or any failure to correctly account for VAT on any receipt of a supply of goods or services under this Agreement, except where those penalties or interest arise as a result of the actions of the other party, in which case that party shall be liable to reimburse the value of the penalties and interest.

Section 5.10 Further Assurances. Following the Closing, each of the parties hereto shall, and shall cause their respective Affiliates to, execute and deliver such additional documents, instruments, conveyances, and assurances and take such further actions as may be reasonably required to carry out the provisions hereof and give effect to the transactions contemplated by this Agreement and the other Transaction Documents.

Section 5.11 Books and Records; Audit.

(a) For a period of [***] from the date the last Milestone Earnout Payment or Sales Earnout Payment is made to Seller, Buyer shall, and shall require its Affiliates and Licensees to, keep and maintain complete, true, accurate, and detailed books and records for the purpose of calculating any amounts due to Seller hereunder, including any Earnout Payments and Sell-On Transaction Payments. Buyer and its Affiliates shall require Licensees to report to Buyer or its Affiliates, as applicable, the information required to be made available to Seller pursuant to Section 1.06(d) and this Section 5.11.

(b) Following the Launch Date, Seller shall have the right to examine and audit Buyer's and its Affiliates' books and records referred to in Section 5.11(a) to verify the accuracy of any reports or payments prepared or delivered to Seller pursuant to this Agreement. Any such audit shall be on at least [***] prior written notice. Seller's rights to perform an audit under this

Section 5.11 shall be limited to not more than [***] and shall be limited to the pertinent books and records for any Calendar Year ending not more than [***] before the date of the request [***]. The audit shall be performed [***] by an independent certified public accounting firm of internationally recognized standing that is selected by Seller [***]. The accounting firm shall be required to enter into a reasonable and customary confidentiality and non-use agreement with Buyer to protect the confidentiality of its books and records. Buyer and its Affiliates shall make the relevant books and records [***] available during normal business hours for examination by the accounting firm. Except as may otherwise be agreed, the accounting firm shall be provided access to such books and records at Buyer's or its Affiliates' facilities where such books and records are normally kept. Upon completion of the audit, the accounting firm shall provide both parties a written report disclosing whether or not the relevant reports or payments are correct, and the specific details concerning any discrepancies. The decision of the accounting firm shall be final and binding on the parties absent manifest error. The accounting firm shall not provide Seller with [***] access to Buyer's confidential information. If the accounting firm conducting an audit pursuant to this Section 5.11 concludes as a result of such audit that any additional amounts were due and payable to Seller, Buyer shall pay such additional amounts to Seller within [***] after the date that the parties receive such accountant's written report, together with interest as per Section 1.06(d)(ii). If the total amount of any underpayments by Buyer to Seller exceeds the lesser of: (i) $[***]; or (ii) [***] of the aggregate total amount that was properly due and payable to Seller for any Calendar Year, then Buyer shall also reimburse Seller for the documented, reasonable out-of-pocket expenses incurred in conducting the audit, including all costs and expenses paid or payable to the accounting firm. If the accounting firm conducting an audit pursuant to this Section 5.11 concludes as a result of such audit that any overpayment of Earnout Payments or other amounts due under this Agreement occurred, Buyer shall receive a credit equal to the amount of such overpayment for use as a credit against future Earnout Payments, if any, otherwise payable to Seller hereunder. Notwithstanding the foregoing, if Buyer reasonably and in good faith expects that the amount of such overpayment will exceed the amount of all Earnout Payments payable by Buyer to Seller in the next [***], at the written election of Buyer, Seller shall pay the amount by which such overpayment to Buyer exceeds such estimated Earnout Payments for the next [***] in cash (with such remaining amount of the overpayment a credit against future Earnout Payments, if any, otherwise payable to Seller hereunder), provided that if such amount to be paid by Seller in cash exceeds $[***], Seller may pay such amount in [***] installments over the next [***].

Section 5.12 Termination of the Existing Agreements. Effective as of the Closing:

(a) the Development Agreement is terminated and cancelled in its entirety by the parties pursuant to Section 10.2(a) of the Development Agreement, except for Articles 2, 3, 8, 9, 12, 13, 14, and 15 and Sections 10.1 and 10.3 of the Development Agreement which shall survive termination as per the terms of the Development Agreement (but shall no longer apply to the Lipase Project Enzyme, the Purchased Patents, the Resultant Patents, or the Purchased Know-How), and upon such termination the Development Agreement (other than such identified surviving Articles and Section) shall have no further force or effect and none of the parties thereto shall have any further rights or obligations with respect thereto; and

(b) the Strategic Collaboration Agreement is terminated and cancelled in its entirety by the parties pursuant to Section 12.2.1 of the Strategic Collaboration Agreement, except for Articles 2, 6, 7, 8, 11, 16, and 17 and Sections 5.7, 9.5, 10.1, 12.1, 14.1, and 15.1 of the Strategic Collaboration Agreement which shall survive termination as per the terms of the Strategic

Collaboration Agreement (but shall no longer apply to the Lipase Project Enzyme, the Purchased Patents, the Resultant Patents, and the Purchased Know-How), and upon such termination the Strategic Collaboration Agreement (other than such identified surviving Articles and Section) shall have no further force or effect and none of the parties thereto shall have any further rights or obligations with respect thereto.

If there is any conflict or inconsistency between the provisions of the surviving Articles and Sections of an Existing Agreement and the provisions of any Transaction Document, then the provisions of the Transaction Documents shall prevail. For clarity, the Lipase Project Enzyme, the Purchased Patents, the Resultant Patents, and the Purchased Know-How, and Buyer's corresponding interest in the Lipase Project Enzyme and such Purchased Patents, Resultant Patents, and Purchased Know-How under the Existing Agreements, shall cease to constitute Joint Patents or Jointly Owned Inventions under any Existing Agreement and cease to be subject to the terms of the Existing Agreements (including the provisions thereof surviving the termination thereof) and, as between the parties, the Prosecution, defense, and enforcement of the Purchased Patents, Resultant Patents, the Purchased Know-How, and Acquired Regulatory Documentation will be controlled solely by the terms of this Agreement and not the surviving Articles and Sections of any Existing Agreement. For clarity, all right, title, and interest in the Purchased Patents, including the right to sue for past infringement, shall belong solely to Buyer as of the Closing Date.

Section 5.13 License to Know-How. Effective as of the Closing Date and subject to the terms of this Section 5.13, Seller (on behalf of itself and its Affiliates) hereby grants to Buyer, and Buyer accepts, a non-exclusive, perpetual, irrevocable, royalty-free, worldwide, non-transferable (except as set forth below), sublicensable (solely as set forth below) license under the Licensed Know-How to Manufacture, Develop, Commercialize, and otherwise Exploit the Lipase Project Enzyme anywhere in the world, [***]. Buyer shall have no rights or license to any enhancements, improvements, or other modifications to the Licensed Know-How made by or on behalf of Seller or any of its Affiliates after the Closing Date. All use of the Licensed Know-How by or under authority of Buyer (or its successors and assigns) from and after the Closing Date shall be on an "AS IS, WHERE IS" basis, with all faults and all express and implied representations and warranties disclaimed, and at its sole risk. All rights not expressly granted by Seller and its Affiliates hereunder are reserved by Seller and its Affiliates. The license to the Licensed Know-How granted under this Section 5.13 shall be sublicensable (including through multiple tiers of sublicensees) only to (i) Affiliates (but only for so long as they remain Affiliates of Buyer), Licensees, and service providers of Buyer and (ii) any Third Party that acquires one or more of the Purchased Patents or Resultants Patents and such Third Party's Affiliates (but only for so long as they remain Affiliates of such Third Party) and service providers, in each case, for use solely within the scope of the above license, and shall be assignable and transferable only to successors in interest to all or substantially all of the assets of Buyer relating to the Products. Buyer is liable for any acts or omissions of its Licensees, Affiliates, employees, contractors, representatives, and (direct and indirect) sublicensees that would, if an act or omission of Buyer, be a breach of this Section 5.13. The rights and licenses granted in this Section 5.13 are subject to, and limited by, any and all licenses, rights, limitations, and restrictions with respect to the Licensed Know-How previously granted to or otherwise obtained by any Third Party that are in effect as of the Closing Date. Nothing contained herein will be construed as an obligation to disclose or deliver any technical information or embodiment of any Licensed Know-How or to provide any technical assistance or other services or deliverables to Buyer or its Affiliates.

Section 5.14 [***]. [***].

ARTICLE VI
CONDITIONS TO CLOSING

Section 6.01 Conditions on Obligations of Buyer. The obligations of Buyer to consummate the transactions contemplated by this Agreement shall be subject to the fulfillment or Buyer's waiver, at or prior to the Closing, of each of the following conditions:

(a) The representations and warranties of Seller contained in ARTICLE III shall be true and correct in all respects as of the Closing Date with the same effect as though made at and as of such date (except those representations and warranties that address matters only as of a specified date, which shall be true and correct in all respects as of that specified date), except where the failure of such representations and warranties to be true and correct would not have a Material Adverse Effect.

(b) Seller shall have duly performed and complied in all material respects with all agreements, covenants and conditions required by this Agreement and each of the other Transaction Documents to be performed or complied with by it prior to or on the Closing Date.

(c) Seller shall have delivered to Buyer duly executed counterparts to the Transaction Documents (other than this Agreement) and such other documents and deliverables set forth in Section 2.02(a).

Section 6.02 Conditions on Obligations of Seller. The obligations of Seller to consummate the transactions contemplated by this Agreement shall be subject to the fulfillment or Seller's waiver, at or prior to the Closing, of each of the following conditions:

(a) The representations and warranties of Buyer contained in ARTICLE IV shall be true and correct in all respects as of the Closing Date with the same effect as though made at and as of such date (except those representations and warranties that address matters only as of a specified date, which shall be true and correct in all respects as of that specified date), except where the failure of such representations and warranties to be true and correct would not have a material adverse effect on Buyer's ability consummate the transactions contemplated hereby.

(b) Buyer shall have duly performed and complied in all material respects with all agreements, covenants and conditions required by this Agreement and each of the other Transaction Documents to be performed or complied with by it prior to or on the Closing Date.

(c) Buyer shall have delivered to Seller duly executed counterparts to the Transaction Documents (other than this Agreement) and such other documents and deliverables set forth in Section 2.02(b).

ARTICLE VII
INDEMNIFICATION

Section 7.01 Survival. Subject to the limitations and other provisions of this Agreement, the representations and warranties contained herein shall survive the Closing and shall remain in full force and effect until the date that is [***] from the Closing Date. None of the covenants or other agreements contained in this Agreement shall survive the expiration or other termination of the Term other than those which by their terms contemplate performance after termination (including Section 5.03 (Confidential Information) and Section 5.11 (Books and Records; Audits)), and each such surviving covenant and

agreement shall survive termination for the period contemplated by its terms. Notwithstanding the foregoing, any claims asserted in good faith with reasonable specificity (to the extent known at such time) and in writing by notice from the non-breaching party to the breaching party prior to the expiration date of the applicable survival period shall not thereafter be barred by the expiration of such survival period and such claims shall survive until finally resolved.

Section 7.02 Indemnification by Seller. Subject to the other terms and conditions of this ARTICLE VII, from and after the Closing, Seller shall indemnify Buyer, its Affiliates, and each of their successors and assigns (collectively, the "**Buyer Indemnified Parties**") against, and shall hold the Buyer Indemnified Parties harmless from and against, any and all losses, damages, liabilities, deficiencies, Actions, judgments, interest, awards, penalties, fines, costs, or expenses of whatever kind, including reasonable out-of-pocket expenses of investigation and reasonable attorneys' fees and expenses in connection with any action, [***] (collectively, "**Losses**"), incurred or sustained by, or imposed upon, any Buyer Indemnified Party based upon, arising out of, with respect to, or by reason of:

(a) [***];

(b) [***]; or

(c) any Excluded Liability.

Section 7.03 Indemnification by Buyer. Subject to the other terms and conditions of this ARTICLE VII, from and after the Closing, Buyer shall indemnify Seller, its Affiliates, and each of their successors and assigns (collectively, the "**Seller Indemnified Parties**") against, and shall hold the Seller Indemnified Parties harmless from and against, any and all Losses incurred or sustained by, or imposed upon, any Seller Indemnified Party based upon, arising out of, with respect to, or by reason of:

(a) [***];

(b) [***]; or

(c) [***], any Assumed Liability or Buyer's, its Affiliates', and its Licensees' conduct of the Business after the Closing.

Section 7.04 Certain Limitations. The party making a claim under this ARTICLE VII is referred to as the "**Indemnified Party**," and the party against whom such claims are asserted under this ARTICLE VII is referred to as the "**Indemnifying Party**." The indemnification provided for in Section 7.02 and Section 7.03 shall be subject to the following limitations:

(a) The Indemnifying Party shall not be liable to the Indemnified Party for indemnification under Section 7.02(a) or Section 7.03(a), as the case may be, until the aggregate amount of all Losses in respect of indemnification under Section 7.02(a) or Section 7.03(a) exceeds $[***] (the "**Deductible**"), in which event the Indemnifying Party shall only be required to pay or be liable for Losses in excess of the Deductible.

(b) The aggregate amount of all Losses for which a Seller shall be liable pursuant to Section 7.02(a) shall not exceed [***] of the Purchase Price (the "**Cap**").

(c) In no event shall any Indemnifying Party be liable to any Indemnified Party for any punitive, incidental, consequential, special, or indirect damages, or for any damages based on

loss of future revenue or income, loss of business reputation or opportunity relating to the breach or alleged breach of this Agreement, or diminution of value or any damages based on any type of multiple, [***].

(d) [***].

(e) Seller shall not be liable under this ARTICLE VII for any Losses based upon or arising out of any inaccuracy in or breach of any of the representations or warranties of Seller contained in this Agreement if Buyer [***] knowledge of such inaccuracy or breach prior to the Closing.

For purposes of calculating the Deductible or the Cap with respect to any Losses, the Deductible or Cap, as applicable, will be calculated as of the date on which such Loss is payable by the Indemnifying Party to the Indemnified Party and the Purchase Price for purposes of such calculation will be equal to the aggregate of the Initial Purchase Price, the Milestone Earnout Payments, and Sales Earnout Payments paid or payable by Buyer to Seller during the period from the Closing Date until (and including) the date on which such Loss is payable; [***].

Section 7.05 Indemnification Procedures. Whenever any claim shall arise for indemnification hereunder, the Indemnified Party shall promptly provide written notice of such claim to the Indemnifying Party. Such notice by the Indemnified Party shall: (a) describe the claim in reasonable detail; (b) include copies of all material written evidence thereof; and (c) indicate the estimated amount, if reasonably practicable, of the Loss that has been or may be sustained by the Indemnified Party. In connection with any claim giving rise to indemnity hereunder resulting from or arising out of any Action by a Person who is not a party to this Agreement, the Indemnifying Party, at its sole cost and expense and upon written notice to the Indemnified Party, may assume the defense of any such Action with counsel reasonably satisfactory to the Indemnified Party. The Indemnified Party shall be entitled to participate in the defense of any such Action, with its counsel and at its own cost and expense, subject to the Indemnifying Party's right to control the defense thereof. If the Indemnifying Party does not assume the defense of any such Action, the Indemnified Party may, but shall not be obligated to, defend against such Action in such manner as it may deem appropriate, including settling such Action, after giving notice of it to the Indemnifying Party, on such terms as the Indemnified Party may deem appropriate and no action taken by the Indemnified Party in accordance with such defense and settlement shall relieve the Indemnifying Party of its indemnification obligations herein provided with respect to any damages resulting therefrom. The Indemnifying Party shall not be entitled to assume or maintain control of the defense of any such Action if (i) [***], (ii) such Action seeks an injunction or equitable relief against the Indemnified Party or any of its Affiliates, or (iii) [***]. Seller and Buyer shall cooperate with each other in all reasonable respects in connection with the defense of any claim, including: (i) making available (subject to the provisions of Section 5.03) records relating to such claim; and (ii) furnishing, without expense (other than reimbursement of actual out-of-pocket expenses) to the defending party, management employees of the non-defending party as may be reasonably necessary for the preparation of the defense of such claim. The Indemnifying Party shall not settle any Action without the Indemnified Party's prior written consent (which consent shall not be unreasonably withheld, conditioned, or delayed).

Section 7.06 Tax Treatment of Indemnification Payments. All indemnification payments made under this Agreement shall be treated by the parties as an adjustment to the Purchase Price for Tax purposes, unless otherwise required by Law.

Section 7.07 Exclusive Remedies. Subject to ARTICLE VIII, the parties acknowledge and agree that from and after the Closing their sole and exclusive remedy with respect to any and all claims (other than claims arising from intentional fraud on the part of a party hereto or its representatives in connection with the transactions contemplated by this Agreement) for any breach of any representation, warranty, covenant, agreement, or obligation set forth herein or otherwise relating to the subject matter of this Agreement shall be pursuant to the indemnification provisions set forth in this ARTICLE VII. In furtherance of the foregoing, each party hereby waives, from and after the Closing, to the fullest extent permitted under Law, any and all rights, claims, and causes of action for any breach of any representation, warranty, covenant, agreement, or obligation set forth herein or otherwise relating to the subject matter of this Agreement it may have against the other parties hereto and their Affiliates and each of their respective Representatives arising under or based upon any Law, except pursuant to the indemnification provisions set forth in this ARTICLE VII. Nothing in this Section 7.07 shall limit any Person's right to seek and obtain any equitable relief to which such Person shall be entitled or to seek any remedy on account of any intentional fraud by any party hereto or its representatives.

Section 7.08 Right to Set-Off.

(a) Buyer is expressly authorized, but shall not be obligated, to set-off any Losses that the Parties have agreed in writing, or which have been finally determined in accordance with ARTICLE X, to be subject to indemnification by Seller hereunder (subject to the limitations set forth in Section 7.04) against any Milestone Earnout Payment or Sales Earnout Payment or any other payments payable to Seller pursuant to this Agreement.

(b) Neither the exercise nor the failure or delay to exercise such right to withhold or set off pursuant to this Section 7.08 will constitute an election of remedies or limit the rights and remedies of the Buyer Indemnified Parties hereunder (other than to the extent any Losses have been set off pursuant to Section 7.08(a)).

ARTICLE VIII
TERM AND TERMINATION

Section 8.01 Term. This Agreement commences upon the Effective Date and will, unless earlier terminated in accordance with Section 8.02, continue until the later of:

(a) [***] of the Effective Date; and

(b) [***] of the date the last Sales Earnout Payment is made to Seller (the period from the Effective Date until the expiration or other termination of this Agreement, the "**Term**").

Section 8.02 Termination. This Agreement may be terminated at any time prior to the Closing:

(a) by the mutual written agreement of Seller and Buyer;

(b) by Buyer by written notice to Seller if:

(i) Buyer is not then in material breach of any provision of this Agreement and there has been a material breach, inaccuracy in, or failure to perform any representation, warranty, covenant, or agreement made by Seller pursuant to this Agreement that would give rise to the failure of any of the conditions specified in

ARTICLE VI and such breach, inaccuracy, or failure cannot be cured by Seller by [***] (the " **Buyer Drop Dead Date**"); or

(ii) any of the conditions set forth in Section 6.01 shall not have been fulfilled by the Buyer Drop Dead Date, unless such failure shall be due to the failure of Buyer to perform or comply with any of the covenants, agreements, or conditions hereof to be performed or complied with by it prior to the Closing;

(c) by Seller by written notice to Buyer if:

(i) Seller is not then in material breach of any provision of this Agreement and there has been a material breach, inaccuracy in, or failure to perform any representation, warranty, covenant, or agreement made by Buyer pursuant to this Agreement that would give rise to the failure of any of the conditions specified in ARTICLE VI and such breach, inaccuracy, or failure cannot be cured by Buyer by [***] (the "**Seller Drop Dead Date**"); or

(ii) any of the conditions set forth in Section 6.02 shall not have been fulfilled by the Seller Drop Dead Date, unless such failure shall be due to the failure of Seller to perform or comply with any of the covenants, agreements, or conditions hereof to be performed or complied with by it prior to the Closing.

Section 8.03 Effect of Termination. In the event of the termination of this Agreement in accordance with Section 8.02, this Agreement shall forthwith become void and there shall be no liability on the part of any party hereto except:

(i) that the obligations set forth in this ARTICLE VIII, Section 5.03, ARTICLE X, and ARTICLE XI hereof shall survive termination; and

(ii) that nothing herein shall relieve any party hereto from liability for any intentional breach of any provision hereof prior to such termination.

ARTICLE IX
AMYLASE AND PROTEASE OPTION

Section 9.01 Option. Buyer shall have the right (the "**Option**"), but not the obligation, at any time during the Option Period, to purchase certain additional assets of Seller on the terms set forth in the A&P Acquisition Agreement and this Article IX. In connection with the grant to Buyer of the Option, Seller shall deliver, concurrently with the execution of this Agreement and as a condition thereto, an executed signature page to the A&P Acquisition Agreement, which signature page shall be held in escrow by Buyer [***].

Section 9.02 Notice of Exercise. At any time prior to the expiration or other termination of the Option Period, subject to Section 9.03, Buyer may, in its sole and absolute discretion, exercise the Option by delivering to Seller a written notice of such exercise (the "**Notice of Exercise**"). The date the Notice of Exercise is delivered by Buyer to Seller shall be referred to herein as the "**Option Exercise Date**."

Section 9.03 Closing. The transactions contemplated by the A&P Acquisition Agreement shall be consummated on the date that is not later than [***] after the Option Exercise Date (the "**A&P Acquisition Agreement Effective Date**"), unless otherwise mutually agreed by the parties or Buyer has

revoked its Notice of Exercise in accordance with this Section 9.03. During the period from the Option Exercise Date to the A&P Acquisition Agreement Effective Date, the parties shall prepare in good faith each of the Transaction Documents contemplated by Section 2.02(a) of the A&P Acquisition Agreement, including the A&P Expression System License Agreement, which shall be substantially in the form and substance of the Expression System License Agreement and modified to include the particulars of the Plasmid and Cell Bank Strain, Current Facility(ies), Current Services Providers, and other details relevant to the A&P Project Enzymes (as defined in the A&P Acquisition Agreement) and to provide for the transfer of the Cell Banks for the A&P Project Enzymes stored at Seller to Buyer, its Affiliate, or a Service Provider. Seller (a) may, within [***] of the Option Exercise Date, supplement, amend, or add any schedule to the disclosure schedules to the A&P Acquisition Agreement (the " **A&P Disclosure Schedules**"), by giving notice to Buyer in accordance with this Agreement, in order to add information and (b) shall, [***] prior to the A&P Acquisition Agreement Effective Date, update the A&P Disclosure Schedules to include (i) in Section 1.01(a) thereto, all then-existing Patents owned by Seller or its Affiliates that claim or disclose inventions comprising, or that are reasonably necessary for the Manufacturing or use of [***] (as each term is defined in the A&P Acquisition Agreement) as each then-currently exists, other than any Patents covered by the A&P Expression System License Agreement, (ii) in Section 1.01(b) thereto, all Contracts to which Seller or its Affiliates are party that relate exclusively to the A&P Project Enzymes, and (iii) in Section 1.01(c) thereto, all inventory of drug substance, drug product, samples thereof, and antibodies, in each case, of [***] then in Seller's or its Affiliates' possession or under its control; provided that [***]. If [***], Buyer shall deliver to Seller on or prior to the A&P Acquisition Agreement Effective Date a copy of the A&P Acquisition Agreement executed by Buyer and with the A&P Acquisition Agreement Effective Date inserted therein, which will be effective in accordance with the terms of the A&P Acquisition Agreement as of the A&P Acquisition Agreement Effective Date [***]. For the avoidance of doubt, so long as Buyer has delivered a Notice of Exercise on or prior to the expiration or termination of the Option Period [***], then the Closing (as defined in the A&P Acquisition Agreement) shall occur in accordance with the terms of this Agreement and the A&P Acquisition Agreement, as applicable notwithstanding expiration or termination of the Option Period.

Section 9.04 Patent Prosecution and Costs. During the period prior to the expiration or termination of Option Period, Seller shall continue to Prosecute and maintain and shall not abandon any of Seller's existing Patents covering the A&P Enzymes. Without limiting the foregoing, (a) Seller shall, or shall cause the external law firm prosecuting such Patents to, consult in good faith with Buyer with respect to all material steps to be taken in connection with such Prosecution and maintenance of such Patents (provided, however, that Seller will not be required to disclose any information to Buyer if such disclosure would be reasonably likely to result in any waiver of attorney-client privilege, work product doctrine, joint defense privilege or any other privilege and the parties agree that any disclosure of information pursuant hereto shall not constitute a waiver of any such privilege), and (b) Seller shall promptly provide Buyer with copies of any notices or correspondence received from any Governmental Authority or other Third Party regarding such Patents and consult in good faith with Buyer with respect to any written response or further action in response to such notice. Should any patent applications expire or issue as patents prior to the expiration or termination of the Option Period, prior to the expiration of such patent application or the issuance of such patent, Seller shall, if requested by Buyer, file a continuing application claiming priority to such patent to the extent such filing is allowed. Buyer shall, within [***] after Seller's provision of applicable invoices, reimburse Seller for all reasonable and documented, out-of-pocket costs and expenses of Seller and its Affiliates incurred during the period prior to the expiration or termination of the Option Period for or in connection with the Patent Prosecution and maintenance activities of Seller and its Affiliates in accordance with this Section 9.04; provided that, upon Seller's written request, Buyer shall pay directly to one or more law firms engaged by Seller or its Affiliates such costs and expenses of such Prosecution.

Section 9.05 Limited Right to Continue A&P Enzyme Development Work . Notwithstanding Section 7.8 of the SCA, during the Option Period, Buyer shall have the right (co-exclusively with Seller), but not the obligation, to, solely at Buyer's sole cost and sole liability, continue the research, non-clinical Development, and Manufacture (solely for non-clinical use) of the A&P Enzymes, in each case, solely for developing the A&P Enzymes for [***] (the "**A&P Development Work**"). Buyer's licenses to use any of Seller's Intellectual Property or Confidential Information to undertake the A&P Development Work is solely as set forth in, and subject to the limitations and requirements of, the Existing Agreement. No right, license, or permission is granted to Buyer or any of its Affiliates to Commercialize any A&P Enzyme or any therapy or product including or made from or using any A&P Enzyme. Other than as otherwise expressly set forth in this Agreement, Seller and its Affiliates have no obligation to provide Buyer with any support or assistance in connection with any A&P Development Work. Seller shall indemnify Buyer against, and shall hold Buyer harmless from and against, any and all Losses, incurred or sustained by, or imposed upon, Buyer based upon, arising out of, with respect to, or by reason the A&P Development Work, including Buyer's and its Affiliates" activities undertaken in connection with or in furtherance thereof.

Section 9.06 Status Quo. For the avoidance of doubt, unless and until the closing of the A&P Acquisition Agreement, the parties' rights and obligations with respect to the A&P Enzymes are governed by the Existing Agreements (including, if the Existing Agreements expire or otherwise terminate, the terms thereof that survive such expiration or other termination); and, except as set forth in Section 9.05, no new Development, Manufacturing, or Commercialization rights and obligations related to the A&P Enzymes shall be transferred to Buyer or its Affiliates prior to such time.

ARTICLES X
DISPUTE RESOLUTION

Section 10.01 Elevation of Issues for Resolution. In the event the parties or their Representatives are unable to agree upon any dispute or disagreement between the parties arising from or in connection with this Agreement, the construction hereof, or the rights, duties or liabilities of either party hereunder (each a "**Dispute**"), the parties shall endeavor to resolve such Dispute in accordance with the terms of this Section 10.01. Upon the receipt of a written notice from one party to the other party of a Dispute (the "**Notice of Dispute**"), authorized Representatives of the parties, each with authority to settle the Dispute, shall endeavor to discuss their respective positions and use their good faith efforts to resolve the Dispute. In connection with such discussion, the parties may agree to confer with one or more mutually acceptable independent Third Party experts having expertise in the relevant subject matter and both parties shall consider in good faith the views of such Third Party(ies). If for any reason a written agreement signed by both parties is not reached within [***] after the Notice of Dispute, the parties shall promptly refer the Dispute to the Senior Executives (or their respective designees) for resolution, which Senior Executives will have authority to settle the Dispute and shall be charged with resolving such Dispute. If such Dispute is not resolved by the parties' Senior Executives within [***] after the date the Dispute is referred to them, then the Dispute shall be submitted to binding arbitration in accordance with Section 10.02.

Section 10.02 Arbitration. Any Dispute that is not resolved by an executed written agreement of the parties in accordance with Section 10.01, as well as any related claims or other disputes arising out of or in connection with this Agreement including any question regarding its existence, validity, or termination, whether for breach of contract, tortious conduct, or otherwise and whether predicated on common law, statute, or otherwise (collectively, the "**Related Claims**"), shall be referred to and finally resolved by arbitration under the [***] rules (the "**Rules**") in effect at the Effective Date except, as they

may be modified herein or by mutual agreement of the parties, which Rules are deemed to be incorporated by reference into this Section 10.02. The number of arbitrators shall be three, unless otherwise mutually agreed by the parties, whereby, claimant and the respondent shall each nominate an arbitrator, and the third arbitrator, who shall be the president of the arbitral tribunal, shall be appointed by the two party-appointed arbitrators in consultation with the parties, in each case, in accordance with the Rules. Each arbitrator shall be experienced in the subject matter herein and the application of [***] law. The seat or legal place of arbitration shall be [***]. The language to be used in the arbitral proceedings shall be English.

(a) Within [***] after the appointment of the arbitrators pursuant to this Section 10.02, the arbitrators and the parties shall meet, and each party shall provide to the arbitrators a written summary of: (i) all issues within the scope of the Dispute and any Related Claims; and (ii) such party's position on each such issue. The arbitrators shall set a date for a hearing, which shall be no later than [***] after the appointment of the final arbitrator pursuant to this Section 10.02, for the presentation of evidence and legal arguments concerning each of the issues identified by the parties; provided, however, that the parties may jointly agree in writing to extend the foregoing deadlines, or [***].

(b) The arbitrators shall use each of their best efforts to rule on each disputed issue within [***] after the completion of the hearing described in Section 10.02(a); provided, however, that the parties may jointly agree in writing to extend the foregoing deadlines, or [***]. No arbitrator (nor any arbitral tribunal) shall have the power to: (i) award any punitive damages or other damages prohibited by Section 7.04; or (ii) to decide or rule on any issue or other matter that is not clearly with the scope of the Dispute and any Related Claims. The costs of the arbitration shall be [***] during the course of such arbitration, as assessed by [***], and shall be borne as determined by the arbitrators.

(c) The arbitration proceedings, including the existence of the arbitration proceedings, the facts and circumstances surrounding the underlying dispute, all submissions, correspondence, and evidence relating to the arbitration proceedings, and any awards issued by the arbitrator shall be kept confidential by the parties, and the parties shall work with the arbitrators to take such steps as are reasonably necessary to preserve the confidentiality thereof, except to the extent otherwise required by applicable Law.

(d) Subject to Section 10.02(b), the arbitrators shall have the power to grant any remedy or relief that they deem just and equitable, including but not limited to injunctive relief, whether interim or final, and any provisional measures ordered by the arbitrator may be enforced by any court of competent jurisdiction. Notwithstanding the foregoing, nothing in this Agreement shall prevent either party from seeking any provisional/preliminary relief (including injunctions, attachments, or other such orders in aid of arbitration) from any court of competent jurisdiction, and any such application to a court for provisional/preliminary relief shall not be deemed incompatible with the terms of this Agreement to arbitrate or a waiver of the right to arbitrate.

(e) Any award rendered by the arbitrators shall be final and binding on the parties, and each party hereto waives to the fullest extent permitted by law any right it may otherwise have under the laws of any jurisdiction to any form of appeal of, or collateral attack against, such award. Judgment upon any awards rendered by the arbitrators may be entered in any court having jurisdiction thereof, including any court having jurisdiction over any of the parties or their assets.

(f) Notwithstanding anything in this ARTICLE X to the contrary, any dispute to determine the validity or infringement of a party's intellectual property rights by the other party (but excluding, in any event, disputes relating to earnouts or other amounts payable hereunder, whether or not involving questions of infringement or validity) shall be submitted exclusively to the courts in the jurisdiction of the relevant intellectual property right, and the parties hereby consent to the jurisdiction of such courts.

ARTICLE XI
MISCELLANEOUS

Section 11.01 Definitions. The terms in this Agreement with initial letters capitalized, whether used in the singular or the plural, shall have the respective meanings either set forth in **Exhibit A** attached hereto or in another part of this Agreement and as cross referenced in **Exhibit A**.

Section 11.02 Construction.

(a) The headings of each Article and Section in this Agreement have been inserted for convenience of reference only and are not intended to limit or expand on the meaning of the language contained in the particular Article or Section.

(b) Except where the context otherwise requires, wherever used, the singular shall include the plural, the plural the singular, the use of any gender shall be applicable to all genders and the word "or" is used in the inclusive sense (and/or).

(c) The term "including," "include," or "includes" as used herein shall mean including, without limiting the generality of any description preceding such term.

(d) Unless the context requires otherwise, (i) any definition of or reference to any agreement, instrument, or other document herein will be construed as referring to such agreement, instrument, or other document as from time to time amended, supplemented, or otherwise modified (subject to any restrictions on such amendments, supplements, or modifications set forth herein or therein), (ii) any reference to any applicable Laws herein will be construed as referring to such Laws as from time to time enacted, repealed, or amended, (iii) any reference herein to any person will be construed to include the person's successors and permitted assigns, (iv) the words "herein", "hereof," and "hereunder", and words of similar import, will be construed to refer to this Agreement in its entirety and not to any particular provision hereof, (v) any reference herein to the words "mutually agree" or "mutual written agreement" will not impose any obligation on either party to agree to any terms relating thereto except as such party may determine in such party's sole discretion, (vi) all references herein to Sections or Exhibits will be construed to refer to Sections and Exhibits to this Agreement, (vii) the word "days" means calendar days unless otherwise specified, (viii) except as otherwise expressly provided herein all references to "$" or "dollars" refer to the lawful money of the U.S., and (ix) the words "copy" and "copies" and words of similar import when used in this Agreement include, to the extent available, electronic copies, files or databases containing the information, files, items, documents, or materials to which such words apply.

(e) Each party represents that it has been represented by legal counsel in connection with this Agreement and acknowledges that it has participated in the drafting hereof. In interpreting and applying the terms and provisions of this Agreement, the parties agree that no

presumption will apply against the party which drafted such terms and provisions. The language in this Agreement is to be construed in all cases according to its fair meaning.

(f) Any documents will be deemed to have been made available to, and received by, Buyer if such documents were made available to Buyer [***] prior to the execution and delivery of this Agreement by Seller.

Section 11.03 Expenses. Except as otherwise expressly provided herein (including Section 5.09 hereof), all costs and expenses incurred in connection with this Agreement and the transactions contemplated hereby shall be paid by the party incurring such costs and expenses.

Section 11.04 Severability. If and to the extent that any provision (or any part thereof) of this Agreement is held to be invalid, illegal, or unenforceable, in any respect in any jurisdiction, the provision (or the relevant part thereof) shall be considered severed from this Agreement and shall not serve to invalidate the remainder of such provision or any other provisions hereof. The parties shall make a good faith effort to replace any invalid, illegal, or unenforceable provision (or any part thereof) with a valid, legal, and enforceable provision such that the objectives contemplated by the parties when entering this Agreement may be realized.

Section 11.05 Notices. Any notice required or permitted to be given by the parties pursuant to this Agreement shall be in writing and shall be (i) delivered by hand, (ii) delivered by overnight courier with tracking capabilities, (iii) mailed postage prepaid by first class, registered, or certified mail, or (iv) transmitted by electronic mail, with confirmation copy by mail as provided in clause (iii) above, and in each case addressed to the recipient party as set forth below, unless changed by notice so given:

If to Buyer:

Société des Produits Nestlé S.A.
55 Avenue Nestlé
1800 Vevey
Switzerland
Email: [***]
[***]
Attention: [***]
[***]

with a copy to (which shall not constitute notice):

Mayer Brown LLP
1221 Avenue of the Americas
New York, NY 10020
Email: [***]
[***]
Attention: [***]
[***]

If to Codexis:

Codexis, Inc.
200 Penobscot Drive

Redwood City, CA 94063
Attention: President

with a copy to (which shall not constitute notice):

Codexis, Inc.
200 Penobscot Drive
Redwood City, CA 94063
Email: [***]
Attention: General Counsel

And

Baker Hostetler LLP
312 Walnut Street, Suite 3200
Cincinnati, OH 45202-4074
Email: [***]
[***]
Attention: [***]

(A) with respect to any notice delivered pursuant to clauses (i), (ii) or (iii), such notice shall not be effective unless it was (1) first delivered via e-mail and no response was given within [***] and (2) a subsequent notice via e-mail was sent indicating the delivery via method described in clause (i), (ii), or (iii), as applicable; (B) with respect to any notice delivered pursuant to clauses (i), such notice shall be deemed effective upon submission to such other party, (C) with respect to any notice delivered pursuant to clause (ii), such notice shall be deemed effective [***] following the date of submission to the carrier, (D) with respect to any notice delivered pursuant to clause (iii), such notice shall be deemed effective [***] after the date deposited with the applicable carrier, and with respect to any notice delivered pursuant to clause (iv), (x) upon submission to such other party if sent during normal business hours of the recipient, and (y) on [***] if sent after normal business hours of the recipient (in the case of (x) or (y), subject to confirmation of receipt by recipient by reply email). A party may add, delete, or change the person or address to whom notices should be sent at any time upon written notice delivered to the other party in accordance with this Section 11.05.

Section 11.06 Assignment. Neither this Agreement nor any of the rights or obligations hereunder ([***]) may be assigned or transferred by either party without the prior written consent of the other party, such consent not to be unreasonably withheld, delayed or conditioned; provided, however, that either party may, without the other party's consent, but with written notice to the other party, assign or transfer all of its rights and obligations hereunder to any Affiliate, or to a Third Party with whom it completes a Business Combination or to whom it sells substantially all of such party's assets relating to this Agreement. [***]. This Agreement shall inure to the benefit of and be binding on the parties' successors and assigns. Any assignment or transfer in violation of the foregoing shall be null and void and wholly invalid, the assignee or transferee in any such assignment or transfer shall acquire no rights whatsoever, and the non-assigning, non-transferring party shall not recognize, nor shall it be required to recognize, such assignment or transfer.

Section 11.07 Waivers, Modifications, and Amendments . No waiver, modification, release, or amendment of any obligation under, or provision of, this Agreement shall be valid or effective unless in writing and signed by all parties hereto. The failure of any party to insist on the performance of any

obligation hereunder shall not be deemed to be a waiver of such obligation. Waiver of any provision hereunder or of any breach of any provision hereof shall not be deemed to be a continuing waiver or a waiver of any other breach of such provision (or any other provision) on such occasion or any succeeding occasion. Any amendment of this Agreement shall not be binding on the parties unless set out in writing, expressed to amend this Agreement and signed by authorized representatives of each of the parties.

Section 11.08 Choice of Law. This Agreement (and any claims or disputes arising out of or relating hereto or to the transaction contemplated hereby or to the inducement of any party to enter herein or therein, whether for breach of contract, tortious conduct, or otherwise and whether predicated on common law, statute, or otherwise) shall be governed by, enforced, and shall be construed in accordance with the laws of [***], without regard to its conflicts of law provisions. The parties hereby disclaim the application of the United Nations Convention on the International Sale of Goods to this Agreement.

Section 11.09 Injunctive Relief. Notwithstanding anything herein to the contrary, each party shall be entitled to seek injunctive relief and specific performance (including any relief or recovery under this Agreement) in any court of competent jurisdiction in the world.

Section 11.10 Relationship of the Parties. Each party is an independent contractor under this Agreement. Nothing herein is intended or is to be construed so as to constitute Buyer and Seller as partners, agents, or joint venturers. Neither party shall have any express or implied right or authority to assume or create any obligations on behalf of or in the name of the other party or to bind the other party to any contract, agreement, or undertaking with any Third Party. There are no express or implied third party beneficiaries hereunder.

Section 11.11 Entire Agreement . The parties agree that this Agreement and the attached Exhibits and Disclosure Schedules, together with the Existing Agreements, constitute the entire agreement between the parties as to the subject matter of this Agreement, and hereby supersede all prior negotiations, representations, agreements, and understandings (whether written or oral) regarding the same. Subject to Section 9.05, the provisions in the Existing Agreements pursuant to which each party has agreed not to Develop or Commercialize the Project Enzymes, including the use of any Jointly Owned Invention in connection therewith, remain in full force and effect except as set forth herein with respect to the Lipase Project Enzyme.

Section 11.12 Cooperation. The parties shall (i) provide assistance to each party as reasonably requested in preparing and filing Tax Returns with respect to the Purchased Assets; (ii) make available to each other as reasonably requested all information, records, and documents relating to Taxes concerning the Purchased Assets; (iii) retain any books and records that could reasonably be expected to be necessary or useful in connection with any preparation by any the other party of any Tax Return, or for any audit relating to Taxes with respect to the Purchased Assets; and (iv) cooperate fully, as and to the extent reasonably requested by the other party, in connection with any audits, assessments or administrative or judicial proceedings or other Actions with respect to Taxes relating to the Purchased Assets.

Section 11.13 Counterparts. This Agreement may be executed in counterparts (including using any electronic signature covered by the United States ESIGN Act of 2000, Uniform Electronic Transactions Act, the Electronic Signatures and Records Act or other applicable Law, e.g., www.docusign.com), each of which shall be deemed an original, but all of which together shall be deemed to be one and the same agreement. A signed copy of this Agreement delivered by email or other means of electronic transmission shall be deemed to have the same legal effect as delivery of an original signed copy of this Agreement. To the extent applicable, the foregoing constitutes the election of the

parties to invoke any Law authorizing electronic signatures. Minor variations in the form of the signature page, including footers from earlier versions of this Agreement, shall be disregarded in determining a party's intent or the effectiveness of such signature. No party shall raise the use the delivery of signatures to this Agreement in electronic format as a defense to the formation of a contract and each such party forever waives any such defense.

Section 11.14 Non-Recourse. This Agreement may only be enforced against, and any Action based upon, arising out of or related to this Agreement, or the negotiation, execution, or performance of this Agreement, may only be brought against the entities that are expressly named as parties hereto and then only with respect to the specific obligations set forth herein with respect to such party. No past, present, or future director, officer, employee, incorporator, manager, member, partner, stockholder, Affiliate, agent, attorney, or other Representative of any party hereto or of any Affiliate of any party hereto, or any of their successors or permitted assigns, shall have any liability for any obligations or liabilities of any party hereto under this Agreement or for any Action based on, in respect of, or by reason of the transactions contemplated hereby.

* * * * * * * * *

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the Effective Date written above by their respective officers thereunto duly authorized.

CODEXIS, INC.

By: /s/ Stephen Dilly

Name: Stephen Dilly

Title: Chief Executive Officer

SOCIÉTÉ DES PRODUITS NESTLÉ S.A.

By: /s/ Claudio Kuoni

Name: Claudio Kuoni

Title: Authorized Signatory

EXHIBIT A

DEFINITIONS AND CROSS-REFERENCE TABLE

Certain Definitions. The following terms have the following meanings:

"**A&P Acquisition Agreement**" or "**Amylase and Protease Acquisition Agreement**" means the Amylase and Protease Acquisition Agreement in the form attached hereto and made a part hereof as **Exhibit H**.

"**A&P Enzymes**" means the amylase and protease Project Enzymes (as such term is defined in the SCA) [***].

"**A&P Expression System License Agreement**" has the meaning given to the term "Expression System License Agreement" in the A&P Acquisition Agreement.

"**A&P Product**" means (a) any A&P Enzyme [***] and (b) [***].

"**Affiliate**" of a Person means an entity that (directly or indirectly) is controlled by, controls, or is under common control with such Person where control means the direct or indirect ownership of voting securities entitled to cast at least fifty percent (50%) of the votes in the election of directors, or such other relationship as results in the power to control the management, business, assets, and affairs of an entity.

"**BLA**" means (a) in the United States, a Biologics License Application, as defined in the United States Public Health Service Act (42 U.S.C. § 262), and applicable regulations promulgated thereunder by the FDA, or any equivalent application that replaces such application, (b) in the EU, a marketing authorization application, as defined in applicable regulations of the EMA, and (c) in any other country, the relevant equivalent to the foregoing.

"**Books and Records**" means all files (including all electronic data files and hard copies), documents, correspondence, lists, drawings and specifications, creative materials, marketing plans, studies (including market research and market data), reports, and other printed or written materials (in whatever form or medium).

"**Business**" means, following the Closing Date, the Development, Manufacture, Commercialization and other Exploitation of Products by Buyer, its Affiliates, and its Licensees.

"**Business Combination**" means, with respect to a party, any of the following events: (a) any Third Party (or group of Third Parties acting in concert) acquires, directly or indirectly, shares of such party representing at least a majority of the voting power (where voting refers to being entitled to vote for the election of directors) then outstanding of such party; (b) such party consolidates with or merges into another corporation or entity which is a Third Party, or any corporation or entity which is a Third Party consolidates with or merges into such party, in either event pursuant to a transaction in which at least a majority of the voting power of the acquiring or resulting entity outstanding immediately after such consolidation or merger is not held by the holders of the outstanding voting power of such party immediately preceding such consolidation or merger; or (c) such party conveys or transfers title to all or substantially all of its assets to a Third Party.

"**Business Day**" means a day other than Saturday, Sunday, or any day on which commercial banks located in [***] are authorized or obligated by applicable Law to close.

"**Calendar Quarter**" means, with respect to any given Calendar Year, the respective periods of three (3) consecutive calendar months ending on March 31, June 30, September 30 or December 31, provided, however, that (a) the first Calendar Quarter of the Term shall extend from the Effective Date to the end of the first complete Calendar Quarter thereafter; and (b) the last Calendar Quarter of the Term shall end upon the expiration or termination of this Agreement.

"**Calendar Year** " means each successive period of twelve (12) consecutive months commencing on January 1 and ending on December 31, provided, however, that (a) the first Calendar Year of the Term shall begin on the Effective Date and end on December 31, 2024; and (b) the last Calendar Year of the Term shall end on the effective date of expiration or termination of this Agreement.

"**Clinical Trial**" means a clinical trial in human subjects of a Product.

"**Combination Product**" means a product consisting of one or more Earnout Products packaged, bundled, or otherwise combined for sale with one or more other products that are not Earnout Products. All references to any Earnout Product in this Agreement will be deemed to include any Combination Product.

"**Commercialization**" means any and all activities relating specifically to the preparation for sale of, offering for sale of, or sale of a product or service, including activities related to launching, marketing, promoting, distributing, detailing, importing, pricing, reimbursement, and advertising such product, and interacting with Regulatory Authorities regarding any of the foregoing. When used as a verb, "**Commercialize**" and "**Commercializing**" means to engage in Commercialization, and "**Commercialized**" has a correlative meaning.

"**Confidential Information**" means any and all technical, business, or other information or data of a party or its Affiliates provided orally, visually, in writing, graphically, electronically, or in another form by or on behalf of such party or its Affiliates to the other party or its Affiliates in connection with this Agreement The parties acknowledge that the terms of this Agreement shall be treated as Confidential Information of [***] and that the Licensed Know-How shall be treated as the Confidential Information of Seller.

"**Contracts**" means all contracts, leases, licenses, instruments, notes, commitments, undertakings, indentures, joint ventures and all other agreements, commitments and legally binding arrangements, whether written or oral.

"**Controlled**" or "**Control**", when used in reference to any intellectual property, intellectual property right, material, know-how or information, with respect to a party, means that such party (a) owns or has a license (other than a license granted under this Agreement) to such intellectual property and (b) has the legal authority or right to: (i) grant, or procure the grant of, a license or sublicense, to the extent provided for herein, of the intellectual property, intellectual property right, material, know-how or information to the other party; or (ii) in relation to material, know-how and information only, disclose or provide access to, to the extent provided for herein, such material, know-how or information to the other Party, and in each case, without (x) breaching the terms of any then-existing agreement or other legally enforceable arrangement with a Third Party, or (y) misappropriating the material, know-how, intellectual property, intellectual property rights, or information of a Third Party.

"**Covered Component**" means any product or component contained in a Combination Product that is itself an Earnout Product or, to the extent an A&P Product is included in a Combination Product after the A&P Acquisition Agreement Effective Date, such A&P Product.

"**Development**" means non-clinical and clinical drug development activities reasonably related to the development and submission of information to a Regulatory Authority or otherwise to the testing and validation of a therapeutic agent, including toxicology, pharmacology and pre-clinical efforts, test method development, stability testing, manufacturing process, formulation development, delivery system development, quality assurance and quality control development, statistical analysis, and clinical trials (including pre- and post-approval studies), whether for purposes of label expansion or otherwise. Development shall include post-approval Development activities. When used as a verb, "**Develop**" means to engage in Development.

"**Disclosure Schedules**" means the disclosure schedules delivered by Seller and Buyer concurrently with the execution and delivery of this Agreement.

"**Earnout Period**" means the period starting on the Launch Date and ending on [***] of the Launch Date (inclusive).

"**Earnout Product**" means each and all of the following: (a) Zenpep; and (b) Products (including in co-formulation with any other product or as part of a Combination Product).

"**EMA**" means the European Medicines Agency, or any successor agency thereto.

"**European Union**" or "**EU**" means, at any given time, the then-current member states of the European Union; *provided* that each of the United Kingdom and Switzerland will also be considered included with the European Union, regardless of each's actual membership in the EU.

"**Exploit**" means to make, have made, import, use, sell or offer for sale a product or item. "**Exploitation**" has a correlative meaning.

"**FDA**" means the U.S. Food and Drug Administration, or any successor agency thereto.

"**First Commercial Sale**" means, with respect to a particular country or jurisdiction, the first commercial sale, transfer, or other disposition by Buyer, any of its Affiliates, or any Licensee for consumption by an end user of a Product following the receipt of the first Regulatory Approval for such Product in such country or jurisdiction, excluding any sale, transfer, or disposition that would not constitute a sale for purposes of the definition of Net Sales ([***]).

[***].

"**GAAP**" means United States generally accepted accounting principles, consistently applied.

"**Governmental Authority**" means any multi-national, federal, state, local, municipal, provincial, or other governmental authority of any nature (including any governmental division, prefecture, subdivision, department, agency, bureau, branch, office, commission, council, court, or other tribunal).

"**Governmental Order**" means any order, writ, judgment, injunction, decree, stipulation, determination, or award entered by or with any Governmental Authority.

"**IFRS**" means the current International Financial Reporting Standards, as published by the International Accounting Standards Board.

"**Jointly Owned Inventions**" means (a) "Jointly Owned Inventions" as defined in the Strategic Collaboration Agreement and (b) "Jointly Owned Inventions" as defined in the Development Agreement.

"**Know-How**" means all non-public data and technical information, including techniques, methods, processes, technology, recipes, formulae, designs, equipment configurations and uses, Manufacturing data, preclinical and clinical data and study designs, specifications, ingredients, Manufacturing processes, formulations, sourcing information, quality control and testing procedures, and related trade secrets, but expressly excluding all Patents.

"**Knowledge of Seller**" or "**Seller's Knowledge**" or any other similar knowledge qualification, means the actual knowledge of those individuals identified on Section A of the Disclosure Schedules, [***].

"**Launch Date**" means the date of the First Commercial Sale of any Product anywhere in the United States.

"**Laws**" means all laws, statutes, rules, regulations, ordinances, and other pronouncements having the effect of law of any federal, national, multinational, state, provincial, county, city, or other political subdivision.

"**Liabilities**" means liabilities, obligations, or commitments of any nature whatsoever, whether asserted or unasserted, known or unknown, absolute or contingent, accrued or unaccrued, matured or unmatured, or otherwise.

"**Licensed Know-How**" means all Know-How owned by Seller or its Affiliates as of the Closing Date that is [***] for the Manufacture of the Lipase Project Enzyme as conducted as of the Closing Date or is [***] provided to Regulatory Authorities in order to obtain Regulatory Approval for any product containing any Lipase Project Enzyme anywhere in the world; provided that in no event shall Licensed Know-How include: (a) any Purchased Assets; (b) any Know-How or other intellectual property licensed pursuant to the Expression System License Agreement; or (c) Seller's or its Affiliates' CodeEvolver® platform technology.

"**Licensee**" means a Third Party that has been granted a license or right to Develop, Manufacture, Commercialize, or otherwise Exploit any Earnout Product by or through Buyer or Buyer's Affiliate, either directly or via a sublicense (through one or more tiers). As used in this Agreement, "**Licensee**" shall not include a wholesaler, distributor, or reseller of any Earnout Product, to the extent that Buyer or its Affiliate sells to such Person such Earnout Product and receives only supply price payments and has not granted such wholesaler, distributor, or reseller any license under any Purchased Patent or Resultant Patent.

"**Manufacture**" and "**Manufacturing**" means all activities related to the production, manufacture, processing, formulation, filling, finishing, packaging, labeling, shipping, handling, and storage of a product or any intermediate thereof, including process development, process qualification and validation, scale-up, pre-clinical, clinical and commercial manufacture and analytic development, product characterization, stability testing, quality assurance, and quality control.

"**Material Adverse Effect**" means any event, occurrence, fact, condition, or change that is materially adverse to the Development and Manufacture of the Products, taken as a whole.

"**Net Sales**" means: (a) the [***] amounts [***] by or on behalf of Buyer, its Affiliates, or any of their respective Licensees for sales of Earnout Products within the United States (other than sales between or among Buyer, its Affiliates, or Licensees for subsequent resale, in which case the first sale to a Third Party that is not a Licensee shall be used for calculation of Net Sales) (collectively, the "**Gross Sales**"); *less* (b) only the following deductions to the extent they are (1) [***], (2) [***], and (3) [***] (collectively, the "**Deductions**"):

(i) [***];

(ii) [***];

(iii) [***];

(iv) [***]; and

(v) [***].

[***].

[***].

In the event that Buyer, its Affiliates, or any of their respective Licensees makes any adjustments to such Deductions after the associated Net Sales have been reported pursuant to this Agreement, the adjustments will be reported and reconciled in the next report and payment of any Sales Earnout Payment due.

Buyer must determine all Gross Sales and all of the foregoing Deductions in accordance with [***].

Use, supply, or donation of Earnout Product by Buyer, its Affiliates, or their respective Licensees for no profit (1) [***], (2) [***], (3) [***], or (4) [***] shall not, in each case, be deemed sales of Earnout Product for purposes of this definition of "Net Sales."

"**Option Period**" means the period starting on the Closing Date and ending on the earlier of: (a) March 1, 2025; or (b) termination of this Agreement.

"**Other Component**" means any product or component contained in a Combination Product that is not itself an: (a) Earnout Product; or (b) to the extent an A&P Product is included in a Combination Product after the A&P Acquisition Agreement Effective Date, such A&P Product.

"**Patent(s)**" means (a) any and all patents and patent applications, including all national, regional and international patents and patent applications, provisional patent applications; (b) all patent applications filed either (i) from such patents, patent applications, or provisional applications mentioned in subsection (a) above, or (ii) from an application claiming priority from any of them, including divisionals, continuations, continuations-in-part, provisionals, converted provisionals and requests for continued examinations; and (c) any and all extensions or restorations by existing or future extension or restoration mechanisms, including revalidations, reissues, reexaminations and extensions (including any supplementary protection certificates and the like) of the foregoing patents and/or patent applications in subsections (a) and (b).

"**Person**" means an individual, sole proprietorship, partnership, limited partnership, limited liability partnership, corporation, limited liability company, business trust, joint stock company, trust,

unincorporated association, foundation, joint venture, or other similar entity, organization, or combination thereof, including a government or political subdivision, department, or agency.

"**Phase II Clinical Trial**" means a Clinical Trial, the principal purpose of which is to make a preliminary determination as to whether a therapeutic product is safe for its intended use and to obtain information about such therapeutic product's efficacy, in a manner that is generally consistent with 21 C.F.R. § 312.21(b), as amended (or its successor regulation), sufficient to permit the design of Phase III Clinical Trials.

"**Phase III Clinical Trial**" means a pivotal Clinical Trial with a defined dose or a set of defined doses of a therapeutic product designed to ascertain efficacy and safety of such therapeutic product, in a manner that is generally consistent with 21 C.F.R. § 312.21(c), as amended (or its successor regulation), for the purpose of enabling the preparation and submission of a BLA or a foreign equivalent thereof

"**Phase III Completion Date**" means the date that is [***].

"**Product(s)**" means (a) the Lipase Project Enzyme [***] and (b) [***].

"**Project Enzyme**" has the meaning set forth in the in the SCA.

"**Prosecution**" means the filing, preparation, prosecution (including any interferences, reissue proceedings, reexaminations, and oppositions), *inter partes* review, post-grant review, and maintenance of the Purchased Patents and Resultant Patents. When used as a verb, " **Prosecute**" and "**Prosecuting**" means to engage in Prosecution.

"**Regulatory Approval**" means, with respect to a therapeutic product in any country or regulatory jurisdiction, any and all approvals from the applicable Regulatory Authority sufficient for the import, distribution, marketing, use, offering for sale, and sale of sch therapeutic product in such country or jurisdiction in accordance with applicable Laws.

"**Regulatory Authority**" means any national or supranational Governmental Authority (including the FDA and EMA) which has regulatory responsibility and authority in one or more countries for review and approval of development and commercialization of therapeutic products.

"**Regulatory Documentation**" has the meaning set forth in the Development Agreement

"**Representative**" means, with respect to any Person, any and all directors, officers, employees, consultants, financial advisors, counsel, accountants, and other agents of such Person and of the Affiliates of such Person.

"**Resultant Patent(s)**" mean any Patent [***].

"**Sell-On Transaction**" means any of the following [***]:

(a) the sale or transfer of one or more of the Purchased Patents or Resultant Patents to any Third Party;

(b) the exclusive or co-exclusive (with Buyer and its Affiliates) licensing of one or more of the Purchased Patents or Resultant Patents to any Third Party;

(c) the sale, transfer, or exclusive or co-exclusive (with Buyer and its Affiliates) licensing of one or more of the Purchased Patents or Resultant Patents to any Affiliate of Buyer, in connection with or followed by any of the following: (i) the direct or indirect acquisition by any Third Party (or group of Third Parties acting in concert) of shares of such Affiliate representing at least a majority of the voting power (where voting refers to being entitled to vote for the election of directors) then outstanding of such Affiliate; or (ii) the merger or consolidation of such Affiliate with or into any Third Party, or the merger or consolidation of any Third Party with or into such Affiliate, in either event pursuant to a transaction in which at least a majority of the voting power of the acquiring or resulting entity outstanding immediately after such consolidation or merger is not held by the holders of the outstanding voting power of such Affiliate immediately preceding such consolidation or merger; or

(d) any other similar transaction which has the effect of allowing any Third Party to Develop, Manufacture, or Commercialize any Product other than doing so solely on behalf and for the benefit of Buyer or its Affiliates or Licensees,

but in no event shall a Business Combination of Buyer be considered a Sell-On Transaction.

"**Sell-On Transaction Proceeds**" means the: (a) value of all proceeds received by Buyer or any of its Affiliates as consideration for or otherwise in connection with a Sell-On Transaction, whether in cash, securities, other property, assumption of liability, or otherwise (but excluding any amount received by Buyer or any of its Affiliates as royalties, profit-sharing payments, or other similar payments (other than milestone payments) based on Net Sales by or on behalf of any acquiror in a Sell-On Transaction); less (b) [***]. For any such proceeds other than cash, the value of such proceeds will be equal to the fair market value at the time Buyer or any of its Affiliates receive such proceeds, as determined by the mutual agreement of Buyer and Seller or, if Buyer and Seller are not able to agree on such fair market value, determined in accordance with the procedures outlined in ARTICLE X. With respect to any consideration received by Buyer or any of its Affiliates in connection with a Sell-On Transaction in the form of deferred performance or retention-based payments, "earn-outs", or other contingent payments based upon the occurrence of future events, including amounts held in escrow following the closing of a Sell-On Transaction, shall be included in the determination of Sell-On Transaction Proceeds [***]. For the avoidance of doubt, in no event shall Sell-On Transaction Proceeds include (i) [***] or (ii) [***].

"**Sell-On Transaction Profits**" means an amount equal to [***].

"**Senior Executives**" means [***].

"**Taxes**" means all federal, state, local, foreign, and other income, gross receipts, sales, use, production, ad valorem, transfer, documentary, franchise, registration, profits, license, withholding, payroll, employment, unemployment, excise, severance, stamp, occupation, premium, property (real or personal), customs, import and export, goods and services, value added, escheat, unclaimed property, duties, or other taxes, fees, assessments, or charges of any kind whatsoever, together with any interest, additions, or penalties with respect thereto.

"**Tax Return**" means any return, declaration, report, claim for refund, or other document relating to Taxes, including any schedule or attachment thereto, and amendment thereof, required to be supplied to a Governmental Authority in connection with any Taxes.

"**Technology**" means: (a) all of Seller's interest in the Purchased Patents; and (b) any Resultant Patents.

"**Third Party**" means any Person other than Seller, Buyer, and their respective Affiliates.

"**United States**" or "U.S." means the United States of America, including its territories, possessions, and protectorates.

"**VAT**" means (a) in relation to any jurisdiction within the European Union, the Tax imposed by the EC Council Directive on the common system of value added tax (2006/112/EC) and any successor or equivalent legislation and any national legislation implementing that directive together with legislation supplemental thereto and the equivalent Tax (if any) in that jurisdiction; and (b) in any other jurisdiction, any other value added, goods and services, consumption or similar Tax chargeable on the supply or deemed supply of goods or services under applicable legislation or regulation.

"**Zenpep**" means all pancrelipase products (which are currently marketed by Buyer, its Affiliates, or any of their licensees, distributors, or partners under the trademark Zenpep or Viokace) sold by Buyer, its Affiliates, or any of their respective licensees, whether formulated for administration as a monotherapy or combination therapy, in co-formulation with any excipient(s) or any other active pharmaceutical ingredient(s), or in a Combination Product, under any and all formulations or methods of administration. Zenpep includes the products currently sold under BLA022210 or BLA022542 in the U.S.

Cross-Reference Table. The following terms have the meanings set forth in the location in this Agreement referenced below:

Term	Section
A&P Acquisition Agreement Effective Date	Section 9.03
A&P Development Work	Section 9.05
Acquired Books and Records	Section 1.01(f)
Acquired Regulatory Documentations	Section 1.01(d)
Actions	Section 3.06(a)
Agreement	Preamble
Allocation Schedule	Section 1.08
[***] Baseline	Section 1.06(a)
Annual Report	Section 1.07
Assigned Contracts	Section 1.01(b)
Assignment and Assumption Agreement	Section 2.02(a)(i)
Assumed Liabilities	Section 1.03(a)
Baseline Disputed Items	Section 1.06
Baseline Zenpep [***] Sales	Section 1.06(a)
Bill of Sale	Section 2.02(a)(i)
Buyer	Preamble
Buyer Drop Dead Date	Section 8.02(b)(i)
Buyer Indemnified Parties	Section 7.02
Cap	Section 7.04(b)
CDX-7108	Recitals
Closing	Section 2.01
Closing Date	Section 2.01
Code	Section 1.08
Codexis	Preamble
Deductible	Section 7.04(a)
Development Agreement	Recitals
Disclosing Party	Section 5.03(a)
Dispute	Section 10.01
Earnout Payments	Section 1.06(b)
Earnout Sales	Section 1.06(b)
Earnout Statement	Section 1.06(d)(iii)
Effective Date	Preamble
Encumbrances	Section 3.05
Excluded Assets	Section 1.02
Excluded Liabilities	Section 1.03(b)
Existing Agreements	Recitals
Expression System License Agreement	Section 2.02(a)(iv)
Indemnified Party	Section 7.04
Indemnifying Party	Section 7.04

Initial Purchase Price	Section 1.04
Inventory	Section 1.01(c)
[***]	Section 10.02
Lipase Project Enzyme	Recitals
Losses	Section 7.02
Milestone	Section 1.05
Milestone Earnout Payment	Section 1.05
NHSc	Preamble
Notice of Dispute	Section 10.01
Notice of Exercise	Section 9.02
Option	Section 9.01
Option Exercise Date	Section 9.02
Patent Assignment	Section 2.02(a)(iii)
[***]	Section 5.14
Permitted Encumbrances	Section 3.05
Previously Assumed Liabilities	Section 1.09(d)
Previously Transferred Assets	Section 1.09(d)
Purchased Assets	Section 1.01
Purchased Know-How	Section 1.01(d)
Purchased Patents	Section 1.01(a)
Purchase Price	Section 1.04
Quarterly Baseline	Section 1.06(a)
Quarterly Estimate	Section 1.07
Receiving Party	Section 5.03(a)
Related Claims	Section 10.02
Restricted Business	Section 5.05(a)
Restricted Period	Section 5.05(a)
Rules	Section 10.02
Sales Earnout Payments	Section 1.06(b)
Schedule Supplement	Section 5.02
Seller	Preamble
Seller Drop Dead Date	Section 8.02(c)(i)
Seller Indemnified Parties	Section 7.03
Sell-On Transaction Payment	Section 1.05
Strategic Collaboration Agreement or SCA	Recitals
Term	Section 8.01
Transaction Documents	Section 2.02(a)(iv)
Unresolved Baseline Disputed Items	Section 1.06(a)

Exhibit C
Bill of Sale

[***]

Exhibit D
Assignment and Assumption Agreement

[***]

Exhibit E
Patent Assignment

[***]

Exhibit A
Purchased Patents
[●]

Exhibit F
Expression System License Agreement

[***]

Exhibit G
Press Release

Codexis Announces Purchase Agreement with Nestlé Health Science for CDX-7108

Company to retain economic interest in biotherapeutic asset while removing cash burn from development and commercialization costs

REDWOOD CITY, **Calif**., **December 27**, **2023** (GLOBE NEWSWIRE) -- Codexis, Inc. (NASDAQ: CDXS), a leading enzyme engineering company, today announced it has entered into a purchase agreement with Nestlé Health Science, a globally recognized leader in the field of nutritional science, for CDX-7108, an investigational therapy for the potential treatment of exocrine pancreatic insufficiency (EPI). Under the terms of the agreement, Codexis will receive up to $45M in potential milestone payments, including a $5M upfront payment, as well as single-digit net-sales-based royalties. Codexis will receive up to an additional $5M if Nestlé Health Science exercises an option to purchase two additional early-stage enzymes being developed for EPI. Nestlé Health Science will be solely responsible for the continued development and commercialization of CDX-7108, including all associated costs.

“This agreement solidifies the future development of CDX-7108—a potential new therapy that could be added to the treatment armamentarium for patients with exocrine pancreatic insufficiency—and enables Codexis to focus resources on the advancement of our ECO Synthesis™ platform and the return to growth of our Pharmaceutical Manufacturing business,” said Stephen Dilly, MBBS, PhD, Chief Executive Officer of Codexis. “Preliminary data from the CDX-7108 Phase I study announced earlier this year support continued investigation into Phase II clinical studies. We believe that CDX-7108 could represent a meaningful advance in the standard of care for patients, and we are pleased to retain an economic interest in the program as Nestlé continues development.”

Codexis and Nestlé Health Science completed pre-clinical work for CDX-7108 and a Phase I clinical trial under the terms of a previous agreement. With this asset purchase agreement, Nestlé Health Science may continue advancing the compound through the development process.

About CDX-7108
CDX-7108 is a lipase variant specifically engineered to overcome the limitations of traditional pancreatic enzyme replacement therapy (PERT) deficiencies. PERT is the main treatment for exocrine pancreatic insufficiency (EPI), a debilitating condition of the gastrointestinal tract that is caused by conditions that impair pancreatic function, such as pancreatitis, pancreatic cancer, Cronh’s disease, celiac disease and cystic fibrosis. CDX-7108 was engineered to be highly stable to the acidic conditions of the stomach and resistant to proteases in the upper intestines. Preliminary data from an interim analysis of the Phase I study proof-of-concept arm supported continued investigation into Phase II clinical studies.

About Nestlé Health Science
Nestlé Health Science, a leader in the science of nutrition and gastrointestinal health, is a globally managed business unit of Nestlé. The company is committed to redefining the management of health, offering an extensive portfolio of science-based nutritional products for patients and consumers. Nestlé Health Science’s trusted relationship with the healthcare professional-community and significant commercial capabilities provide the foundation for continued growth of its marketed portfolio of pharmaceutical products including the successful launch in 2023 of a microbiome-based therapeutic.

About Codexis
Codexis is a leading enzyme engineering company leveraging its proprietary CodeEvolver® technology platform to discover, develop and enhance novel, high-performance enzymes and other classes of proteins. Codexis enzymes solve for real-world challenges associated with small molecule pharmaceuticals manufacturing and nucleic acid synthesis. The Company is currently developing its proprietary ECO Synthesis™ platform to enable the scaled manufacture of RNAi therapeutics through an enzymatic route. Codexis’ unique enzymes can drive improvements such as higher yields, reduced

energy usage and waste generation, improved efficiency in manufacturing and greater sensitivity in genomic and diagnostic applications. For more information, visit www.codexis.com.

Codexis Forward-Looking Statements

This press release may contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. In some cases, you can identify forward-looking statements by terminology such as "aim," "anticipate," "assume," "believe," "contemplate," "continue," "could," "design," "due," "estimate," "expect," "goal," "intend," "may," "objective," "plan," "positioned," "potential," "predict," "seek," "should," "suggest," "target," "on track," "will," "would" and other similar expressions that are predictions of or indicate future events and future trends, or the negative of these terms or other comparable terminology. To the extent that statements contained in this press release are not descriptions of historical facts, they are forward-looking statements reflecting the current beliefs and expectations of management, including but not limited to statements regarding the anticipated potential benefits of the purchase agreement, such as the anticipated development and commercial milestone payments, which are dependent, in part, on the efforts of Nestlé Health Science to continue the development and commercialization of CDX-7108. You should not place undue reliance on these forward-looking statements because they involve known and unknown risks, uncertainties and other factors that are, in some cases, beyond Codexis' control and that could materially affect actual results. Factors that could materially affect actual results include, among others: Codexis' dependence on its licensees and collaborators; if any of its collaborators terminate their development programs under their respective license agreements with Codexis; Codexis may need additional capital in the future in order to expand its business; if Codexis is unable to successfully develop new technology such as its ECO Synthesis™ platform; Codexis' dependence on a limited number of products and customers, and potential adverse effects to Codexis' business if its customers' products are not received well in the markets; if Codexis is unable to develop and commercialize new products for its target markets; if competitors and potential competitors who have greater resources and experience than Codexis develop products and technologies that make Codexis' products and technologies obsolete; if Codexis is unable to accurately forecast financial and operational performance; and market and economic conditions may negatively impact Codexis' business, financial condition and share price. Additional information about factors that could materially affect actual results can be found in Codexis' Annual Report on Form 10-K filed with the Securities and Exchange Commission ("SEC") on February 27, 2023, and in Codexis' Quarterly Report on Form 10-Q filed with the SEC on November 3, 2023, including under the caption "Risk Factors," and in Codexis' other periodic reports filed with the SEC. Codexis expressly disclaims any intent or obligation to update these forward-looking statements, except as required by law.

For More Information

Investor Contact
Carrie McKim
(336) 608-9706
ir@codexis.com

Media Contact
Lauren Musto
(781) 572-1147
media@codexis.com

Exhibit H
A&P Acquisition Agreement

AMYLASE and PROTEASE

ACQUISITION AGREEMENT

between

SOCIÉTÉ DES PRODUITS NESTLÉ S.A.

and

CODEXIS, INC.

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AMYLASE AND PROTEASE ACQUISITION AGREEMENT

This Amylase and Protease Acquisition Agreement (this " **Agreement**") dated as of _____ (the "**Effective Date**") is entered into between CODEXIS, INC., a corporation incorporated and existing under the laws of the State of Delaware, having an office located at 200 Penobscot Drive, Redwood City, CA 94063, USA **(**"**Seller**" or "**Codexis**"), and Société des Produits Nestlé S.A., a *société anonyme* organized and existing under the laws of Switzerland, having an office located at 55 Avenue Nestlé, 1800 Vevey, Switzerland **(**"**Buyer**" or "**NHSc**").

RECITALS

WHEREAS, Buyer (as successor in interest to Nestec Ltd.), and Seller are parties to that certain Strategic Collaboration Agreement, dated as of October 12, 2017 (as amended through the date hereof, the "**Strategic Collaboration Agreement**" or "**SCA**"), pursuant to which the parties agreed to collaborate to discover enzymes as candidates for use as healthcare products and to perform initial preclinical evaluation of the efficacy of such enzymes;

WHEREAS, Buyer and Seller are parties to that certain Development Agreement, dated as of January 1, 2020 (as amended through the date hereof, the "**Development Agreement**" and, together with the Strategic Collaboration Agreement and including, if either or both such agreements expire or are otherwise terminated, all terms, conditions, and obligations in each that survive such expiration or other termination, the "**Existing Agreements**"), pursuant to which the parties agreed to conduct certain development activities with respect to certain enzymes discovered pursuant to the Strategic Collaboration Agreement;

WHEREAS, Buyer and Seller are parties to that certain Acquisition Agreement, dated as of December [x], 2023 (as amended through the date hereof, the "**Lipase Acquisition Agreement**"), pursuant to which Buyer has an option to acquire the Purchased Assets and assumed the Assumed Liabilities (as each term is defined below) on the terms and conditions set forth therein and in this Agreement;

WHEREAS, the parties desire for Buyer to have the right to further develop and commercialize those certain lipase enzymes that were discovered under the Strategic Collaboration Agreement and that were further developed pursuant to the Development Agreement, including that certain amylase enzyme currently identified as [***], that certain protease enzyme currently identified as [***] **(**[***], the "**A&P Project Enzymes**");

WHEREAS, pursuant to the terms of the Existing Agreements, each party has agreed not to Develop or Commercialize the A&P Project Enzymes, including the use of any Jointly Owned Invention in connection therewith, unless agreed by the parties in a separate written agreement; and

WHEREAS, Seller wishes to sell and assign to Buyer certain identified Patent Rights, Contracts, and other assets related to the A&P Project Enzymes, and Buyer wishes to purchase and assume from Seller such assets and certain corresponding liabilities, and Seller otherwise wishes to authorize Buyer's Development and Commercialization of, the A&P Project Enzyme, in each case, subject to the terms and conditions set forth herein;

NOW, **THEREFORE**, in consideration of the mutual covenants and agreements hereinafter set forth and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

ARTICLE I
PURCHASE AND SALE

Section 1.01 Purchase and Sale of Assets. Subject to the terms and conditions set forth herein, at the Closing, Seller shall, and shall cause its Affiliates to, sell, convey, assign, transfer, and deliver to Buyer (or its designated Affiliate), and Buyer shall purchase from Seller and its Affiliates, all of Seller's (or its applicable Affiliate's) right, title, and interest in, to, and under all of the following (the "**Purchased Assets**"):

(a) the patents and patent applications set forth on Section 1.01(a) of the Disclosure Schedules (the " **Purchased Patents**"), and all of Seller's and its Affiliates interest in, to and under the Purchased Patents, including the right to sue for past infringement;

(b) all Contracts set forth on Section 1.01(b) of the Disclosure Schedules (the "**Assigned Contracts**") and the rights to assert claims and take other actions in respect of breaches or other violations of the foregoing occurring after the Closing;

(c) the inventory and other materials set forth on Section 1.01(c) of the Disclosure Schedules (the " **Inventory**");

(d) all Jointly Owned Inventions relating [***] to the A&P Project Enzymes (the "**Purchased Know-How**");

(e) all Regulatory Documentation owned [***] by Seller and its Affiliates [***] relating to the other Purchased Assets (the " **Acquired Regulatory Documentation**"); and

(f) all other Books and Records owned [***] by Seller and its Affiliates relating [***] to the other Purchased Assets, [***] (collectively, the "**Acquired Books and Records**"). For clarity, Acquired Books and Records shall specifically exclude all Tax Returns and related workpapers including or relating to the Purchased Assets. Books and Records that do not relate [***] to the other Purchased Assets may be redacted to exclude information that does not relate to the other Purchased Assets.

Section 1.02 Excluded Assets. Other than the Purchased Assets, Buyer expressly understands and agrees that it is not purchasing or acquiring, and Seller is not selling or assigning, any other assets or properties of Seller or its Affiliates, and all such other assets and properties shall be excluded from the Purchased Assets and remain the sole and exclusive property of Seller and/or its Affiliates (collectively, the " **Excluded Assets**"). Excluded Assets include, but are not limited to, the assets, properties and rights specifically set forth on Section 1.02 of the Disclosure Schedules.

Section 1.03 Assumed Liabilities.

(a) Subject to the terms and conditions set forth herein, including Section 1.03(b), at the Closing, Buyer shall assume and agree to pay, perform, and discharge when due any and all Liabilities of Seller arising out, of or relating to, ownership of the Purchased Assets or operation of the Business on or after the Closing (collectively, the "**Assumed Liabilities**"), including, but not limited to, the following:

(i) all Liabilities arising under the Assigned Contracts from and after the Closing Date (but, for clarity, this does not limit any Liabilities under any Assigned

Contract (or portion thereof) that is or was a Liability of Buyer or any of its Affiliates prior to the Closing Date pursuant to any Existing Agreement or other agreement between the parties); and

(ii) all Liabilities for (A) Taxes relating to the Purchased Assets for any taxable period (or any portion thereof) beginning on or after the Closing Date ([***]) and (B) Taxes for which Buyer is liable pursuant to Section 5.07.

(b) Buyer shall not assume and shall not be responsible to pay, perform or discharge any Liabilities of Seller or its Affiliates other than the Assumed Liabilities (collectively, the "**Excluded Liabilities**"), which Excluded Liabilities shall include, but not necessarily be limited to:

(i) any Liabilities arising out of or relating to Seller's ownership of the Purchased Assets prior to the Closing Date or attributable to any breach of any Assigned Contract on the part of Seller or its Affiliate prior to the Closing Date (but excluding all Liabilities under any Assigned Contract (or portion thereof) that is or was a Liability of Buyer or any of its Affiliates pursuant to any Existing Agreement or other agreement between the parties hereto);

(ii) any Liabilities [***];

(iii) any Liabilities [***];

(iv) any Liabilities arising out of or relating to the Excluded Assets; and

(v) any Liabilities (A) for Taxes relating to the Purchased Assets for any taxable period (or any portion thereof) ending on or prior to the Closing Date; (B) [***].

Section 1.04 Purchase Price. The aggregate purchase price for the Purchased Assets shall be the sum of (a) $2,500,000 (the " **Initial Purchase Price**"); *plus* (b) the amount of any Milestone Payment due and payable under Section 1.05 (such sum, the " **Purchase Price**").

Section 1.05 Milestone. Buyer shall pay to Seller $2,500,000 as a one-time, non-refundable, non-creditable milestone payment (the " **Milestone Payment**") upon and subject to the occurrence of the earliest to occur of the following events (the occurrence of the earliest of such event, the "**Milestone**"):

(a) [***];

(b) [***]; and

(c) [***].

For the avoidance of doubt, the Milestone Payment set forth above will be payable only one time, upon the first occurrence of the Milestone, and no additional payment will be due in the event of any repeated occurrence of the Milestone, including in relation to more than one Product. Under no circumstances shall Buyer be obligated to pay Seller more than $2,500,000 in the aggregate pursuant to this Section 1.05.

Buyer shall provide Seller with [***] notice of the achievement of the Milestone. Following the receipt of such notice of achievement of the Milestone, Seller shall issue an invoice to Buyer for the Milestone Payment. The Milestone Payment, when payable, shall be due by Buyer within [***] following Buyer's receipt of an invoice therefor. Buyer shall pay the Milestone Payment by wire transfer of immediately available funds to Seller in accordance with the wire transfer instructions provided by Seller in writing prior to the due date for such payment.

Section 1.06 Reports and Reporting. No later than [***] after the expiration of each calendar year but only prior to the occurrence of the Milestone, Buyer shall furnish Seller with a written report (each, an "**Annual Report**") setting forth [***] its, its Affiliates' and its Licensees' progress and efforts towards the achievement of the Milestone. [***]. Upon Seller's reasonable advance notice (which in no event shall be less than [***]), Buyer shall make its relevant management personnel reasonably available to Seller's personnel to discuss in greater detail each Annual Report, the information therein, and related questions Seller may have; provided that such access shall be during normal local business hours [***].

Section 1.07 Allocation of Purchase Price. The Purchase Price and the Assumed Liabilities (and any other amounts, if any, properly included for Tax purposes) shall be allocated in accordance with Section 1060 of the Internal Revenue Code of 1986, as amended (the "**Code**") among the Purchased Assets for all U.S. federal income tax purposes as shown on the allocation schedule set forth on Section 1.07 of the Disclosure Schedules (the "**Allocation Schedule**"). Neither the parties nor any of their respective Affiliates shall take any position on any Tax Return or in any Tax contest, proceeding, audit, appeals or litigation which is inconsistent with the agreed upon allocation unless otherwise required by a final determination within the meaning of Section 1313(a) of the Code (or any similar provision of state, local or non-U.S. Tax Law).

Section 1.08 Non-Assignable Assets.

(a) Notwithstanding anything to the contrary in this Agreement, this Agreement shall not constitute a sale, assignment, or transfer of any Purchased Asset if such sale, assignment, or transfer: (i) violates applicable Law; or (ii) without the consent or waiver of a Person who is not a party to this Agreement or an Affiliate of a party to this Agreement would result in a breach or violation of an Assigned Contract, result in the termination, cancellation, or revocation of an Assigned Contract, or result in the creation of any lien on any Purchased Asset, and such consent or waiver has not been obtained prior to the Closing.

(b) Following the Closing, Seller and Buyer shall use [***] efforts, and shall cooperate with each other, to obtain any such required consent or waiver, or any release, substitution, or amendment required to assign all Liabilities under any and all Assigned Contracts or other Liabilities that constitute Assumed Liabilities; [***]. Once such consent, waiver, release, substitution, or amendment is obtained, Seller shall promptly sell, assign, and transfer to Buyer the relevant Purchased Asset to which such consent, waiver, release, substitution, or amendment relates [***].

(c) To the extent that any Purchased Asset or Assumed Liability cannot be transferred to Buyer pursuant to this Section 1.08, Buyer and Seller shall use [***] efforts to enter into such arrangements (such as subleasing, sublicensing, or subcontracting) to provide to the parties the economic and, to the extent permitted under applicable Law, operational equivalent of the transfer of such Purchased Asset or Assumed Liability to Buyer as of the Closing. Buyer shall, to the extent it receives the benefits of the applicable Purchased Asset, as agent or subcontractor for Seller, pay, perform, and discharge fully the liabilities and obligations related to such Purchased Asset or Assumed Liability from

and after the Closing Date. To the extent permitted under applicable Law, Seller shall, at Buyer's expense, hold in trust for and pay to Buyer promptly upon receipt thereof, all income, proceeds, and other monies received by Seller from and after the Closing Date, to the extent related to such Purchased Asset in connection with the arrangements under this Section 1.08. [***].

Section 1.09 Withholding Taxes. [***]. [***]. The parties shall use [***] efforts to cooperate to mitigate or eliminate any such withholding. To the extent that amounts are so withheld and paid over to the appropriate Tax authority by Buyer, such withheld amounts shall be treated for all purposes of this Agreement as having been paid to the person in respect of which such deduction and withholding was made.

Section 1.10 Exploitation of Products. Seller agrees and acknowledges that [***]. Seller acknowledges and agrees that (a) [***], (b) [***], and (c) the parties solely intend the express provisions of this Agreement (and, for the avoidance of doubt, not the Existing Agreements) to govern their contractual relationship with respect to the Purchased Assets and the Products. [***].

ARTICLE II
CLOSING

Section 2.01 Closing. Subject to the terms and conditions of this Agreement, the consummation of the transactions contemplated by this Agreement (the "**Closing**") shall take place remotely by exchange of documents and signatures (or their electronic counterparts), at [8:00] a.m. PST, simultaneously with the execution of this Agreement, or at such other time or place or in such other manner as Seller and Buyer may mutually agree upon in writing. The date on which the Closing is to occur is herein referred to as the "**Closing Date**."

Section 2.02 Closing Deliverables.

(a) At the Closing, Seller shall deliver to Buyer the following:

(i) a bill of sale in the form of **Exhibit C** attached to the Lipase Acquisition Agreement, *mutatis mutandis* (the "**Bill of Sale**") duly executed by Seller, transferring the Inventory, Acquired Books and Records, and any other tangible Purchased Assets to Buyer;

(ii) an assignment and assumption agreement in the form of **Exhibit D** to the Lipase Acquisition Agreement, *mutatis mutandis* (the "**Assignment and Assumption Agreement**") duly executed by Seller, effecting the assignment to and assumption by Buyer of the Purchased Assets and the Assumed Liabilities;

(iii) an assignment in the form of **Exhibit E** to the Lipase Acquisition Agreement, *mutatis mutandis* (the "**Patent Assignment**") duly executed by Seller, transferring all of Seller's right, title, and interest in and to the Purchased Patents to Buyer;

(iv) a license agreement in the form of **Exhibit F** to the Lipase Acquisition Agreement, *mutatis mutandis* (the "Expression System License Agreement" and, collectively with this Agreement, the Assignment and Assumption Agreement, and the Patent Assignment, the "**Transaction Documents**") duly executed by Seller; and

(v) a properly completed IRS Form W-9.

(b) At the Closing, Buyer shall deliver to Seller the following:

(i) the Assignment and Assumption Agreement duly executed by Buyer;

(ii) the Patent Assignment duly executed by Buyer;

(iii) the Expression System License Agreement duly executed by Buyer; and

(iv) the Initial Purchase Price by wire transfer of immediately available funds to Seller in accordance with the wire transfer instructions provided by Seller to Buyer in writing [***] prior to Closing.

Section 2.03 Delivery of Records. Promptly and in any event within [***] after the Closing Date, Seller shall deliver to Buyer copies of the Acquired Regulatory Documentation and the Acquired Books and Records via virtual data room or other file-share platform reasonably acceptable to Buyer (or such other method as mutually agreed by the parties), provided that Seller shall have no obligation to deliver to Buyer any such Acquired Regulatory Documentation or Acquired Books and Records that are already in Buyer's or its Affiliates possession or that are publicly available.

ARTICLE III
REPRESENTATIONS AND WARRANTIES OF SELLER

Except as set forth in the Disclosure Schedules, Seller represents and warrants to Buyer that the statements contained in this ARTICLE III are true and correct as of the date hereof.

Section 3.01 Organization and Authority of Seller. Seller is a corporation duly organized, validly existing, and in good standing under the Laws of the State of Delaware. Seller has all necessary corporate power and authority to enter into this Agreement and the other Transaction Documents to which Seller is a party, to carry out its obligations hereunder and thereunder, and to consummate the transactions contemplated hereby and thereby. The execution and delivery by Seller of this Agreement and any other Transaction Document to which Seller is a party, the performance by Seller of its obligations hereunder and thereunder, and the consummation by Seller of the transactions contemplated hereby and thereby have been duly authorized by all requisite corporate action on the part of Seller. This Agreement and the Transaction Documents constitute legal, valid, and binding obligations of Seller enforceable against Seller in accordance with their respective terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium, or similar Laws affecting creditors' rights generally and by general principles of equity (regardless of whether enforcement is sought in a proceeding at law or in equity).

Section 3.02 No Conflicts or Consents. The execution, delivery, and performance by Seller of this Agreement and the other Transaction Documents to which it is a party, and the consummation of the transactions contemplated hereby and thereby, do not and will not: (a) violate or breach any provision of the certificate of incorporation or by-laws of Seller; (b) violate or breach any provision of any Law or Governmental Order applicable to Seller or the Purchased Assets; (c) except as set forth in Section 3.02 of the Disclosure Schedules, require the consent, notice, or other action by any Person under, conflict with, violate or breach, constitute a default under, or result in the acceleration of any Assigned Contract; or (d) except as set forth in Section 3.02 of the Disclosure Schedules, require any consent, permit, Governmental Order, filing, or notice from, with, or to any Governmental Authority; except, in the cases

of clauses (b) and (c), where the violation, breach, conflict, default, acceleration, or failure to obtain consent or give notice would not have a Material Adverse Effect and, in the case of clause (d), where such consent, permit, Governmental Order, filing, or notice which, in the aggregate, would not have a Material Adverse Effect.

Section 3.03 Intellectual Property. Section 3.03 of the Disclosure Schedules contains a current and complete list of all Purchased Patents, specifying as to each, as applicable: the title; the jurisdiction by or in which it has been issued, registered, or filed; the patent, registration or application serial number; and the issue, registration, or filing date. Except as set forth on Section 3.03 of the Disclosure Schedules, the Purchased Patents constitute all currently-existing Patents owned by Seller that [***] for the Manufacturing or use of [***] as it currently exists, other than any Patents covered by the Expression System License Agreement. Except for the Purchased Patents and any Patents covered by the Expression System License Agreement, Seller Controls no Patents that [***] for the Manufacturing or use of, [***] as each currently exists. Other than with respect to any ownership right, title, or interest of Buyer or any of its Affiliates, Seller owns all right, title, and interest in and to the Purchased Patents and Seller has not granted any license or other right under any of the Purchased Patents to any Third Party other than to service providers under the Assigned Contracts. All assignments and other instruments necessary to establish and record Seller's ownership interest in the Purchased Patents have been executed, delivered, and filed with the relevant Governmental Authorities and authorized registrars. All required filings and fees related to the Purchased Patents due and payable prior to the Effective Date have been submitted with and paid to the relevant Governmental Authorities and authorized registrars. To Seller's Knowledge, (a) no Person is infringing any Purchased Patents, and (b) except as set forth on Section 3.03(b) of the Disclosure Schedules, there are no actual or threatened claims that (i) the currently-listed inventorship of the Purchased Patents is incorrect, (ii) [***] (as each is existing on the date hereof) infringes any Third Party intellectual property rights, or (iii) the use of the Codexis Expression System (as defined in the Expression System License Agreement) to manufacture any Cell Bank (as defined in the Expression System License Agreement) or [***] as each currently exists infringes any Third Party intellectual property rights.

Section 3.04 Assigned Contracts.

(a) Correct and complete copies of each Assigned Contract, have been made available to Buyer and its Representatives, including all amendments and modifications and side agreements relating thereto.

(b) Except as set forth on Section 3.04 of the Disclosure Schedules: (i) each of the Assigned Contracts represents a legal, valid and binding obligation of Seller and, to Sellers' Knowledge, each other party thereto, and is enforceable against Seller and, to Seller's Knowledge, each other party thereto, in accordance with its terms, and is in full force and effect, and (ii) none of Seller or, to Seller's Knowledge, any other party thereto is in material breach of, or material default under, or has provided or received any notice of any intention to terminate, any of the Assigned Contracts, or has committed or failed to perform any act which, with or without notice, lapse of time or both would constitute a material breach of or material default under any of the Assigned Contracts.

Section 3.05 Title to Inventory. Seller has good and valid title to all Inventory included in the Purchased Assets, free and clear of any lien, charge, claim, pledge, security interest, or other similar encumbrance, except for: (a) liens for Taxes not yet due and payable or being contested in good faith by appropriate procedures; (b) mechanics', carriers', workmen's, repairmen's, warehouse, or other like liens

arising or incurred in the ordinary course of business; and (c) liens arising under original purchase price conditional sales contracts with third parties entered into in the ordinary course of business.

Section 3.06 Legal Proceedings; Governmental Orders.

(a) Except as set forth in Section 3.06(a) of the Disclosure Schedules, there are no material claims, actions, suits, investigations, or other legal proceedings (collectively, "**Actions**") pending or, to Seller's Knowledge, threatened against or by Seller or its Affiliates relating to or affecting the Purchased Assets or the Assumed Liabilities.

(b) Except as set forth in Section 3.06(b) of the Disclosure Schedules, there are no outstanding Governmental Orders against, relating to, or affecting the Purchased Assets, which would have a Material Adverse Effect.

Section 3.07 Brokers. No broker, finder, or investment banker is entitled to any brokerage, finder's, or other fee or commission in connection with the transactions contemplated by this Agreement or any other Transaction Document based upon arrangements made by or on behalf of Seller or any of its Affiliates.

Section 3.08 No Other Representations and Warranties. Except for the representations and warranties contained in this ARTICLE III (including the related portions of the Disclosure Schedules), neither Seller nor any other Person has made or makes any other express or implied representation or warranty, either written or oral, on behalf of Seller, including any representation or warranty as to the accuracy or completeness of any information, documents, or material regarding the Products and the Purchased Assets furnished or made available to Buyer and its Representatives in any form (including any information, documents, or material delivered or made available to Buyer on behalf of Seller for purposes of this Agreement), or as to the future revenue, profitability, or success of the Products, or any representation or warranty arising from statute or otherwise in Law.

ARTICLE IV
REPRESENTATIONS AND WARRANTIES OF BUYER

Except as set forth in the Disclosure Schedules, Buyer represents and warrants to Seller that the statements contained in this ARTICLE IV are true and correct as of the date hereof.

Section 4.01 Organization and Authority of Buyer. Buyer is a *société anonyme* duly organized, validly existing and in good standing under the Laws of Switzerland. Buyer has all necessary corporate power and authority to enter into this Agreement and the other Transaction Documents to which Buyer is a party, to carry out its obligations hereunder and thereunder, and to consummate the transactions contemplated hereby and thereby. The execution and delivery by Buyer of this Agreement and any other Transaction Document to which Buyer is a party, the performance by Buyer of its obligations hereunder and thereunder, and the consummation by Buyer of the transactions contemplated hereby and thereby have been duly authorized by all requisite corporate action on the part of Buyer. This Agreement and the Transaction Documents constitute legal, valid, and binding obligations of Buyer enforceable against Buyer in accordance with their respective terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, moratorium, or similar Laws affecting creditors' rights generally and by general principles of equity (regardless of whether enforcement is sought in a proceeding at law or in equity).

Section 4.02 No Conflicts; Consents. The execution, delivery, and performance by Buyer of this Agreement and the other Transaction Documents to which it is a party, and the consummation of the transactions contemplated hereby and thereby, do not and will not: (a) violate or breach any provision of the certificate of incorporation or by-laws of Buyer; (b) violate or breach any provision of any Law or Governmental Order applicable to Buyer; (c) require the consent, notice or other action by any Person under, conflict with, violate or breach, constitute a default under, or result in the acceleration of any agreement to which Buyer is a party; or (d) require any consent, permit, Governmental Order, filing, or notice from, with, or to any Governmental Authority by or with respect to Buyer.

Section 4.03 Solvency; Sufficiency of Funds. Immediately after giving effect to the transactions contemplated hereby, Buyer shall be solvent and shall: (a) be able to pay its debts as they become due; (b) own property that has a fair saleable value greater than the amounts required to pay its debts (including a reasonable estimate of the amount of all Liabilities); and (c) have adequate capital to carry on its business. No transfer of property is being made and no obligation is being incurred in connection with the transactions contemplated hereby with the intent, on the part of Buyer, to hinder, delay, or defraud either present or future creditors of Buyer or Seller. In connection with the transactions contemplated hereby, Buyer has not incurred, nor plans to incur, debts beyond its ability to pay as they become absolute and matured.

Section 4.04 Legal Proceedings. There are no Actions pending or, to Buyer's knowledge, threatened against or by Buyer that challenge or seek to prevent, enjoin, or otherwise delay the transactions contemplated by this Agreement.

Section 4.05 Brokers. No broker, finder, or investment banker is entitled to any brokerage, finder's, or other fee or commission in connection with the transactions contemplated by this Agreement or any other Transaction Document based upon arrangements made by or on behalf of Buyer or any of its Affiliates.

Section 4.06 Independent Investigation. Buyer has conducted its own independent investigation, review, and analysis of the Products and the Purchased Assets, and acknowledges that it has been provided adequate access to the personnel, properties, assets, premises, books and records, and other documents and data of Seller for such purpose. Buyer acknowledges and agrees that: (a) in making its decision to enter into this Agreement and to consummate the transactions contemplated hereby, Buyer has relied solely upon its own investigation and the express representations and warranties of Seller set forth in ARTICLE III of this Agreement (including related portions of the Disclosure Schedules); and (b) neither Seller nor any other Person has made any representation or warranty as to Seller, the Products, the Purchased Assets, or this Agreement, except as expressly set forth in ARTICLE III of this Agreement (including the related portions of the Disclosure Schedules).

Section 4.07 Other Representations and Warranties. Except for the representations and warranties contained in this ARTICLE IV, neither Buyer nor any other Person has made or makes any other express or implied representation or warranty, either written or oral, on behalf of Buyer, including any representation or warranty as to the accuracy or completeness of any information, documents, or material furnished or made available to Seller and its Representatives in any form (including any information, documents, or material delivered or made available to Seller on behalf of Buyer for purposes of this Agreement) or any representation or warranty arising from statute or otherwise in Law.

ARTICLE V
COVENANTS

Section 5.01 Confidentiality.

(a) Nondisclosure. Each party agrees that, during the Term and thereafter, a party (the " **Receiving Party**") receiving Confidential Information of the other party (the "**Disclosing Party**") (or that has received any such Confidential Information from the other party prior to the Effective Date) shall (i) maintain in confidence such Confidential Information using not less than the efforts such Receiving Party uses to maintain in confidence its own proprietary industrial information of similar kind and value, which shall be no less than a reasonable degree of care, (ii) not disclose such Confidential Information to any Third Party without the prior written consent of the Disclosing Party, except for disclosures expressly permitted below, and (iii) not use such Confidential Information for any purpose except those permitted by this Agreement. Each Receiving Party will promptly notify the Disclosing Party upon gaining knowledge of any material use or disclosure of Confidential Information of the other party not permitted pursuant to this Section 5.01. [***]. For the further avoidance of doubt, all Licensed Know-How is and shall be Confidential Information of Seller. The obligations in this Section 5.01 shall not apply with respect to any portion of the Confidential Information that the Receiving Party may receive to the extent that such information:

(i) is publicly disclosed by the Disclosing Party, either before or after it is disclosed to the Receiving Party hereunder;

(ii) was known to the Receiving Party or any of its Affiliates, without any obligation to keep it confidential or any restriction on its use, prior to disclosure by the Disclosing Party, and such prior knowledge can be properly documented by the Receiving Party;

(iii) is subsequently disclosed to the Receiving Party or any of its Affiliates by a Third Party lawfully in possession thereof and without any obligation to keep it confidential or any restriction on its use;

(iv) is published by a Third Party or otherwise becomes publicly available or enters the public domain, either before or after it is disclosed to the Receiving Party without the Receiving Party's breach of the terms of this Agreement; or

(v) is independently developed by employees or contractors of the Receiving Party or any of its Affiliates without the aid, application, or use of Confidential Information of the Disclosing Party, and such independent development can be properly documented by the Receiving Party.

(b) Authorized Disclosure. The Receiving Party may disclose Confidential Information belonging to the Disclosing Party only to the extent such disclosure is reasonably necessary in the following instances:

(i) complying with applicable Laws and regulations (including the rules and regulations of the Securities and Exchange Commission or any national securities exchange) and with judicial or administrative process, if in the reasonable opinion of the Receiving Party's counsel, such disclosure is so required for such compliance and the Receiving Party discloses no more than required in its reasonable judgment, and further provided that with respect to judicially or administratively required disclosures, the Receiving Party (to the extent legally permissible) shall promptly inform the other party

of such required disclosure and use [***] efforts to provide the other party an opportunity to challenge or limit the disclosure obligations; and

(ii) disclosure to its Affiliates, and to its bona fide actual or potential (A) permitted Licensees, (B) investment bankers, investors, lenders, or acquirers, or permitted assignees under Section 9.06, in each case, solely for diligence purposes, and (C) each of the parties' respective Representatives, in each case of (A), (B), and (C), each of whom prior to disclosure must be bound by obligations of confidentiality and non-use no less restrictive than the obligations set forth in this Section 5.01; provided, however, that the Receiving Party shall remain responsible for any failure by any Person who receives Confidential Information pursuant to this Section 5.01(b)(ii) to treat such Confidential Information as required under this Section 5.01.

If and whenever any Confidential Information is disclosed in accordance with this Section 5.01(b), such disclosure shall not cause any such information to cease to be Confidential Information, except to the extent that such disclosure results in a public disclosure of such information (other than by breach of this Agreement).

(c) Tax Filings. Notwithstanding any provision of this Agreement to the contrary, each party (and their Affiliates) shall be free to disclose this Agreement, the contents hereof, and the transactions contemplated hereby to any Governmental Authority in connection with the filing of any Tax Return and in any Tax audits, assessments, or administrative or judicial proceedings or other Actions relating to Tax Returns or Taxes.

Section 5.02 Public Announcements. Unless otherwise required by applicable Law, no party to this Agreement shall make any public announcements in respect of this Agreement or the transactions contemplated hereby without the prior written consent of the other party (which consent shall not be unreasonably withheld, conditioned, or delayed), and the parties shall cooperate as to the timing and contents of any such announcement. Notwithstanding the foregoing, Seller may, following the Effective Date, issue a press release regarding this Agreement and the transactions contemplated hereby containing the information and generally in the form as reasonably agreed upon by the Parties at least [***] prior to the Closing. The contents of any announcement or similar publicity, which has been reviewed and approved by the reviewing party (including the press release referred to in the prior sentence), can be re-released by either party without a requirement for re-approval.

Section 5.03 Exclusivity.

(a) During the Restricted Period, Seller shall not, and shall not permit any of its Affiliates to, directly or indirectly engage in, for its own benefit or for, with, or through any other Person, [***], any other company, partnership, proprietorship, enterprise, organization or business venture of any kind whatsoever engaged in [***] (the "**Restricted Business**") [***]. Notwithstanding the foregoing, Seller may own, directly or indirectly, solely as an investment, securities of any Person traded on any national securities exchange if Seller is not a controlling Person of, or a member of a group which controls, such Person and does not, directly or indirectly, own [***] or more of any class of securities of such Person. The "**Restricted Period**" shall commence on the Closing Date and shall continue until [***] of the Closing Date; provided [***].

(b) Each party acknowledges that a breach or threatened breach by it of this Section 5.03 could give rise to irreparable harm to the other party, for which monetary damages may not be an adequate remedy, and hereby agrees that in the event of a breach or a threatened breach by such party of any such obligations, the other party shall, in addition to any and all other rights and remedies that may be available to it in respect of such breach, be entitled to seek equitable relief, including a temporary restraining order, an injunction, specific performance, and any other relief that may be available from a court of competent jurisdiction (without any requirement to post bond, which such party hereby waives).

(c) Each party acknowledges that the restrictions contained in this Section 5.03 are reasonable and necessary to protect the legitimate interests of the other party and constitute a material inducement to each party to enter into this Agreement and consummate the transactions contemplated by this Agreement. In the event that any covenant contained in this Section 5.03 should ever be adjudicated to exceed the time, geographic, product, or service or other limitations permitted by applicable Law in any jurisdiction, then any court is expressly empowered to reform such covenant, and such covenant shall be deemed reformed, in such jurisdiction to the maximum time, geographic, product, or service or other limitations permitted by applicable Law. The covenants contained in this Section 5.03 and each provision hereof are severable and distinct covenants and provisions. The invalidity or unenforceability of any such covenant or provision as written shall not invalidate or render unenforceable the remaining covenants or provisions hereof, and any such invalidity or unenforceability in any jurisdiction shall not invalidate or render unenforceable such covenant or provision in any other jurisdiction.

Section 5.04 Patent Prosecution and Maintenance.

(a) Following the Closing Date, Buyer shall have the sole right to Prosecute all Purchased Patents and Resultant Patents, including any Patent Term Extensions or Supplementary Protection Certificates thereto, and shall be solely responsible for the cost and expense thereof. Buyer shall have the sole right to determine the strategy and material aspects of Prosecution of the Purchased Patents and Resultant Patents, including where and when applications for Purchased Patents and Resultant Patents will be filed, and claims to be included, excluded, or modified in Purchased Patents and Resultant Patents applications, or on the selection of internal or external patent counsel or patent agents to be used for filing, Prosecuting and maintaining the Purchased Patents and Resultant Patents.

(b) Seller shall provide to Buyer all reasonable assistance requested by Buyer in connection with Prosecution under this Section 5.04, including allowing Buyer reasonable access to Seller's and its Affiliates' files and documents and Seller's and its Affiliates' then-current personnel and inventors who may have possession of information relevant to the Prosecution. Any such cooperation by Seller and its Affiliates with respect to the Purchased Patents and Resultant Patents or any such Prosecution shall be at Buyer's cost and expense and Buyer shall reimburse Seller for such reasonable and documented costs and expenses of Seller and its Affiliates.

Section 5.05 Patent Enforcement.

(a) Buyer shall have the sole right to enforce the Purchased Patents and Resultant Patents and intellectual property rights in Purchased Know-How, including for past infringement, against Third Party infringers (and enter into settlement agreements with such Third Party infringers). Any recovery obtained in any such enforcement action (or settlement thereof) shall

belong to Buyer. Buyer shall be responsible for all costs and expenses associated with such enforcement.

(b) Seller shall provide to Buyer all reasonable assistance requested by Buyer in connection with any Action under this Section 5.05, including allowing Buyer reasonable access to Seller's and its Affiliates' files and documents and Seller's and its Affiliates' then-current personnel who may have possession of information relevant to the Action. Any such cooperation by Seller with respect to the Purchased Patents and Resultant Patents or any such Action shall be at Buyer's cost and expense and Buyer shall reimburse Seller for such reasonable and documented costs and expenses of Seller.

Section 5.06 Bulk Sales Laws. The parties hereby waive compliance with the provisions of any bulk sales, bulk transfer or similar Laws of any jurisdiction that may otherwise be applicable with respect to the sale of any or all of the Purchased Assets to Buyer.

Section 5.07 VAT. The Purchase Price is exclusive of VAT. Any party receiving a supply under this Agreement hereby covenants that it will pay any such VAT correctly charged in addition to any amounts due under this Agreement. The supplying party agrees that it will raise a Tax invoice (or equivalent document) to support the charge to VAT. Where the prevailing legislation requires a VAT reverse charge, then the receiving party covenants that it shall correctly account for VAT in respect of the services received. To the extent that any VAT is chargeable on any Purchased Assets transferred pursuant to this Agreement, Seller shall deliver to Buyer: (i) a valid VAT invoice where required by applicable Law or practice and (ii) any other documentation as may be reasonably requested by Buyer to assist it to recover the VAT chargeable or payable, in each case, in such form and within such timing as may be required by Law. An amount equal to the amount of VAT chargeable or payable by Seller on the Purchased Assets transferred shall be paid in addition to the consideration provided in this Agreement, by Buyer to Seller within [***] of receipt of a valid VAT invoice (or where no invoice is required, within [***] of demand) or, if later, [***] before the date on which the obligation to account for VAT would have had to be discharged in order to avoid liability to interest or a charge or penalty. Seller shall account for all amounts in respect of VAT paid to it by Buyer to the appropriate Governmental Authorities in compliance with applicable Laws. Both parties shall use [***] efforts to avail of VAT zero-rating, reduced rating or exemption that could apply. In the event that the local competent Tax authority determines that VAT is chargeable, Buyer in the first instance shall undertake all reasonable steps to refute any such assertions by the local Tax authority. Each party shall be responsible for any Taxes due on their own account, including any penalties or interest accruing due to incorrect VAT treatment of the supplies of goods or services made by that party or any failure to correctly account for VAT on any receipt of a supply of goods or services under this Agreement, except where those penalties or interest arise as a result of the actions of the other party, in which case that party shall be liable to reimburse the value of the penalties and interest.

Section 5.08 Further Assurances. Following the Closing, each of the parties hereto shall, and shall cause their respective Affiliates to, execute and deliver such additional documents, instruments, conveyances, and assurances and take such further actions as may be reasonably required to carry out the provisions hereof and give effect to the transactions contemplated by this Agreement and the other Transaction Documents.

Section 5.09 Termination of application of Certain Surviving Existing Agreements to the Purchased Assets and A&P Project Enzymes . Effective as of the Closing:

(a) Articles 2, 3, 8, 9, 12, 13, 14, and 15 and Sections 10.1 and 10.3 of the Development Agreement, which have survived termination as per the terms of the Development Agreement, shall no longer apply to the A&P Project Enzymes, the Purchased Patents, the Resultant Patents, or the Purchased Know-How; and

(b) Articles 2, 6, 7, 8, 11, 16, and 17 and Sections 5.7, 9.5, 10.1, 12.1, 14.1, and 15.1 of the Strategic Collaboration Agreement, which have survived termination as per the terms of the Strategic Collaboration Agreement, shall no longer apply to the A&P Project Enzymes, the Purchased Patents, the Resultant Patents, and the Purchased Know-How.

If there is any conflict or inconsistency between the provisions of the surviving Articles and Sections of an Existing Agreement and the provisions of any Transaction Document, then the provisions of the Transaction Documents shall prevail. For clarity, the A&P Project Enzymes, the Purchased Patents, the Resultant Patents, and the Purchased Know-How, and Buyer's corresponding interest in the A&P Project Enzymes and such Purchased Patents, Resultant Patents, and Purchased Know-How under the Existing Agreements, shall cease to constitute Joint Patents or Jointly Owned Inventions under any Existing Agreement and cease to be subject to the terms of the Existing Agreements (including the provisions thereof surviving the termination thereof) and, as between the parties, the Prosecution, defense, and enforcement of the Purchased Patents, Resultant Patents, the Purchased Know-How, and Acquired Regulatory Documentation will be controlled solely by the terms of this Agreement and not the surviving Articles and Sections of any Existing Agreement. For clarity, all right, title, and interest in the Purchased Patents, including the right to sue for past infringement, shall belong solely to Buyer as of the Closing Date.

Section 5.10 License to Know-How. Effective as of the Closing Date and subject to the terms of this Section 5.10, Seller (on behalf of itself and its Affiliates) hereby grants to Buyer, and Buyer accepts, a non-exclusive, perpetual, irrevocable, royalty-free, worldwide, non-transferable (except as set forth below), sublicensable (solely as set forth below) license under the Licensed Know-How to Manufacture, Develop, Commercialize, and otherwise Exploit the A&P Project Enzymes anywhere in the world, [***]. Buyer shall have no rights or license to any enhancements, improvements, or other modifications to the Licensed Know-How made by or on behalf of Seller or any of its Affiliates after the Closing Date. All use of the Licensed Know-How by or under authority of Buyer (or its successors and assigns) from and after the Closing Date shall be on an "AS IS, WHERE IS" basis, with all faults and all express and implied representations and warranties disclaimed, and at its sole risk. All rights not expressly granted by Seller and its Affiliates hereunder are reserved by Seller and its Affiliates. The license to the Licensed Know-How granted under this Section 5.10 shall be sublicensable (including through multiple tiers of sublicensees) only to (i) Affiliates (but only for so long as they remain Affiliates of Buyer), Licensees, and service providers of Buyer and (ii) any Third Party that acquires one or more of the Purchased Patents or Resultants Patents and such Third Party's Affiliates (but only for so long as they remain Affiliates of such Third Party) and service providers, in each case, for use solely within the scope of the above license, and shall be assignable and transferable only to successors in interest to all or substantially all of the assets of Buyer relating to the Products. Buyer is liable for any acts or omissions of its Licensees, Affiliates, employees, contractors, representatives, and (direct and indirect) sublicensees that would, if an act or omission of Buyer, be a breach of this Section 5.10. The rights and licenses granted in this Section 5.10 are subject to, and limited by, any and all licenses, rights, limitations, and restrictions with respect to the Licensed Know-How previously granted to or otherwise obtained by any Third Party that are in effect as of the Closing Date. Nothing contained herein will be construed as an obligation to disclose or deliver any technical information or embodiment of any Licensed Know-How or to provide any technical assistance or other services or deliverables to Buyer or its Affiliates.

Section 5.11 [***]. [***].

ARTICLE VI
INDEMNIFICATION

Section 6.01 Survival Subject to the limitations and other provisions of this Agreement, the representations and warranties contained herein shall survive the Closing and shall remain in full force and effect until the date that is [***] from the Closing Date. None of the covenants or other agreements contained in this Agreement shall survive the expiration or other termination of the Term other than those which by their terms contemplate performance after termination (including Section 5.01 (Confidential Information)), and each such surviving covenant and agreement shall survive termination for the period contemplated by its terms. Notwithstanding the foregoing, any claims asserted in good faith with reasonable specificity (to the extent known at such time) and in writing by notice from the non-breaching party to the breaching party prior to the expiration date of the applicable survival period shall not thereafter be barred by the expiration of such survival period and such claims shall survive until finally resolved.

Section 6.02 Indemnification by Seller. Subject to the other terms and conditions of this ARTICLE VI, from and after the Closing, Seller shall indemnify Buyer, its Affiliates, and each of their successors and assigns (collectively, the "**Buyer Indemnified Parties**") against, and shall hold the Buyer Indemnified Parties harmless from and against, any and all losses, damages, liabilities, deficiencies, Actions, judgments, interest, awards, penalties, fines, costs, or expenses of whatever kind, including reasonable out-of-pocket expenses of investigation and reasonable attorneys' fees and expenses in connection with any action, [***] (collectively, "**Losses**"), incurred or sustained by, or imposed upon, any Buyer Indemnified Party based upon, arising out of, with respect to, or by reason of:

(a) [***];

(b) [***]; or

(c) any Excluded Liability.

Section 6.03 Indemnification by Buyer. Subject to the other terms and conditions of this ARTICLE VI, from and after the Closing, Buyer shall indemnify Seller, its Affiliates, and each of their successors and assigns (collectively, the "**Seller Indemnified Parties**") against, and shall hold the Seller Indemnified Parties harmless from and against, any and all Losses incurred or sustained by, or imposed upon, any Seller Indemnified Party based upon, arising out of, with respect to, or by reason of:

(a) [***];

(b) [***]; or

(c) [***], any Assumed Liability or Buyer's, its Affiliates', and its Licensees' conduct of the Business after the Closing.

Section 6.04 Certain Limitations. The party making a claim under this ARTICLE VI is referred to as the "**Indemnified Party**," and the party against whom such claims are asserted under this ARTICLE VI is referred to as the "**Indemnifying Party**." The indemnification provided for in Section 6.02 and Section 6.03 shall be subject to the following limitations:

(a) The Indemnifying Party shall not be liable to the Indemnified Party for indemnification under Section 6.02(a) or Section 6.03(a), as the case may be, until the aggregate amount of all Losses in respect of indemnification under Section 6.02(a) or Section 6.03(a) exceeds $[***] (the "**Deductible**"), in which event the Indemnifying Party shall only be required to pay or be liable for Losses in excess of the Deductible.

(b) The aggregate amount of all Losses for which a Seller shall be liable pursuant to Section 6.02(a) shall not exceed [***] of the Purchase Price (the "**Cap**").

(c) In no event shall any Indemnifying Party be liable to any Indemnified Party for any punitive, incidental, consequential, special, or indirect damages, or for any damages based on loss of future revenue or income, loss of business reputation or opportunity relating to the breach or alleged breach of this Agreement, or diminution of value or any damages based on any type of multiple, [***].

(d) [***].

(e) Seller shall not be liable under this ARTICLE VI for any Losses based upon or arising out of any inaccuracy in or breach of any of the representations or warranties of Seller contained in this Agreement if Buyer [***] knowledge of such inaccuracy or breach prior to the Closing.

For purposes of calculating the Deductible or the Cap with respect to any Losses, the Deductible or Cap, as applicable, will be calculated as of the date on which such Loss is payable by the Indemnifying Party to the Indemnified Party and the Purchase Price for purposes of such calculation will be equal to the aggregate of the Initial Purchase Price and the Milestone Payment paid or payable by Buyer to Seller during the period from the Closing Date until (and including) the date on which such Loss is payable; [***].

Section 6.05 Indemnification Procedures. Whenever any claim shall arise for indemnification hereunder, the Indemnified Party shall promptly provide written notice of such claim to the Indemnifying Party. Such notice by the Indemnified Party shall: (a) describe the claim in reasonable detail; (b) include copies of all material written evidence thereof; and (c) indicate the estimated amount, if reasonably practicable, of the Loss that has been or may be sustained by the Indemnified Party. In connection with any claim giving rise to indemnity hereunder resulting from or arising out of any Action by a Person who is not a party to this Agreement, the Indemnifying Party, at its sole cost and expense and upon written notice to the Indemnified Party, may assume the defense of any such Action with counsel reasonably satisfactory to the Indemnified Party. The Indemnified Party shall be entitled to participate in the defense of any such Action, with its counsel and at its own cost and expense, subject to the Indemnifying Party's right to control the defense thereof. If the Indemnifying Party does not assume the defense of any such Action, the Indemnified Party may, but shall not be obligated to, defend against such Action in such manner as it may deem appropriate, including settling such Action, after giving notice of it to the Indemnifying Party, on such terms as the Indemnified Party may deem appropriate and no action taken by the Indemnified Party in accordance with such defense and settlement shall relieve the Indemnifying Party of its indemnification obligations herein provided with respect to any damages resulting therefrom. The Indemnifying Party shall not be entitled to assume or maintain control of the defense of any such Action if (i) [***], (ii) such Action seeks an injunction or equitable relief against the Indemnified Party or any of its Affiliates, or (iii) [***]. Seller and Buyer shall cooperate with each other in all reasonable respects in connection with the defense of any claim, including: (i) making available

(subject to the provisions of Section 5.01) records relating to such claim; and (ii) furnishing, without expense (other than reimbursement of actual out-of-pocket expenses) to the defending party, management employees of the non-defending party as may be reasonably necessary for the preparation of the defense of such claim. The Indemnifying Party shall not settle any Action without the Indemnified Party's prior written consent (which consent shall not be unreasonably withheld, conditioned, or delayed).

Section 6.06 Tax Treatment of Indemnification Payments. All indemnification payments made under this Agreement shall be treated by the parties as an adjustment to the Purchase Price for Tax purposes, unless otherwise required by Law.

Section 6.07 Exclusive Remedies. Subject to ARTICLE VII, the parties acknowledge and agree that from and after the Closing their sole and exclusive remedy with respect to any and all claims (other than claims arising from intentional fraud on the part of a party hereto or its representatives in connection with the transactions contemplated by this Agreement) for any breach of any representation, warranty, covenant, agreement, or obligation set forth herein or otherwise relating to the subject matter of this Agreement shall be pursuant to the indemnification provisions set forth in this ARTICLE VI. In furtherance of the foregoing, each party hereby waives, from and after the Closing, to the fullest extent permitted under Law, any and all rights, claims, and causes of action for any breach of any representation, warranty, covenant, agreement, or obligation set forth herein or otherwise relating to the subject matter of this Agreement it may have against the other parties hereto and their Affiliates and each of their respective Representatives arising under or based upon any Law, except pursuant to the indemnification provisions set forth in this ARTICLE VI. Nothing in this Section 6.07 shall limit any Person's right to seek and obtain any equitable relief to which such Person shall be entitled or to seek any remedy on account of any intentional fraud by any party hereto or its representatives.

Section 6.08 Right to Set-Off.

(a) Buyer is expressly authorized, but shall not be obligated, to set-off any Losses that the Parties have agreed in writing, or which have been finally determined in accordance with ARTICLE VIII, to be subject to indemnification by Seller hereunder (subject to the limitations set forth in Section 6.04) against the Milestone Payment or any other payments payable to Seller pursuant to this Agreement.

(b) Neither the exercise nor the failure or delay to exercise such right to withhold or set off pursuant to this Section 6.08 will constitute an election of remedies or limit the rights and remedies of the Buyer Indemnified Parties hereunder (other than to the extent any Losses have been set off pursuant to Section 6.08(a)).

ARTICLE VII
TERM AND TERMINATION

Section 7.01 Term. This Agreement commences upon the Effective Date and will continue until the later of:

(a) [***] of the Effective Date; and

(b) [***] of the date the Milestone Payment is made to Seller (the period from the Effective Date until the expiration or other termination of this Agreement, the "**Term**").

ARTICLE VIII
DISPUTE RESOLUTION

Section 8.01 Elevation of Issues for Resolution. In the event the parties or their Representatives are unable to agree upon any dispute or disagreement between the parties arising from or in connection with this Agreement, the construction hereof, or the rights, duties or liabilities of either party hereunder (each a "**Dispute**"), the parties shall endeavor to resolve such Dispute in accordance with the terms of this Section 8.01. Upon the receipt of a written notice from one party to the other party of a Dispute (the "**Notice of Dispute**"), authorized Representatives of the parties, each with authority to settle the Dispute, shall endeavor to discuss their respective positions and use their good faith efforts to resolve the Dispute. In connection with such discussion, the parties may agree to confer with one or more mutually acceptable independent Third Party experts having expertise in the relevant subject matter and both parties shall consider in good faith the views of such Third Party(ies). If for any reason a written agreement signed by both parties is not reached within [***] after the Notice of Dispute, the parties shall promptly refer the Dispute to the Senior Executives (or their respective designees) for resolution, which Senior Executives will have authority to settle the Dispute and shall be charged with resolving such Dispute. If such Dispute is not resolved by the parties' Senior Executives within [***] after the date the Dispute is referred to them, then the Dispute shall be submitted to binding arbitration in accordance with Section 8.02.

Section 8.02 Arbitration. Any Dispute that is not resolved by an executed written agreement of the parties in accordance with Section 8.01, as well as any related claims or other disputes arising out of or in connection with this Agreement including any question regarding its existence, validity, or termination, whether for breach of contract, tortious conduct, or otherwise and whether predicated on common law, statute, or otherwise (collectively, the "**Related Claims**"), shall be referred to and finally resolved by arbitration under the [***] rules (the "**Rules**") in effect at the Effective Date except, as they may be modified herein or by mutual agreement of the parties, which Rules are deemed to be incorporated by reference into this Section 9.02. The number of arbitrators shall be three, unless otherwise mutually agreed by the parties, whereby, claimant and the respondent shall each nominate an arbitrator, and the third arbitrator, who shall be the president of the arbitral tribunal, shall be appointed by the two party-appointed arbitrators in consultation with the parties, in each case, in accordance with the Rules. Each arbitrator shall be experienced in the subject matter herein and the application of [***] law. The seat or legal place of arbitration shall be [***]. The language to be used in the arbitral proceedings shall be English.

(a) Within [***] after the appointment of the arbitrators pursuant to this Section 8.02, the arbitrators and the parties shall meet, and each party shall provide to the arbitrators a written summary of: (i) all issues within the scope of the Dispute and any Related Claims; and (ii) such party's position on each such issue. The arbitrators shall set a date for a hearing, which shall be no later than [***] after the appointment of the final arbitrator pursuant to this Section 8.02, for the presentation of evidence and legal arguments concerning each of the issues identified by the parties; provided, however, that the parties may jointly agree in writing to extend the foregoing deadlines, or [***].

(b) The arbitrators shall use each of their best efforts to rule on each disputed issue within [***] after the completion of the hearing described in Section 8.02(a); provided, however, that the parties may jointly agree in writing to extend the foregoing deadlines, or [***]. No arbitrator (nor any arbitral tribunal) shall have the power to: (i) award any punitive damages or other damages prohibited by Section 6.04; or (ii) to decide or rule on any issue or other matter

that is not clearly with the scope of the Dispute and any Related Claims. The costs of the arbitration shall be [***] during the course of such arbitration, as assessed by [***], and shall be borne as determined by the arbitrators.

(c) The arbitration proceedings, including the existence of the arbitration proceedings, the facts and circumstances surrounding the underlying dispute, all submissions, correspondence, and evidence relating to the arbitration proceedings, and any awards issued by the arbitrator shall be kept confidential by the parties, and the parties shall work with the arbitrators to take such steps as are reasonably necessary to preserve the confidentiality thereof, except to the extent otherwise required by applicable Law.

(d) Subject to Section 8.02(b), the arbitrators shall have the power to grant any remedy or relief that they deem just and equitable, including but not limited to injunctive relief, whether interim or final, and any provisional measures ordered by the arbitrator may be enforced by any court of competent jurisdiction. Notwithstanding the foregoing, nothing in this Agreement shall prevent either party from seeking any provisional/preliminary relief (including injunctions, attachments, or other such orders in aid of arbitration) from any court of competent jurisdiction, and any such application to a court for provisional/preliminary relief shall not be deemed incompatible with the terms of this Agreement to arbitrate or a waiver of the right to arbitrate.

(e) Any award rendered by the arbitrators shall be final and binding on the parties, and each party hereto waives to the fullest extent permitted by law any right it may otherwise have under the laws of any jurisdiction to any form of appeal of, or collateral attack against, such award. Judgment upon any awards rendered by the arbitrators may be entered in any court having jurisdiction thereof, including any court having jurisdiction over any of the parties or their assets.

(f) Notwithstanding anything in this ARTICLE VIII to the contrary, any dispute to determine the validity or infringement of a party's intellectual property rights by the other party (but excluding, in any event, disputes relating to earnouts or other amounts payable hereunder, whether or not involving questions of infringement or validity) shall be submitted exclusively to the courts in the jurisdiction of the relevant intellectual property right, and the parties hereby consent to the jurisdiction of such courts.

ARTICLE IX
MISCELLANEOUS

Section 9.01 Definitions. The terms in this Agreement with initial letters capitalized, whether used in the singular or the plural, shall have the respective meanings either set forth in **Exhibit A** attached hereto or in another part of this Agreement and as cross referenced in **Exhibit A**.

Section 9.02 Construction.

(a) The headings of each Article and Section in this Agreement have been inserted for convenience of reference only and are not intended to limit or expand on the meaning of the language contained in the particular Article or Section.

(b) Except where the context otherwise requires, wherever used, the singular shall include the plural, the plural the singular, the use of any gender shall be applicable to all genders and the word "or" is used in the inclusive sense (and/or).

(c) The term "including," "include," or "includes" as used herein shall mean including, without limiting the generality of any description preceding such term.

(d) Unless the context requires otherwise, (i) any definition of or reference to any agreement, instrument, or other document herein will be construed as referring to such agreement, instrument, or other document as from time to time amended, supplemented, or otherwise modified (subject to any restrictions on such amendments, supplements, or modifications set forth herein or therein), (ii) any reference to any applicable Laws herein will be construed as referring to such Laws as from time to time enacted, repealed, or amended, (iii) any reference herein to any person will be construed to include the person's successors and permitted assigns, (iv) the words "herein", "hereof," and "hereunder", and words of similar import, will be construed to refer to this Agreement in its entirety and not to any particular provision hereof, (v) any reference herein to the words "mutually agree" or "mutual written agreement" will not impose any obligation on either party to agree to any terms relating thereto except as such party may determine in such party's sole discretion, (vi) all references herein to Sections or Exhibits will be construed to refer to Sections and Exhibits to this Agreement, (vii) the word "days" means calendar days unless otherwise specified, (viii) except as otherwise expressly provided herein all references to "$" or "dollars" refer to the lawful money of the U.S., and (ix) the words "copy" and "copies" and words of similar import when used in this Agreement include, to the extent available, electronic copies, files or databases containing the information, files, items, documents, or materials to which such words apply.

(e) Each party represents that it has been represented by legal counsel in connection with this Agreement and acknowledges that it has participated in the drafting hereof In interpreting and applying the terms and provisions of this Agreement, the parties agree that no presumption will apply against the party which drafted such terms and provisions. The language in this Agreement is to be construed in all cases according to its fair meaning.

(f) Any documents will be deemed to have been made available to, and received by, Buyer if such documents were made available to Buyer [***] prior to the execution and delivery of this Agreement by Seller.

Section 9.03 Expenses. Except as otherwise expressly provided herein (including Section 5.07 hereof), all costs and expenses incurred in connection with this Agreement and the transactions contemplated hereby shall be paid by the party incurring such costs and expenses.

Section 9.04 Severability. If and to the extent that any provision (or any part thereof) of this Agreement is held to be invalid, illegal, or unenforceable, in any respect in any jurisdiction, the provision (or the relevant part thereof) shall be considered severed from this Agreement and shall not serve to invalidate the remainder of such provision or any other provisions hereof The parties shall make a good faith effort to replace any invalid, illegal, or unenforceable provision (or any part thereof) with a valid, legal, and enforceable provision such that the objectives contemplated by the parties when entering this Agreement may be realized.

Section 9.05 Notices. Any notice required or permitted to be given by the parties pursuant to this Agreement shall be in writing and shall be (i) delivered by hand, (ii) delivered by overnight courier with tracking capabilities, (iii) mailed postage prepaid by first class, registered, or certified mail, or (iv) transmitted by electronic mail, with confirmation copy by mail as provided in clause (iii) above, and in each case addressed to the recipient party as set forth below, unless changed by notice so given:

If to Buyer:

[●]
c/o Société des Produits Nestlé S.A.
55 Avenue Nestlé
1800 Vevey
Switzerland
Email: [***]
[***]
Attention: [***]
[***]

with a copy to (which shall not constitute notice):

Mayer Brown LLP
1221 Avenue of the Americas
New York, NY 10020
Email: [***]
[***]
Attention: [***]
[***]

If to Codexis:

Codexis, Inc.
200 Penobscot Drive
Redwood City, CA 94063
Attention: President

with a copy to (which shall not constitute notice):

Codexis, Inc.
200 Penobscot Drive
Redwood City, CA 94063
Email: [***]
Attention: General Counsel

And

Baker Hostetler LLP
312 Walnut Street, Suite 3200
Cincinnati, OH 45202-4074
Email: [***]
[***]
Attention: [***]
[***]

(A) with respect to any notice delivered pursuant to clauses (i), (ii) or (iii), such notice shall not be effective unless it was (1) first delivered via e-mail and no response was given within [***] and (2) a

subsequent notice via e-mail was sent indicating the delivery via method described in clause (i), (ii), or (iii), as applicable; (B) with respect to any notice delivered pursuant to clauses (i), such notice shall be deemed effective upon submission to such other party, (C) with respect to any notice delivered pursuant to clause (ii), such notice shall be deemed effective [***] following the date of submission to the carrier, (D) with respect to any notice delivered pursuant to clause (iii), such notice shall be deemed effective [***] after the date deposited with the applicable carrier, and with respect to any notice delivered pursuant to clause (iv), (x) upon submission to such other party if sent during normal business hours of the recipient, and (y) on [***] if sent after normal business hours of the recipient (in the case of (x) or (y), subject to confirmation of receipt by recipient by reply email). A party may add, delete, or change the person or address to whom notices should be sent at any time upon written notice delivered to the other party in accordance with this Section 9.05.

Section 9.06 Assignment. Neither this Agreement nor any of the rights or obligations hereunder may be assigned or transferred by either party without the prior written consent of the other party, such consent not to be unreasonably withheld, delayed or conditioned; provided, however, that either party may, without the other party's consent, but with written notice to the other party, assign or transfer all of its rights and obligations hereunder to any Affiliate, or to a Third Party with whom it completes a Business Combination or to whom it sells substantially all of such party's assets relating to this Agreement. [***]. This Agreement shall inure to the benefit of and be binding on the parties' successors and assigns. Any assignment or transfer in violation of the foregoing shall be null and void and wholly invalid, the assignee or transferee in any such assignment or transfer shall acquire no rights whatsoever, and the non-assigning, non-transferring party shall not recognize, nor shall it be required to recognize, such assignment or transfer.

Section 9.07 Waivers, Modifications, and Amendments . No waiver, modification, release, or amendment of any obligation under, or provision of, this Agreement shall be valid or effective unless in writing and signed by all parties hereto. The failure of any party to insist on the performance of any obligation hereunder shall not be deemed to be a waiver of such obligation. Waiver of any provision hereunder or of any breach of any provision hereof shall not be deemed to be a continuing waiver or a waiver of any other breach of such provision (or any other provision) on such occasion or any succeeding occasion. Any amendment of this Agreement shall not be binding on the parties unless set out in writing, expressed to amend this Agreement and signed by authorized representatives of each of the parties.

Section 9.08 Choice of Law. This Agreement (and any claims or disputes arising out of or relating hereto or to the transaction contemplated hereby or to the inducement of any party to enter herein or therein, whether for breach of contract, tortious conduct, or otherwise and whether predicated on common law, statute, or otherwise) shall be governed by, enforced, and shall be construed in accordance with the laws of [***], without regard to its conflicts of law provisions. The parties hereby disclaim the application of the United Nations Convention on the International Sale of Goods to this Agreement.

Section 9.09 Injunctive Relief. Notwithstanding anything herein to the contrary, each party shall be entitled to seek injunctive relief and specific performance (including any relief or recovery under this Agreement) in any court of competent jurisdiction in the world.

Section 9.10 Relationship of the Parties. Each party is an independent contractor under this Agreement. Nothing herein is intended or is to be construed so as to constitute Buyer and Seller as partners, agents, or joint venturers. Neither party shall have any express or implied right or authority to assume or create any obligations on behalf of or in the name of the other party or to bind the other party to

any contract, agreement, or undertaking with any Third Party. There are no express or implied third party beneficiaries hereunder.

Section 9.11 Entire Agreement . The parties agree that this Agreement and the attached Exhibits and Disclosure Schedules, together with the Existing Agreements, constitute the entire agreement between the parties as to the subject matter of this Agreement, and hereby supersede all prior negotiations, representations, agreements, and understandings (whether written or oral) regarding the same. Subject to Section 5.09 and the terms of the Lipase Acquisition Agreement, the provisions in the Existing Agreements pursuant to which each party has agreed not to Develop or Commercialize the Project Enzymes, including the use of any Jointly Owned Invention in connection therewith, remain in full force and effect except as set forth herein with respect to the A&P Project Enzymes. Further, the parties agree that this Agreement does not supersede or amend the Lipase Acquisition Agreement, which remains in effect and solely governs the subject matter thereof.

Section 9.12 Cooperation. The parties shall (i) provide assistance to each party as reasonably requested in preparing and filing Tax Returns with respect to the Purchased Assets; (ii) make available to each other as reasonably requested all information, records, and documents relating to Taxes concerning the Purchased Assets; (iii) retain any books and records that could reasonably be expected to be necessary or useful in connection with any preparation by any the other party of any Tax Return, or for any audit relating to Taxes with respect to the Purchased Assets; and (iv) cooperate fully, as and to the extent reasonably requested by the other party, in connection with any audits, assessments or administrative or judicial proceedings or other Actions with respect to Taxes relating to the Purchased Assets.

Section 9.13 Counterparts. This Agreement may be executed in counterparts (including using any electronic signature covered by the United States ESIGN Act of 2000, Uniform Electronic Transactions Act, the Electronic Signatures and Records Act or other applicable Law, e.g., www.docusign.com), each of which shall be deemed an original, but all of which together shall be deemed to be one and the same agreement. A signed copy of this Agreement delivered by email or other means of electronic transmission shall be deemed to have the same legal effect as delivery of an original signed copy of this Agreement. To the extent applicable, the foregoing constitutes the election of the parties to invoke any Law authorizing electronic signatures. Minor variations in the form of the signature page, including footers from earlier versions of this Agreement, shall be disregarded in determining a party's intent or the effectiveness of such signature. No party shall raise the use the delivery of signatures to this Agreement in electronic format as a defense to the formation of a contract and each such party forever waives any such defense.

Section 9.14 Non-Recourse. This Agreement may only be enforced against, and any Action based upon, arising out of or related to this Agreement, or the negotiation, execution, or performance of this Agreement, may only be brought against the entities that are expressly named as parties hereto and then only with respect to the specific obligations set forth herein with respect to such party. No past, present, or future director, officer, employee, incorporator, manager, member, partner, stockholder, Affiliate, agent, attorney, or other Representative of any party hereto or of any Affiliate of any party hereto, or any of their successors or permitted assigns, shall have any liability for any obligations or liabilities of any party hereto under this Agreement or for any Action based on, in respect of, or by reason of the transactions contemplated hereby.

* * * * * * * * *

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the Effective Date written above by their respective officers thereunto duly authorized.

Codexis, Inc.

By:
Name:
Its:

Société des Produits Nestlé S.A.

By:
Name:
Its:

EXHIBIT A
DEFINITIONS AND CROSS-REFERENCE TABLE

Certain Definitions. The following terms have the following meanings:

"**Affiliate**" of a Person means an entity that (directly or indirectly) is controlled by, controls, or is under common control with such Person where control means the direct or indirect ownership of voting securities entitled to cast at least fifty percent (50%) of the votes in the election of directors, or such other relationship as results in the power to control the management, business, assets, and affairs of an entity.

"**BLA**" means (a) in the United States, a Biologics License Application, as defined in the United States Public Health Service Act (42 U.S.C. § 262), and applicable regulations promulgated thereunder by the FDA, or any equivalent application that replaces such application, (b) in the EU, a marketing authorization application, as defined in applicable regulations of the EMA, and (c) in any other country, the relevant equivalent to the foregoing.

"**Books and Records**" means all files (including all electronic data files and hard copies), documents, correspondence, lists, drawings and specifications, creative materials, marketing plans, studies (including market research and market data), reports, and other printed or written materials (in whatever form or medium).

"**Business**" means, following the Closing Date, the Development, Manufacture, Commercialization and other Exploitation of Products by Buyer, its Affiliates, and its Licensees.

"**Business Combination**" means, with respect to a party, any of the following events: (a) any Third Party (or group of Third Parties acting in concert) acquires, directly or indirectly, shares of such party representing at least a majority of the voting power (where voting refers to being entitled to vote for the election of directors) then outstanding of such party; (b) such party consolidates with or merges into another corporation or entity which is a Third Party, or any corporation or entity which is a Third Party consolidates with or merges into such party, in either event pursuant to a transaction in which at least a majority of the voting power of the acquiring or resulting entity outstanding immediately after such consolidation or merger is not held by the holders of the outstanding voting power of such party immediately preceding such consolidation or merger; or (c) such party conveys or transfers title to all or substantially all of its assets to a Third Party.

"**Business Day**" means a day other than Saturday, Sunday, or any day on which commercial banks located in [***] are authorized or obligated by applicable Law to close.

"**Clinical Trial**" means a clinical trial in human subjects of a Product.

"**Commercialization**" means any and all activities relating specifically to the preparation for sale of, offering for sale of, or sale of a product or service, including activities related to launching, marketing, promoting, distributing, detailing, importing, pricing, reimbursement, and advertising such product, and interacting with Regulatory Authorities regarding any of the foregoing. When used as a verb, "**Commercialize**" and "**Commercializing**" means to engage in Commercialization, and "**Commercialized**" has a correlative meaning.

"**Confidential Information**" means any and all technical, business, or other information or data of a party or its Affiliates provided orally, visually, in writing, graphically, electronically, or in another form by or on behalf of such party or its Affiliates to the other party or its Affiliates in connection with this

Agreement The parties acknowledge that the terms of this Agreement shall be treated as Confidential Information of [***] and that the Licensed Know-How shall be treated as the Confidential Information of Seller.

"**Contracts**" means all contracts, leases, licenses, instruments, notes, commitments, undertakings, indentures, joint ventures and all other agreements, commitments and legally binding arrangements, whether written or oral.

"**Controlled**" or "**Control**", when used in reference to any intellectual property, intellectual property right, material, know-how or information, with respect to a party, means that such party (a) owns or has a license (other than a license granted under this Agreement) to such intellectual property and (b) has the legal authority or right to: (i) grant, or procure the grant of, a license or sublicense, to the extent provided for herein, of the intellectual property, intellectual property right, material, know-how or information to the other party; or (ii) in relation to material, know-how and information only, disclose or provide access to, to the extent provided for herein, such material, know-how or information to the other Party, and in each case, without (x) breaching the terms of any then-existing agreement or other legally enforceable arrangement with a Third Party, or (y) misappropriating the material, know-how, intellectual property, intellectual property rights, or information of a Third Party.

"**Development**" means non-clinical and clinical drug development activities reasonably related to the development and submission of information to a Regulatory Authority or otherwise to the testing and validation of a therapeutic agent, including toxicology, pharmacology and pre-clinical efforts, test method development, stability testing, manufacturing process, formulation development, delivery system development, quality assurance and quality control development, statistical analysis, and clinical trials (including pre- and post-approval studies), whether for purposes of label expansion or otherwise. Development shall include post-approval Development activities. When used as a verb, "**Develop**" means to engage in Development.

"**Disclosure Schedules**" means the disclosure schedules in respect of this Agreement delivered by Seller to Buyer concurrently with the execution by Buyer of this Agreement and as modified in accordance with Section 9.03 of the Lipase Acquisition Agreement.

"**EMA**" means the European Medicines Agency, or any successor agency thereto.

"**European Union**" or "**EU**" means, at any given time, the then-current member states of the European Union; *provided* that each of the United Kingdom and Switzerland will also be considered included with the European Union, regardless of each's actual membership in the EU.

"**Exploit**" means to make, have made, import, use, sell or offer for sale a product or item. "**Exploitation**" has a correlative meaning.

"**FDA**" means the U.S. Food and Drug Administration, or any successor agency thereto.

"**First Commercial Sale**" means, with respect to a particular country or jurisdiction, the first commercial sale, transfer, or other disposition by Buyer, any of its Affiliates, or any Licensee for consumption by an end user of a Product following the receipt of the first Regulatory Approval for such Product in such country or jurisdiction, [***].

[***].

"**GAAP**" means United States generally accepted accounting principles, consistently applied.

"**Governmental Authority**" means any multi-national, federal, state, local, municipal, provincial, or other governmental authority of any nature (including any governmental division, prefecture, subdivision, department, agency, bureau, branch, office, commission, council, court, or other tribunal).

"**Governmental Order**" means any order, writ, judgment, injunction, decree, stipulation, determination, or award entered by or with any Governmental Authority.

"**IFRS**" means the current International Financial Reporting Standards, as published by the International Accounting Standards Board.

"**Jointly Owned Inventions**" means (a) "Jointly Owned Inventions" as defined in the Strategic Collaboration Agreement and (b) "Jointly Owned Inventions" as defined in the Development Agreement.

"**Know-How**" means all non-public data and technical information, including techniques, methods, processes, technology, recipes, formulae, designs, equipment configurations and uses, Manufacturing data, preclinical and clinical data and study designs, specifications, ingredients, Manufacturing processes, formulations, sourcing information, quality control and testing procedures, and related trade secrets, but expressly excluding all Patents.

"**Knowledge of Seller**" or "**Seller's Knowledge**" or any other similar knowledge qualification, means the actual knowledge of those individuals identified on Section A of the Disclosure Schedules, [***].

"**Laws**" means all laws, statutes, rules, regulations, ordinances, and other pronouncements having the effect of law of any federal, national, multinational, state, provincial, county, city, or other political subdivision.

"**Liabilities**" means liabilities, obligations, or commitments of any nature whatsoever, whether asserted or unasserted, known or unknown, absolute or contingent, accrued or unaccrued, matured or unmatured, or otherwise.

"**Lipase Product**" means a "Product" as defined in the Lipase Acquisition Agreement.

"**Licensed Know-How**" means all Know-How owned by Seller or its Affiliates as of the Closing Date that is [***] for the Manufacture of the A&P Project Enzymes as conducted as of the Closing Date or is [***] provided to Regulatory Authorities in order to obtain Regulatory Approval for any product containing any A&P Project Enzymes anywhere in the world; provided that in no event shall Licensed Know-How include: (a) any Purchased Assets; (b) any Know-How or other intellectual property licensed pursuant to the Expression System License Agreement; or (c) Seller's or its Affiliates' CodeEvolver® platform technology.

"**Licensee**" means a Third Party that has been granted a license or right to Develop, Manufacture, Commercialize, or otherwise Exploit any Product by or through Buyer or Buyer's Affiliate, either directly or via a sublicense (through one or more tiers). As used in this Agreement, "**Licensee**" shall not include a wholesaler, distributor, or reseller of any Product, to the extent that Buyer or its Affiliate sells to such Person such Product and receives only supply price payments and has not granted such wholesaler, distributor, or reseller any license under any Purchased Patent or Resultant Patent.

"**Manufacture**" and "**Manufacturing**" means all activities related to the production, manufacture, processing, formulation, filling, finishing, packaging, labeling, shipping, handling, and storage of a product or any intermediate thereof, including process development, process qualification and validation, scale-up, pre-clinical, clinical and commercial manufacture and analytic development, product characterization, stability testing, quality assurance, and quality control.

"**Material Adverse Effect**" means any event, occurrence, fact, condition, or change that is materially adverse to the Development and Manufacture of the Products, taken as a whole.

"**Patent(s)**" means (a) any and all patents and patent applications, including all national, regional and international patents and patent applications, provisional patent applications; (b) all patent applications filed either (i) from such patents, patent applications, or provisional applications mentioned in subsection (a) above, or (ii) from an application claiming priority from any of them, including divisionals, continuations, continuations-in-part, provisionals, converted provisionals and requests for continued examinations; and (c) any and all extensions or restorations by existing or future extension or restoration mechanisms, including revalidations, reissues, reexaminations and extensions (including any supplementary protection certificates and the like) of the foregoing patents and/or patent applications in subsections (a) and (b).

"**Person**" means an individual, sole proprietorship, partnership, limited partnership, limited liability partnership, corporation, limited liability company, business trust, joint stock company, trust, unincorporated association, foundation, joint venture, or other similar entity, organization, or combination thereof, including a government or political subdivision, department, or agency.

"**Phase III Clinical Trial**" means a pivotal Clinical Trial with a defined dose or a set of defined doses of a therapeutic product designed to ascertain efficacy and safety of such therapeutic product, in a manner that is generally consistent with 21 C.F.R. § 312.21(c), as amended (or its successor regulation), for the purpose of enabling the preparation and submission of a BLA or a foreign equivalent thereof

"**Product(s)**" means (a) the A&P Project Enzymes [***] and (b) [***].

"**Project Enzyme**" has the meaning set forth in the in the SCA.

"**Prosecution**" means the filing, preparation, prosecution (including any interferences, reissue proceedings, reexaminations, and oppositions), *inter partes* review, post-grant review, and maintenance of the Purchased Patents and Resultant Patents. When used as a verb, " **Prosecute**" and "**Prosecuting**" means to engage in Prosecution.

"**Regulatory Approval**" means, with respect to a therapeutic product in any country or regulatory jurisdiction, any and all approvals from the applicable Regulatory Authority sufficient for the import, distribution, marketing, use, offering for sale, and sale of sch therapeutic product in such country or jurisdiction in accordance with applicable Laws.

"**Regulatory Authority**" means any national or supranational Governmental Authority (including the FDA and EMA) which has regulatory responsibility and authority in one or more countries for review and approval of development and commercialization of therapeutic products.

"**Regulatory Documentation**" has the meaning set forth in the Development Agreement

"**Representative**" means, with respect to any Person, any and all directors, officers, employees, consultants, financial advisors, counsel, accountants, and other agents of such Person and of the Affiliates of such Person.

"**Resultant Patent(s)**" mean any Patent [***].

"**Sell-On Transaction**" means any of the following:

(a) the sale or transfer of one or more of the Purchased Patents or Resultant Patents to any Third Party;

(b) the exclusive or co-exclusive (with Buyer and its Affiliates) licensing of one or more of the Purchased Patents or Resultant Patents to any Third Party;

(c) the sale, transfer, or exclusive or co-exclusive (with Buyer and its Affiliates) licensing of one or more of the Purchased Patents or Resultant Patents to any Affiliate of Buyer, in connection with or followed by any of the following: (i) the direct or indirect acquisition by any Third Party (or group of Third Parties acting in concert) of shares of such Affiliate representing at least a majority of the voting power (where voting refers to being entitled to vote for the election of directors) then outstanding of such Affiliate; or (ii) the merger or consolidation of such Affiliate with or into any Third Party, or the merger or consolidation of any Third Party with or into such Affiliate, in either event pursuant to a transaction in which at least a majority of the voting power of the acquiring or resulting entity outstanding immediately after such consolidation or merger is not held by the holders of the outstanding voting power of such Affiliate immediately preceding such consolidation or merger; or

(d) any other similar transaction which has the effect of allowing any Third Party to Develop, Manufacture, or Commercialize any Product other than doing so solely on behalf and for the benefit of Buyer or its Affiliates or Licensees,

but in no event shall a Business Combination of Buyer be considered a Sell-On Transaction.

"**Senior Executives**" means [***].

"**Taxes**" means all federal, state, local, foreign, and other income, gross receipts, sales, use, production, ad valorem, transfer, documentary, franchise, registration, profits, license, withholding, payroll, employment, unemployment, excise, severance, stamp, occupation, premium, property (real or personal), customs, import and export, goods and services, value added, escheat, unclaimed property, duties, or other taxes, fees, assessments, or charges of any kind whatsoever, together with any interest, additions, or penalties with respect thereto.

"**Tax Return**" means any return, declaration, report, claim for refund, or other document relating to Taxes, including any schedule or attachment thereto, and amendment thereof, required to be supplied to a Governmental Authority in connection with any Taxes.

"**Technology**" means: (a) all of Seller's interest in the Purchased Patents; and (b) any Resultant Patents.

"**Third Party**" means any Person other than Seller, Buyer, and their respective Affiliates.

"**United States**" or "**U.S.**" means the United States of America, including its territories, possessions, and protectorates.

"**VAT**" means (a) in relation to any jurisdiction within the European Union, the Tax imposed by the EC Council Directive on the common system of value added tax (2006/112/EC) and any successor or equivalent legislation and any national legislation implementing that directive together with legislation supplemental thereto and the equivalent Tax (if any) in that jurisdiction; and (b) in any other jurisdiction, any other value added, goods and services, consumption or similar Tax chargeable on the supply or deemed supply of goods or services under applicable legislation or regulation.

Cross-Reference Table. The following terms have the meanings set forth in the location in this Agreement referenced below:

Term	Section
A&P Project Enzymes	Recitals
Acquired Books and Records	Section 1.01(f)
Acquired Regulatory Documentations	Section 1.01(d)
Actions	Section 3.06(a)
Agreement	Preamble
Allocation Schedule	Section 1.07
Annual Report	Section 1.06
Assigned Contracts	Section 1.01(b)
Assignment and Assumption Agreement	Section 2.02(a)(i)
Assumed Liabilities	Section 1.03(a)
Bill of Sale	Section 2.02(a)(i)
[***]	Recitals
Buyer	Preamble
Buyer Indemnified Parties	Section 6.02
Cap	Section 6.04(b)
[***]	Recitals
Closing	Section 2.01
Closing Date	Section 2.01
Code	Section 1.07
Codexis	Preamble
Deductible	Section 6.04(a)
Development Agreement	Recitals
Disclosing Party	Section 5.01(a)
Dispute	Section 8.01
Effective Date	Preamble
Excluded Assets	Section 1.02
Excluded Liabilities	Section 1.03(b)
Existing Agreements	Recitals
Expression System License Agreement	Section 2.02(a)(iv)
Indemnified Party	Section 6.04
Indemnifying Party	Section 6.04
Initial Purchase Price	Section 1.04
Inventory	Section 1.01(c)
[***]	Section 8.02
Losses	Section 6.02
Lipase Acquisition Agreement	Recitals
Milestone	Section 1.05
Milestone Payment	Section 1.05
NHSc	Preamble

Notice of Dispute	Section 8.01
Patent Assignment	Section 2.02(a)(iii)
[***]	Section 5.11
Purchased Assets	Section 1.01
Purchased Know-How	Section 1.01(d)
Purchased Patents	Section 1.01(a)
Purchase Price	Section 1.04
Receiving Party	Section 5.01(a)
Related Claims	Section 8.02
Restricted Business	Section 5.03(a)
Restricted Period	Section 5.03(a)
Rules	Section 8.02
Seller	Preamble
Seller Indemnified Parties	Section 6.03
Strategic Collaboration Agreement or SCA	Recitals
Term	Section 7.01
Transaction Documents	Section 2.02(a)(iii)

These Disclosure Schedules (these "**Schedules**") have been prepared in connection with the Amylase and Protease Acquisition Agreement (the "**Agreement**"), dated as of [●], entered into between CODEXIS, INC., a corporation incorporated and existing under the laws of the State of Delaware ("**Seller**"), and Société des Produits Nestlé S.A., a société anonyme organized and existing under the laws of Switzerland (" **Buyer**"). The parties hereto are referred to herein as the "**Parties**", and each a "**Party**". Capitalized terms used in these Schedules but not defined herein have the respective meanings ascribed to such terms in the Agreement.

[***].

Any appendix or schedule attached to these Schedules shall be deemed to be incorporated by reference into these Schedules. The information contained in these Schedules is as of the date of the Agreement.

These Disclosure Schedules (these "**Schedules**") have been prepared in connection with the Acquisition Agreement (the " **Agreement**"), dated as of December 26, 2023, entered into between CODEXIS, INC., a corporation incorporated and existing under the laws of the State of Delaware ("**Seller**"), and Société des Produits Nestlé S.A., a société anonyme organized and existing under the laws of Switzerland ("**Buyer**"). The parties hereto are referred to herein as the "**Parties**", and each a "**Party**". Capitalized terms used in these Schedules but not defined herein have the respective meanings ascribed to such terms in the Agreement.

[***].

Any appendix or schedule attached to these Schedules shall be deemed to be incorporated by reference into these Schedules. The information contained in these Schedules is as of the date of the Agreement.

[***]

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LOAN AND SECURITY AGREEMENT

dated as of February 13, 2024

by and among

INNOVATUS LIFE SCIENCES LENDING FUND I, LP,
as Collateral Agent,

CODEXIS, INC.,
as Borrower

and

THE LENDERS LISTED ON SCHEDULE 1.1 HEREOF
OR OTHERWISE A PARTY HERETO FROM TIME TO TIME

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SCHEDULES, EXHIBITS AND ANNEXES

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LOAN AND SECURITY AGREEMENT

THIS LOAN AND SECURITY AGREEMENT (as the same may be amended, restated, modified, or supplemented from time to time, this "**Agreement**"), dated as of February 13, 2024 (the "**Effective Date**"), among INNOVATUS LIFE SCIENCES LENDING FUND I, LP, a Delaware limited partnership, as collateral agent (in such capacity, together with its successors and assigns in such capacity, "**Collateral Agent**"), and the Lenders listed on Schedule 1.1 hereof or otherwise a party hereto from time to time including INNOVATUS LIFE SCIENCES LENDING FUND I, LP in its capacity as a Lender, and CODEXIS, INC., a Delaware corporation (" **Borrower**"), provides the terms on which the Lenders shall lend to Borrower and Borrower shall repay the Lenders. The parties agree as follows:

1. DEFINITIONS, ACCOUNTING AND OTHER TERMS

1.1 Certain Defined Terms. Capitalized terms used herein shall have the meanings set forth inSection 13 to the extent defined therein.

1.2 Terms Generally. The definitions of terms herein shall apply equally to the singular and plural forms of the terms defined. Whenever the context may require, any pronoun shall include the corresponding masculine, feminine and neuter forms. The words "include," "includes" and "including" shall be deemed to be followed by the phrase "without limitation." The word "will" shall be construed to have the same meaning and effect as the word "shall." Unless the context requires otherwise (a) any definition of or reference to any agreement, instrument or other document herein shall be construed as referring to such agreement, instrument or other document as from time to time amended, supplemented or otherwise modified (subject to any restrictions on such amendments, supplements or modifications set forth herein), (b) any reference herein to any Person shall be construed to include such Person's successors and assigns, (c) the words "herein," "hereof" and "hereunder," and words of similar import, shall be construed to refer to this Agreement in its entirety and not to any particular provision hereof, (d) all references herein to Articles, Sections, Exhibits and Schedules shall be construed to refer to Articles and Sections of, and Exhibits and Schedules to, this Agreement, (e) any matter to be determined by a Lender or Collateral Agent may be determined in their sole discretion, unless another standard is expressly stated, and (f) any reference to any law or regulation herein shall, unless otherwise specified, refer to such law or regulation as amended, modified or supplemented from time to time.

2. LOANS AND TERMS OF PAYMENT

2.1. Promise to Pay. Borrower hereby unconditionally promises to pay each Lender the outstanding principal amount of the Term Loan advanced to Borrower by such Lender and accrued and unpaid interest thereon and any other amounts due to a Lender or to Collateral Agent hereunder as and when due in accordance with this Agreement.

2.2 Term Loans.

(a) Availability.

(i) Subject to the terms and conditions of this Agreement, the Lenders agree, severally and not jointly, to make a term loan to Borrower on the Effective Date in an aggregate principal amount of Thirty Million Dollars ($30,000,000.00) according to each Lender's Term Loan Commitment as set forth on Schedule 1.1 hereto (the "**Term A Loan**"). After repayment, the Term A Loan may not be reborrowed.

(ii) Subject to the terms and conditions of this Agreement, the Lenders agree, severally and not jointly, to make a term loan to Borrower during the Term B Draw Period in an aggregate principal amount of Ten Million Dollars ($10,000,000.00) according to each Lender's Term Loan Commitment as set forth on Schedule 1.1 hereto (the "**Term B Loan**", and together with the Term A Loan, each individually, and collectively, " **Term Loan**"). After repayment, the Term B Loan may not be reborrowed.

(b) Repayment. Borrower shall make monthly payments of interest only commencing on the second (2nd) Payment Date following the Funding Date of any Term Loan, and continuing on the Payment Date of each successive month thereafter through and including the Payment Date immediately preceding the Amortization Date. Borrower agrees to pay, on the Funding Date of any Term Loan, any initial partial monthly interest payment otherwise due for the period between the Funding Date of such Term Loan and the first Payment Date after such Funding Date. Commencing on the Amortization Date, and continuing on the Payment Date of each month

thereafter, Borrower shall make consecutive equal monthly payments of principal, together with interest in arrears, to each Lender, as calculated by Collateral Agent (which calculations shall be deemed correct absent manifest error) based upon: (1) the amount of such Lender's Term Loan, (2) the effective rate of interest, as determined in Section 2.3(a), and (3) a principal repayment schedule equal to (i) in the case of the I/O Extension Event not occurring, twenty four (24) months, or (ii) in the case of the I/O Extension Event occurring, twelve (12) months. During the amortization period, Collateral Agent shall recalculate the payment amount to give effect to each change of the Basic Rate as it occurs. All unpaid principal and accrued and unpaid interest with respect to the Term Loan and the Final Fee are due and payable in full on the Maturity Date. The Term Loan may only be prepaid in accordance with Sections 2.2(c) and 2.2(d).

(c) Mandatory Prepayments. If an event described in Section 7.2(d)(ii) occurs or the Term Loan is accelerated following the occurrence of an Event of Default, Borrower shall immediately pay to Collateral Agent and to each Lender, as applicable, and in accordance with its respective Pro Rata Shares to each Lender, an amount equal to the sum of: (i) all outstanding principal of the Term Loan plus accrued and unpaid interest thereon through the prepayment date, (ii) the Final Fee, (iii) the Prepayment Fee, plus (iv) all other Obligations that are due and payable, including, without limitation, Lenders' Expenses and interest thereon at the Default Rate with respect to any past due amounts.

(d) Permitted Prepayment of Term Loan. After the date that is the first anniversary of the Effective Date, Borrower shall have the option to prepay all, but not less than all, of the Term Loan advanced by the Lenders under this Agreement, provided Borrower (i) provides written notice to Collateral Agent of its election to prepay the Term Loan at least five (5) Business Days prior to such prepayment, and (ii) pays to the Lenders on the date of such prepayment, payable to each Lender in accordance with its respective Pro Rata Share, an amount equal to the sum of (A) all outstanding principal of the Term Loan plus accrued and unpaid interest thereon through the prepayment date, (B) the Final Fee, (C) the Prepayment Fee, plus (D) all other Obligations that are due and payable, including, without limitation, Lenders' Expenses and interest on such other Obligations at the Default Rate, if applicable.

2.3 Payment of Interest on the Term Loan.

(a) Interest Rate. Subject to Section 2.3(b), the principal amount outstanding under the Term Loan shall accrue interest at a floating per annum rate equal to the Basic Rate, as determined by Collateral Agent on the Funding Date and as the Prime Rate changes thereafter, which interest shall be payable monthly in arrears in accordance with Sections 2.2(b) and 2.3(e); provided that at the election of Borrower (which shall be considered elected on the Funding Date of the applicable Term Loan) with no less than five (5) Business Days' irrevocable written notice to Collateral Agent prior to the Effective Date, 2.00% of the Basic Rate may be payable in-kind by adding an amount equal to such 2.00% of the outstanding principal amount to the then outstanding principal balance on each Payment Date until the Payment Date next following the Amortization Date so as to increase the outstanding principal balance of the Term Loan on each Payment Date and which amount shall be payable when the principal amount of the applicable Term Loan is payable in accordance with Sections 2.2(b) and 2.3(e) and on which principal amount interest shall be owed pursuant to Section 2.3(a). This increase in the principal amount of the Term Loans shall not require any action by Borrower, the Lenders, or Collateral Agent; provided, however, that Borrower shall execute such additional documents as Collateral Agent may reasonably require to evidence the increased principal balance of the Term Loans.

Interest shall accrue on the Term Loan commencing on, and including, the Funding Date of the Term Loan, and shall accrue on the principal amount outstanding under the Term Loan through and including the day on which the Term Loan is paid in full.

(b) Default Rate. Immediately upon the occurrence and during the continuance of an Event of Default, Obligations shall accrue interest at a floating per annum rate equal to the rate that is otherwise applicable thereto plus five percentage points (5.00%) (the "**Default Rate**"). Payment or acceptance of the increased interest rate provided in this Section 2.3(b) is not a permitted alternative to timely payment and shall not constitute a waiver of any Event of Default or otherwise prejudice or limit any other rights or remedies of Collateral Agent.

(c) 365 Day Year. Interest shall be computed on the basis of a three hundred sixty-five (365) day year and the actual number of days elapsed, including the first day and the last day.

(d) Debit of Accounts. Collateral Agent and each Lender may debit (or ACH) any deposit accounts designated by Borrower or any of its Subsidiaries (or, if the funds in such account are insufficient, in any other account maintained by Borrower) for principal and interest payments or any other amounts Borrower owes the

Lenders under the Loan Documents when due; provided, that Collateral Agent shall use commercially reasonable efforts to promptly notify Borrower of any debit of any amounts other than principal and interest payments when due in accordance with this Agreement. Any such debits (or ACH activity) shall not constitute a set off.

(e) Payments. Except as otherwise expressly provided herein, all payments by Borrower under the Loan Documents shall be made to the respective Lender to which such payments are owed, at such Lender's office in immediately available funds on the date specified herein. Unless otherwise provided, interest is payable monthly on the Payment Date of each month. Payments of principal and/or interest received after 12:00 noon Eastern time are considered received at the opening of business on the next Business Day. When a payment is due on a day that is not a Business Day, the payment is due the next Business Day and additional fees or interest, as applicable, shall continue to accrue until paid. All payments to be made by Borrower hereunder or under any other Loan Document, including payments of principal and interest, and all fees, expenses, indemnities and reimbursements, shall be made without set off, recoupment or counterclaim, in lawful money of the United States and in immediately available funds.

(f) Changes in Prime Rate. In the event the Prime Rate is changed from time to time hereafter and because of any such change the Basic Rate changes, the Basic Rate shall be increased or decreased, effective as of the day of such change in the Prime Rate.

2.4 Fees. Borrower shall pay to Collateral Agent:

(a) Facility Fee. The Facility Fee, which shall be due on the Funding Date of each Term Loan (including on the Effective Date) with respect to such Term Loan, to be shared among the Lenders in accordance with their respective Pro Rata Shares;

(b) Final Fee. The Final Fee, when due hereunder, to be shared among the Lenders in accordance with their respective Pro Rata Shares;

(c) Prepayment Fee. The Prepayment Fee, when due hereunder, to be shared among the Lenders in accordance with their respective Pro Rata Shares; and

(d) Lenders' Expenses. All Lenders' Expenses (including reasonable and documented out-of-pocket attorneys' fees and expenses for due diligence, investigation, documentation and negotiation of this Agreement) incurred through and after the Effective Date, when due and payable.

The Final Fee and the Prepayment Fee shall be fully earned as of the Effective Date. The parties hereto acknowledge and agree that, in light of the impracticality and extreme difficulty of ascertaining actual damages, the Prepayment Fee and the Final Fee are intended to be a reasonable calculation of the actual damages that would be suffered by the holders of the Obligations as a result of any prepayment, repayment or other payment. The parties hereto further acknowledge and agree that Collateral Agent and the Lenders would not have entered into this Agreement without the Borrower's agreement to pay the Prepayment Fee and the Final Fee as and when required hereunder. The parties hereto further acknowledge and agree that the Prepayment Fee and the Final Fee are not intended to act as a penalty or to punish the Borrower for any prepayment, repayment or other payment hereunder.

2.5 Withholding. Payments received by Collateral Agent or the Lenders from Borrower hereunder will be made free and clear of and without deduction for any and all present or future taxes, levies, imposts, duties, deductions, withholdings, assessments, fees or other charges imposed by any governmental authority (including any interest, additions to tax or penalties applicable thereto). Specifically, however, if at any time any Governmental Authority, applicable law, regulation or international agreement requires Borrower to make any withholding or deduction from any such payment or other sum payable hereunder to the Lenders, Borrower hereby covenants and agrees that the amount due from Borrower with respect to such payment or other sum payable hereunder will be increased to the extent necessary to ensure that, after the making of such required withholding or deduction, each Lender receives a net sum equal to the sum which it would have received had no withholding or deduction been required and Borrower shall pay the full amount withheld or deducted to the relevant Governmental Authority. Borrower will, upon request, furnish the Lenders with proof reasonably satisfactory to the Lenders indicating that Borrower has made such withholding payment; provided, however, that Borrower need not make any withholding payment if the amount or validity of such withholding payment is contested in good faith by appropriate and timely proceedings and as to which payment in full is bonded or reserved against by Borrower. The agreements and obligations of Borrower contained in this Section 2.5 shall survive the termination of this Agreement.

2.6 Secured Promissory Notes. The Term Loan shall be evidenced by a Secured Promissory Note or Notes in the form attached as Exhibit D hereto (each a "**Secured Promissory Note**"), and shall be repayable as set forth in this Agreement. Borrower irrevocably authorizes each Lender to make or cause to be made, on or about the Funding Date of any Term Loan and at the time of receipt of any payment of principal on such Lender's Secured Promissory Note, an appropriate notation on such Lender's Secured Promissory Note Record reflecting the making of such Term Loan or (as the case may be) the receipt of such payment. The outstanding amount of each Term Loan set forth on such Lender's Secured Promissory Note Record shall be *prima facie* evidence of the principal amount thereof owing and unpaid to such Lender, but the failure to record, or any error in so recording, any such amount on such Lender's Secured Promissory Note Record shall not limit or otherwise affect the obligations of Borrower under any Secured Promissory Note or any other Loan Document to make payments of principal of or interest on any Secured Promissory Note when due. Promptly after Borrower's receipt of an affidavit of an officer of a Lender as to the loss, theft, destruction, or mutilation of its Secured Promissory Note, Borrower shall issue, in lieu thereof, and without bond, a replacement Secured Promissory Note in the same principal amount thereof and of like tenor.

3. CONDITIONS OF LOANS

3.1 Conditions Precedent to Initial Term Loan. Each Lender's obligation to make the Term Loan is subject to the condition precedent that Collateral Agent and each Lender shall consent to or shall have received, in form and substance satisfactory to Collateral Agent and each Lender, such documents, and completion of such other matters, as Collateral Agent and each Lender may reasonably deem necessary or appropriate, including, without limitation:

(a) copies of the Loan Documents, each duly executed by Borrower and each Subsidiary that is a Loan Party, as applicable;

(b) a completed Perfection Certificate for Borrower and each of its Subsidiaries;

(c) [reserved];

(d) the Operating Documents and good standing certificates of Borrower and each of its Subsidiaries that is a Loan Party certified by the Secretary of State (or equivalent agency) of Borrower's and such Subsidiaries' jurisdiction of organization or formation and each jurisdiction in which Borrower and each Subsidiary is qualified to conduct business, each as of a date no earlier than thirty (30) days prior to the Effective Date;

(e) a copy of resolutions of the governing body for Borrower and each of its Subsidiaries that is a party to any of the Loan Documents evidencing approval of the Term Loan and other transactions evidenced by the Loan Documents;

(f) duly executed original officer's certificates for Borrower and each Subsidiary that is a party to the Loan Documents certifying as to (i) the incumbency of each Responsible Officer executing each Loan Document and (ii) the documents delivered pursuant to Section 3.1(d) and 3.1(e), in a form acceptable to Collateral Agent and the Lenders;

(g) certified copies, dated as of date no earlier than thirty (30) days prior to the Effective Date, of financing statement searches, as Collateral Agent shall request, accompanied by written evidence (including any UCC termination statements) that the Liens indicated in any such financing statements either constitute Permitted Liens or have been or, in connection with the initial Term Loan, will be terminated or released;

(h) a duly executed legal opinion of counsel to Borrower dated as of the Effective Date;

(i) evidence satisfactory to Collateral Agent and the Lenders that the insurance policies required by Section 6.5 hereof are in full force and effect;

(j) a copy of any applicable Investors Rights Agreement and any amendments thereto; and

(k) [reserved]; and

(l) payment of the Facility Fee and Lenders' Expenses then due as specified in Section 2.4 hereof.

3.2 Conditions Precedent to all Term Loans. The obligation of each Lender to extend each Term Loan, including the initial Term Loan, is subject to the following conditions precedent:

(a) receipt by Collateral Agent of (i) an executed Loan Payment Request Form in the form of Exhibit B-1 attached hereto and (ii) an executed Disbursement Letter in the form of Exhibit B-2 attached hereto;

(b) the representations and warranties in Section 5 hereof shall be true, accurate and complete in all material respects on the date of each Loan Payment Request Form and the date of each Disbursement Letter and the Funding Date of each Term Loan; provided, however, that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof; and provided, further that those representations and warranties expressly referring to a specific date shall be true, accurate and complete in all material respects as of such date, and no Event of Default shall have occurred and be continuing or result from the funding of such Term Loan;

(c) as determined by such Lender in such Lender's sole discretion, there has not been any Material Adverse Change;

(d) no Default or Event of Default shall exist or would result from the making of such Term Loan;

(e) to the extent not delivered at the Effective Date, duly executed original Secured Promissory Notes and Warrants, in number, form and content acceptable to each Lender, and in favor of each Lender according to its Commitment Percentage, with respect to each Credit Extension made by such Lender after the Effective Date;

(f) if such Term Loan is the Term B Loan, the Term B Milestone must have been satisfied, as measured on the last day of the month immediately preceding the Funding Date of the Term B Loan; and

(g) payment of the fees and Lenders' Expenses then due as specified in Section 2.5 hereof.

3.3 Covenant to Deliver. Borrower agrees to deliver to Collateral Agent and the Lenders each item required to be delivered to Collateral Agent under this Agreement as a condition precedent to any Term Loan. Borrower expressly agrees that the Term Loan made prior to the receipt by Collateral Agent or any Lender of any such item shall not constitute a waiver by Collateral Agent or any Lender of Borrower's obligation to deliver such item, and any such Term Loan in the absence of a required item shall be made in each Lender's sole discretion.

3.4 Procedures for Borrowing. Subject to the prior satisfaction of all other applicable conditions to the making of the Term Loan set forth in this Agreement, to obtain the Term Loan (other than the Term Loan funded on the Effective Date), Borrower shall notify the Lenders (which notice shall be irrevocable) by electronic mail, facsimile, or telephone by 12:00 noon New York City time seven (7) Business Days (or such shorter period as agreed by the Lenders) prior to the date the Term Loan is to be made. Together with any such electronic, facsimile or telephonic notification, Borrower shall deliver to Collateral Agent by electronic mail or facsimile a completed Disbursement Letter and Loan Payment Request Form executed by a Responsible Officer or his or her designee. Collateral Agent may rely on any telephone notice given by a person whom Collateral Agent reasonably believes is a Responsible Officer or designee.

4. CREATION OF SECURITY INTEREST

4.1 Grant of Security Interest. Borrower hereby grants Collateral Agent, for the ratable benefit of the Lenders, to secure the payment and performance in full of all of the Obligations, a continuing security interest in, and pledges and assigns as collateral to Collateral Agent, for the ratable benefit of the Lenders, the Collateral, wherever located, whether now owned or hereafter acquired or arising, and all proceeds and products thereof. If Borrower shall acquire a commercial tort claim (as defined in the Code) with a potential value in excess of Two Hundred Fifty Thousand Dollars ($250,000), Borrower shall grant to Collateral Agent, for the ratable benefit of the Lenders, a security interest therein and in the proceeds thereof, all upon the terms of this Agreement, with such writing to be in form and substance reasonably satisfactory to Collateral Agent.

Upon payment in full in cash of the Obligations (other than inchoate indemnity obligations) and at such time as the Lenders' obligation to extend the Term Loan has terminated, Collateral Agent shall, at the sole cost and expense of Borrower, release its Liens in the Collateral.

4.2 Authorization to File Financing Statements. Borrower hereby authorizes Collateral Agent (i) to file financing statements naming Borrower as debtor and indicating as collateral "all assets" or like language and/or such other more specific indications as Collateral Agent may deem appropriate and (ii) to make such other filings in the USPTO or other public offices and to take such other action appropriate to establish, perfect, or further protect Collateral Agent's security interests in the Collateral, without notice to Borrower. Such financing statements may (i) describe the Collateral as "all personal property of debtor, whether now owned or hereby acquired" or "all assets of debtor, whether now owned or hereby acquired" or words of similar effect, (ii) describe the Collateral as being of equal or lesser scope or with greater detail, or (iii) contain any information required by part 5 of Article 9 of the Code for the sufficiency or filing office acceptance of such financing statements or amendments, as the case may be. The Borrower also hereby ratifies any and all financing statements or amendments previously filed by Collateral Agent in any jurisdiction of the Borrower described in Section 3(b) of the Perfection Certificate.

4.3 Pledge of Shares Collateral. If at any time Borrower owns any Shares, Borrower acknowledges that by this Agreement it has, pledged, assigned and granted, and Borrower does hereby pledge, assign and grant, to Collateral Agent, for the ratable benefit of the Lenders, a security interest in all the Shares, together with all proceeds and substitutions thereof, all cash, stock and other moneys and property paid thereon, all rights to subscribe for securities declared or granted in connection therewith, and all other cash and noncash proceeds of the foregoing, as security for the performance of the Obligations. On the Effective Date, or, to the extent not certificated as of the Effective Date, within ten (10) days of the certification of any Shares, the certificate or certificates for the Shares will be delivered to Collateral Agent, accompanied by an instrument of assignment duly executed in blank by Borrower. To the extent required by the terms and conditions governing the Shares, Borrower shall cause the books of each entity whose Shares are part of the Collateral and any transfer agent to reflect the pledge of the Shares and require each Issuer of uncertificated Shares to enter into an agreement granting Collateral Agent Control over the pledged Shares. Borrower will execute and deliver such documents, and take or cause to be taken such actions, as Collateral Agent may reasonably request to perfect or continue the perfection of Collateral Agent's security interest in the Shares. Unless an Event of Default shall have occurred and be continuing, Borrower shall be entitled to exercise any voting rights with respect to the Shares and to give consents, waivers and ratifications in respect thereof, provided that no vote shall be cast or consent, waiver or ratification given or action taken which would be inconsistent with any of the terms of this Agreement or which would constitute or create any violation of any of such terms. All such rights to vote and give consents, waivers and ratifications shall terminate upon the occurrence and continuance of an Event of Default.

5. REPRESENTATIONS AND WARRANTIES

Borrower represents and warrants to Collateral Agent and the Lenders as follows:

5.1 Due Organization, Authorization: Power and Authority. Borrower and each of its Subsidiaries is duly existing and in good standing as a Registered Organization in its jurisdictions of organization or formation and Borrower and each of its Subsidiaries is qualified and licensed to do business and is in good standing in any jurisdiction in which the conduct of its businesses or its ownership of property requires that it be qualified except where the failure to do so could not reasonably be expected to result in a Material Adverse Effect. In connection with this Agreement, Borrower and each of its Subsidiaries has delivered to Collateral Agent a completed perfection certificate and any updates or supplements thereto on or before the Effective Date (each a "**Perfection Certificate**" and collectively, the "**Perfection Certificates**"). Borrower represents and warrants that all the information set forth on the Perfection Certificates pertaining to Borrower and each of its Subsidiaries is accurate and complete in all material respects as of the date delivered or supplemented (to the extent permitted hereunder).

The execution, delivery and performance by Borrower and each of its Subsidiaries of the Loan Documents to which it is a party have been duly authorized, and do not (i) conflict with any of Borrower's or such Subsidiaries' organizational documents, including its respective Operating Documents, (ii) contravene, conflict with, constitute a default under or violate any material Requirement of Law applicable thereto, (iii) contravene, conflict or violate any applicable order, writ, judgment, injunction, decree, determination or award of any Governmental Authority by which Borrower or such Subsidiary, or any of their property or assets may be bound or affected, (iv) require any action by, filing, registration, or qualification with, or Governmental Approval from, any Governmental Authority (except such Governmental Approvals which have already been obtained and are in full force and effect) or are being obtained pursuant to Section 6.1(b), or (v) constitute an event of default under or cause any Lien to arise under or otherwise cause a change under any material agreement by which Borrower or any of such Subsidiaries, or their respective properties, is bound. Neither Borrower nor any of its Subsidiaries is in default under any agreement to which it is a party or by which it or any of its assets is bound in which such default could reasonably be expected to result in a Material Adverse Effect.

5.2 Collateral.

(a) Borrower and each other Loan Party has good title to, have rights in, and the power to transfer each item of the Collateral upon which it purports to grant a Lien under the Loan Documents, free and clear of any and all Liens except Permitted Liens, and neither Borrower nor any other Loan Party has any Deposit Accounts, Securities Accounts, Commodity Accounts or other investment accounts other than the Collateral Accounts or the other investment accounts, if any, described in the Perfection Certificates delivered to Collateral Agent in connection herewith or otherwise with respect of which Borrower or such Subsidiary has given Collateral Agent timely notice pursuant to Section 6.6(a) and to the extent required under this Agreement, taken such actions as are necessary to give Collateral Agent a perfected security interest therein. The Accounts are bona fide, existing obligations of the Account Debtors.

(b) The security interest granted herein is and shall at all times continue to be a first priority perfected security interest in the Collateral, subject only to Permitted Liens that are permitted by the terms of this Agreement or Requirement of Law to have priority to Collateral Agent's Lien.

(c) On the Effective Date, except as disclosed on the Perfection Certificate (i) the Collateral is not in the possession of any third party bailee, and (ii) no third party bailee possesses components of the Collateral in excess of Five Hundred Thousand Dollars ($500,000.00).

(d) All Inventory and Equipment of Borrower and its Subsidiaries is in all material respects of good and marketable quality, free from material defects, ordinary wear and tear excepted.

(e) Borrower and each of its Subsidiaries is the sole owner of the Intellectual Property each respectively purports to own, free and clear of all Liens other than Permitted Liens. Except as noted on the Perfection Certificates or disclosed in the next Compliance Certificate delivered after entry of such Material Agreement, neither Borrower nor any of its Subsidiaries is a party to, or is bound by, any Material Agreement, provided, that the representation made in this sentence on the Effective Date shall be limited to Material Agreements for which Borrower or any of its Subsidiaries receives revenue or other payments.

5.3 Litigation. Except as disclosed on the Perfection Certificate or otherwise pursuant to Section 6.2(b)(v), there are no actions, suits, arbitrations, investigations, or other proceedings pending or, to the Knowledge of the Responsible Officers, threatened in writing by or against Borrower or any of its Subsidiaries involving more than Two Hundred Fifty Thousand Dollars ($250,000.00) or a claim for infringement of any intellectual property or seeking equitable or extraordinary relief. Except as disclosed on the Perfection Certificate or otherwise pursuant to Section 6.2(b)(v), there are no actions, suits, arbitrations, investigations or proceedings pending or, to the Knowledge of the Responsible Officers, threatened in writing by or against Borrower or any Subsidiaries involving challenges to the validity of the Intellectual Property except as would not reasonably be expected to have a Material Adverse Effect.

5.4 No Material Adverse Change; Financial Statements. All consolidated financial statements for Borrower and its Subsidiaries, delivered to Collateral Agent fairly present, in conformity with GAAP, in all material respects the consolidated financial condition of Borrower and its Subsidiaries, and the consolidated results of operations of Borrower and its Subsidiaries. Since the date of the most recent financial statements submitted as required by this Agreement, there has not been a Material Adverse Change.

5.5 Solvency. Borrower and each of its Subsidiaries, when taken as a whole, are Solvent.

5.6 Regulatory Compliance. Neither Borrower nor any of its Subsidiaries is required to be registered as an "investment company" under the Investment Company Act of 1940, as amended. Neither Borrower nor any of its Subsidiaries is engaged as one of its important activities in extending credit for margin stock (under Regulations X, T and U of the Federal Reserve Board of Governors). Borrower and each of its Subsidiaries has complied in all material respects with the Federal Fair Labor Standards Act. Neither Borrower nor any of its Subsidiaries is a "holding company" or an "affiliate" of a "holding company" or a "subsidiary company" of a "holding company" as each term is defined and used in the Public Utility Holding Company Act of 2005. Neither Borrower nor any of its Subsidiaries has violated any laws, ordinances or rules, the violation of which could reasonably be expected to result in a Material Adverse Effect. Neither Borrower's nor any of its Subsidiaries' properties or assets has been used by Borrower or such Subsidiary or, to Borrower's Knowledge, by previous Persons, in disposing, producing, storing, treating, or transporting any hazardous substance other than in material compliance with applicable laws. Borrower and each of its Subsidiaries has obtained all consents, approvals and authorizations of, made all declarations or

filings with, and given all notices to, all Governmental Authorities that are necessary to continue their respective businesses as currently conducted.

None of Borrower, any of its Subsidiaries, or to such Person's knowledge, any of Borrower's or its Subsidiaries' Affiliates or any of their respective agents acting or benefiting in any capacity in connection with the transactions contemplated by this Agreement is (i) in violation of any Anti-Terrorism Law, (ii) engaging in or conspiring to engage in any transaction that evades or avoids, or has the purpose of evading or avoiding or attempts to violate, any of the prohibitions set forth in any Anti-Terrorism Law, or (iii) is a Blocked Person. None of Borrower, any of its Subsidiaries, or to the Knowledge of Borrower and any of their Affiliates or agents, acting or benefiting in any capacity in connection with the transactions contemplated by this Agreement, (x) conducts any business or engages in making or receiving any contribution of funds, goods or services to or for the benefit of any Blocked Person, or (y) deals in, or otherwise engages in any transaction relating to, any property or interest in property blocked pursuant to Executive Order No. 13224, any similar executive order or other Anti-Terrorism Law.

5.7 Investments. Neither Borrower nor any of its Subsidiaries owns any stock, shares, partnership interests or other equity securities except for Permitted Investments.

5.8 Tax Returns and Payments; Pension Contributions. Borrower and each of its Subsidiaries has timely filed all required tax returns and reports, and Borrower and each of its Subsidiaries, has timely paid all foreign, federal, state, and material local taxes, assessments, deposits and contributions owed by Borrower and such Subsidiaries in an amount greater than Fifty Thousand Dollars ($50,000.00), in all jurisdictions in which Borrower or any such Subsidiary is subject to taxes, including the United States, unless such taxes are being contested in accordance with the next sentence. Borrower and each of its Subsidiaries, may defer payment of any contested taxes, provided that Borrower or such Subsidiary in good faith contests its obligation to pay the taxes by appropriate proceedings promptly and diligently instituted and conducted and Borrower maintains adequate reserve therefor on Borrower's Books. Neither Borrower nor any of its Subsidiaries is aware of any claims or adjustments proposed for any of Borrower's or such Subsidiaries' prior tax years which could result in additional taxes becoming due and payable by Borrower or its Subsidiaries. Borrower and each of its Subsidiaries have paid all amounts necessary to fund all present pension, profit sharing and deferred compensation plans in accordance with their terms, and neither Borrower nor any of its Subsidiaries have, withdrawn from participation in, and have not permitted partial or complete termination of, or permitted the occurrence of any other event with respect to, any such plan which could reasonably be expected to result in any liability of Borrower or its Subsidiaries, including any liability to the Pension Benefit Guaranty Corporation or its successors or any other Governmental Authority.

5.9 Use of Proceeds. Borrower shall use the proceeds of the Term Loan solely as working capital and to fund its general business requirements in accordance with the provisions of this Agreement, and not for personal, family, household or agricultural purposes or for payment of dividends or other distributions to equity holders of Borrower or any holders of Subordinated Debt.

5.10 Full Disclosure. No written representation, warranty or other statement of Borrower or any of its Subsidiaries in any certificate or written statement given to Collateral Agent or any Lender, as of the date such representation, warranty, or other statement was made, taken together with all such written certificates and written statements given to Collateral Agent or any Lender, contains any untrue statement of a material fact or omits to state a material fact necessary to make the statements contained in the certificates or statements not misleading (it being recognized that the projections and forecasts provided by Borrower in good faith and based upon reasonable assumptions are not viewed as facts and that actual results during the period or periods covered by such projections and forecasts may differ from the projected or forecasted result; provided, however, on the Effective Date and on the date each Compliance Certificate or Disbursement Letter is delivered to any Lender, Borrower represents and warrants to the Lenders that Borrower: (i) has delivered to Collateral Agent Borrower's most recent projections or forecasts in accordance with the requirements set forth in Section 6.2(a)(iii), (ii) reaffirms the accuracy of the projections or forecasts delivered pursuant to sub-clause (i), and (iii) to the best of its Knowledge, no fact or facts exist which, taken together, are reasonably likely to cause Borrower's actual financial results to, within six (6) months, deviate materially and adversely from the projections or forecasts delivered pursuant to sub-clause (i)). Furthermore, on the Effective Date and on the date each Compliance Certificate or Disbursement Letter is delivered to any Lender, Borrower represents and warrants to the Lenders that Borrower, to the best of its Knowledge, is not aware of any fact or facts which, taken together, will cause Borrower to receive an opinion from its independent certified public accounting firm with a going concern qualification on Borrower's next annual financial statements (as required under Section 6.2(a)(ii)) without factoring in proceeds of any pending Term Loans.

5.11 Definition of "Knowledge." For purposes of the Loan Documents, whenever a representation or warranty is made to Borrower's knowledge or awareness, to the "best of" Borrower's knowledge, or with a similar

qualification, knowledge or awareness means the actual knowledge, after reasonable investigation, of the Responsible Officers.

5.12 Shares. If at any time Borrower owns any Shares, Borrower has full power and authority to create a first lien on the Shares and no disability or contractual obligation exists that would prohibit Borrower from pledging the Shares pursuant to this Agreement. To Borrower's Knowledge, there are no subscriptions, warrants, rights of first refusal or other restrictions on transfer relative to, or options exercisable with respect to the Shares. The Shares have been and will be duly authorized and validly issued, and are fully paid and non-assessable. To Borrower's Knowledge, the Shares are not the subject of any present or threatened suit, action, arbitration, administrative or other proceeding, and Borrower knows of no reasonable grounds for the institution of any such proceedings.

5.13 Subsidiaries. No Subsidiary of Borrower existing as of the Effective Date (i) owns any assets with a value in excess of $1,000, individually or in the aggregate, (ii) owns any Intellectual Property other than, with respect to Codexis Mayflower Holdings, LLC, non-active Intellectual Property, foreign-registered or filed Intellectual Property and United States Copyrights to be transferred to Borrower in accordance with Section 6.14(g), or (iii) conducts any operations or transactions other than those required for liquidation or dissolution of such Subsidiary.

6. AFFIRMATIVE COVENANTS

Borrower shall, and shall cause each of its Subsidiaries to, do all of the following:

6.1 Government Compliance.

(a) Maintain its and, subject to Section 7.2, all its Subsidiaries' legal existence and good standing in their respective jurisdictions of organization and maintain qualification in each jurisdiction in which the failure to so qualify could reasonably be expected to result in a Material Adverse Effect. Comply with all laws, ordinances and regulations to which Borrower or any of its Subsidiaries is subject, the noncompliance with which could reasonably be expected to result in a Material Adverse Effect.

(b) Obtain and keep in full force and effect, all of the material Governmental Approvals necessary for the performance by Borrower and its Subsidiaries of their respective businesses and obligations under the Loan Documents and the grant of a security interest to Collateral Agent for the ratable benefit of the Lenders, in all of the Collateral.

6.2 Financial Statements, Reports, Certificates; Notices.

(a) Deliver to Collateral Agent:

(i) as soon as available, but no later than forty-five (45) days after the last day of each fiscal quarter of Borrower, a company prepared consolidated and consolidating balance sheet, income statement and cash flow statement covering the consolidated operations of Borrower and its Subsidiaries for such month certified by a Responsible Officer and in a form reasonably acceptable to Collateral Agent;

(ii) as soon as available, but no later than the earlier of one hundred twenty (120) days after the last day of Borrower's fiscal year and within five (5) days of filing with the Securities and Exchange Commission, audited consolidated financial statements prepared under GAAP, consistently applied, together with a report on the financial statements (which report and accompanying financial statements shall (i) not be qualified as to going concern or contain an emphasis of matter paragraph or like statement as to "going concern" (an "**Unqualified Audit Opinion**"), and (ii) be unqualified as to scope of audit) without factoring in proceeds of any pending Term Loans from an independent certified public accounting firm acceptable to Collateral Agent in its reasonable discretion;

(iii) as soon as available after approval thereof by Borrower's board of directors, but no later than the earlier of ten (10) Business Days after such approval and sixty (60) days after the last day of Borrower's fiscal year, Borrower's annual (A) financial projections for the entire current fiscal year as approved by Borrower's board of directors, which such annual financial projections shall be set forth in a month-by-month format and include separately revenues and costs and include income statement, balance sheet and statement of cash flow (such annual financial projections as originally delivered to Collateral Agent and reasonably acceptable to

Collateral Agent are referred to herein as the "**Annual Projections**"; provided that, any revisions of the Annual Projections approved by Borrower's board of directors shall be delivered to Collateral Agent no later than seven (7) Business Days after such approval) and (B) budget for the entire current fiscal year (which shall be set forth in a month-by-month format and include separately all major categories of expenses and include income statement, balance sheet and statement of cash flow) as approved by Borrower's board of directors; provided that, any revisions to such budget approved by Borrower's board of directors shall be delivered to Collateral Agent no later than seven (7) Business Days after such approval;

(iv) within five (5) Business Days, copies of all non-ministerial materials provided to Borrower's board of directors in connection with each regularly scheduled quarterly meetings of the board of directors; provided, that Borrower shall not be required to deliver any information (i) that would jeopardize the attorney-client privilege between Borrower and its legal counsel, or (ii) that is highly confidential proprietary information of the Borrower;

(v) in the event that Borrower becomes subject to the reporting requirements under the Securities Exchange Act of 1934, as amended, within five (5) days of filing, all reports on Form 10-K, 10-Q and 8-K filed with the Securities and Exchange Commission;

(vi) notice concurrent with the Compliance Certificate required to be delivered pursuant to Section 6.1(b) of any material amendments of or other changes to the capitalization table of Borrower and any amendments to the Operating Documents of Borrower or any of its Subsidiaries, together with any copies reflecting such amendments with respect thereto;

(vii) as soon as available, but no later than forty-five (45) days after the last day of each fiscal quarter of Borrower, copies of the month end account statements for each Collateral Account maintained by Borrower or its Subsidiaries, which statements may be provided to Collateral Agent by Borrower or directly from the applicable institution(s); provided, however, screenshots of each Collateral Account maintained by Borrower shall be delivered to Collateral Agent promptly upon Collateral Agent or any Lender's written request during the continuation of any Event of Default;

(viii) prompt delivery of (and in any event within five (5) Business Days after the same are sent or received) copies of all material correspondence, reports, documents and other filings with any Governmental Authority that could reasonably be expected to have a material adverse effect on any of the Governmental Approvals material to Borrower's business or otherwise could reasonably be expected to result in a Material Adverse Effect;

(ix) prompt notice of any event that (A) could reasonably be expected to materially and adversely affect the Borrower's Intellectual Property or (B) has had or could reasonably be expected to have a Material Adverse Effect;

(x) written notice within twenty (20) Business Days of Borrower's creation of a New Subsidiary in accordance with the terms of Section 6.10;

(xi) written notice (x) at least ten (10) Business Days prior to Borrower's (A) adding any new offices or business locations, including warehouses (unless such new offices or business locations contain less than Five Hundred Thousand Dollars ($500,000.00) in assets or property of Borrower or any of its Subsidiaries), (B) changing its jurisdiction of organization, (C) changing its organizational structure or type, (D) changing its legal name, (E) changing any organizational number (if any) assigned by its jurisdiction of organization, or (F) registering or filing any Intellectual Property with the United States Copyright Office, and (y) concurrently with the delivery of the Compliance Certificates required to be delivered pursuant to Section 6.1(b)(i), of new applications or registrations of any Intellectual Property with the United States Patent and Trademark Officer;

(xii) upon Borrower becoming aware of the existence of any Event of Default or event which, with the giving of notice or passage of time, or both, would constitute an Event of Default, prompt (and in any event within three (3) Business Days) written notice of such occurrence, which such notice shall include a reasonably detailed description of such Event of Default or event which, with the giving of notice or passage of time, or both, would constitute an Event of Default;

(xiii) prompt (and in any event within one (1) day), notice if Borrower or such Subsidiary has Knowledge that Borrower, or any Subsidiary or Affiliate of Borrower, is listed on the OFAC Lists or

(a) is convicted on, (b) pleads *nolo contendere* to, (c) is indicted on, or (d) is arraigned and held over on charges involving money laundering or predicate crimes to money laundering;

(xiv) notice of any commercial tort claim with an expected value in excess of Two Hundred Fifty Thousand Dollars ($250,000) and of the general details thereof;

(xv) if Borrower or any of its Subsidiaries is not now a Registered Organization but later becomes one, written notice of such occurrence and information regarding such Person's organizational identification number within seven (7) Business Days of receiving such organizational identification number;

(xvi) no later than within seven (7) Business Days after the resignation, termination or change of Borrower's external independent certified public accounting firm, written notice thereof along with a brief explanation for such resignation, termination or change, as applicable;

(xvii) no later than seven (7) Business Days after the receipt thereof by Borrower, any reports Borrower receives from its contract manufacturer and/ or contract research organization in connection with any material breaches by the Borrower or any material amendments to its existing agreements with such Person to the extent that such amendments would materially impair the perfection or priority of Collateral Agent's Lien on the Collateral;

(xviii) promptly upon discovery, written notice of any action or inaction by or on behalf of a Lender (in any capacity) or Collateral Agent (in any capacity) that Borrower believes may be actionable against any Lender or Collateral Agent or a defense to payment of any or all Obligations for any reason; and

(xix) other information as reasonably requested by Collateral Agent or any Lender (which information must be provided promptly but in any event no later than ten (10) Business Days after being requested, or such later time as Collateral Agent or such Lender may agree).

Notwithstanding the foregoing, documents required to be delivered pursuant to the terms hereof (to the extent any such documents are included in materials otherwise filed with the Securities and Exchange Commission) may be delivered electronically and if so delivered, shall be deemed to have been delivered on the date on which Borrower posts such documents, or provides a link thereto, on Borrower's website on the internet at Borrower's website address and Borrower notifies Collateral Agent via email of such posting.

(a) Concurrently with the delivery of the financial statements specified in Section 6.2(a)(i) above but no later than forty-five (45) days after the last day of each fiscal quarter of Borrower, deliver to Collateral Agent:

(i) a duly completed Compliance Certificate signed by a Responsible Officer;

(ii) an updated Perfection Certificate to reflect any amendments, modifications and updates to certain information in the Perfection Certificate after the Effective Date to the extent such amendments, modifications and updates are permitted by one or more specific provisions in this Agreement; in each case, subject to the review and approval of Collateral Agent;

(iii) copies of any material Governmental Approvals obtained by Borrower or any of its Subsidiaries;

(iv) written notice of the commencement of, and any material development in, the proceedings contemplated by Section 5.8 hereof;

(v) written notice of (i) any litigation or governmental proceedings pending or threatened (in writing) against Borrower or any of its Subsidiaries, which could reasonably be expected to result in damages or costs to Borrower or any of its Subsidiaries of more than Two Hundred Fifty Thousand Dollars ($250,000.00); and (ii) any actions, suits, arbitrations, investigations or proceedings pending or, to the Knowledge of the Responsible Officers, threatened in writing by or against Borrower or any Subsidiaries involving challenges to the validity of any Intellectual Property necessary for, or used in, the generation of revenues exceeding 5% of Net Product Revenues for the most recently completed twelve month period;

(vi) written notice within ten (10) Business Days of the termination of any Material Agreement; and

(vii) written notice of all returns, recoveries, disputes and claims (including, without limitation, warranty claims) regarding Inventory that involve more than One Hundred Fifty Thousand Dollars ($150,000.00) individually or in the aggregate in any calendar year.

(b) Keep proper, complete and true books of record and account in accordance with GAAP in all material respects. Borrower shall, and shall cause each of its Subsidiaries to, allow, at the sole cost of Borrower (which shall include the reasonable fees and expenses of Collateral Agent's auditor), Collateral Agent or any Lender, during regular business hours upon reasonable prior notice (provided that no notice shall be required when an Event of Default has occurred and is continuing), to visit and inspect any of its properties, to examine and make abstracts or copies from any of Borrower's Books, and to conduct a collateral audit and analysis of its operations and the Collateral. Such audits shall be conducted no more often than twice every year unless (and more frequently if) an Event of Default has occurred and is continuing. Notwithstanding the foregoing, upon request of any Lender, Borrower agrees to permit such Lender to communicate with Borrower's accounting firm with respect to the consolidated financial statements delivered pursuant to this Section 6.2.

6.3 Inventory; Returns. Keep all Inventory in good and marketable condition, free from material defects. Returns and allowances between Borrower, or any of its Subsidiaries, and their respective Account Debtors shall follow Borrower's, or such Subsidiary's, customary practices as they exist at the Effective Date.

6.4 Taxes; Pensions. Timely file and require each of its Subsidiaries to timely file, all required tax returns and reports and timely pay, and require each of its Subsidiaries to timely pay, all foreign, federal, state, and local taxes, assessments, deposits and contributions owed by Borrower or its Subsidiaries, except as otherwise permitted pursuant to the terms of Section 5.8 hereof, and shall deliver to Collateral Agent and each Lender, on demand, appropriate certificates attesting to such payments, and pay all amounts necessary to fund all present pension, profit sharing and deferred compensation plans in accordance with the terms of such plans.

6.5 Insurance. Keep Borrower's and its Subsidiaries' business and the Collateral insured for risks and in amounts standard for companies in Borrower's and its Subsidiaries' industry and location and as Collateral Agent may reasonably request, including, but not limited to, D&O insurance reasonably satisfactory to Collateral Agent. Insurance policies shall be in a form, with companies, and in amounts that are reasonably satisfactory to Collateral Agent and Lenders (provided, that Collateral Agent and Lenders acknowledge and agree that the policies of insurance maintained by Borrower and its Subsidiaries as of the Effective Date is acceptable)[4]. All property policies shall have a lender's loss payable endorsement showing Collateral Agent as lender loss payee and waive subrogation against Collateral Agent, and all liability policies shall show, or have endorsements showing, Collateral Agent, as additional insured. Collateral Agent shall be named as lender loss payee and/or additional insured with respect to any such insurance providing coverage in respect of any Collateral, and each provider of any such insurance shall agree, by endorsement upon the policy or policies issued by it or by independent instruments furnished to Collateral Agent, that it will give Collateral Agent thirty (30) days' prior written notice before any such policy or policies shall be materially altered or canceled (other than cancellation for non-payment of premiums, for which ten (10) days' prior written notice shall be required). At Collateral Agent's request, Borrower shall deliver certified copies of policies and evidence of all premium payments. Proceeds payable under any policy shall, at Collateral Agent's option, be payable to Collateral Agent, for the ratable benefit of the Lenders, on account of the Obligations. Notwithstanding the foregoing, (a) so long as no Event of Default has occurred and is continuing, Borrower shall have the option of applying the proceeds of any casualty policy within 90 days of receipt thereof up to Three Hundred Fifty Thousand Dollars ($350,000.00) with respect to any loss, and not exceeding Three Hundred Fifty Thousand Dollars ($350,000.00), in the aggregate for all losses under all casualty policies in any one year, toward the replacement or repair of destroyed or damaged property; provided that any such replaced or repaired property (i) shall be of equal or like value as the replaced or repaired Collateral and (ii) shall be deemed Collateral in which Collateral Agent has been granted a first priority security interest, and (b) after the occurrence and during the continuance of an Event of Default, all proceeds payable under such casualty policy shall, at the option of Collateral Agent, be payable to Collateral Agent, for the ratable benefit of the Lenders, on account of the Obligations. If Borrower or any of its Subsidiaries fails to obtain insurance as required under this Section 6.5 or to pay any amount or furnish any required proof of payment to third persons, Collateral Agent and/or any Lender may make (but has no obligation to do so), at Borrower's expense, all or part of such payment or obtain such insurance policies required in this Section 6.5, and take any action under the policies Collateral Agent or such Lender deems prudent.

6.6 Operating Accounts.

(a) Borrower shall provide Collateral Agent five (5) days' prior written notice before Borrower or any of its Subsidiaries that is a Loan Party establishes any Collateral Account. In addition, for each Collateral Account that Borrower or any of its Subsidiaries that is a Loan Party at any time maintains, Borrower or such Subsidiary shall cause the applicable bank or financial institution at or with which such Collateral Account is maintained to execute and deliver a Control Agreement or other appropriate instrument with respect to such Collateral Account to perfect Collateral Agent's Lien in such Collateral Account in accordance with the terms hereunder prior to the establishment of such Collateral Account, which Control Agreement may not be terminated without prior written consent of Collateral Agent. The provisions of the previous sentence shall not apply to Excluded Accounts.

(b) Neither Borrower nor any of its Subsidiaries shall maintain any Collateral Accounts except Collateral Accounts maintained in accordance with Section 6.6. Furthermore, neither Borrower nor any of its Subsidiaries shall maintain Collateral Accounts at banks or financial institutions that are not reasonably acceptable to Collateral Agent.; provided, that Collateral Agent acknowledges and agrees that the financial institutions with which Borrower and its Subsidiaries maintain Collateral Accounts as of the Effective Date are reasonably acceptable to Collateral Agent.

6.7 Protection of Intellectual Property Rights. Borrower and each of its Subsidiaries shall: (a) protect, defend and maintain the validity and enforceability of its Intellectual Property that, in the reasonable business judgment of Borrower, is material to its business; (b) promptly advise Collateral Agent in writing of a challenge to the validity, or material infringement by a third party of its Intellectual Property; and (c) not allow any Intellectual Property material to its business to be abandoned, forfeited or dedicated to the public without Collateral Agent's prior written consent; provided, for the avoidance of doubt, Borrower or its Subsidiaries, as applicable, may abandon, forfeit or dedicate to the public any Intellectual Property of such Person in the ordinary course of business that is not material to the Loan Parties' business. If Borrower or any of its Subsidiaries (i) obtains any patent, registered trademark or servicemark, registered copyright, registered mask work, or any pending application for any of the foregoing, whether as owner, licensee or otherwise, or (ii) applies for any patent or the registration of any trademark or servicemark, then Borrower or such Subsidiary shall provide written notice thereof to Collateral Agent concurrently with the Compliance Certificates required to be delivered pursuant to Section 6.1(b)(i), and shall execute such intellectual property security agreements and other documents and take such other actions as Collateral Agent shall reasonably request in its good faith business judgment to perfect and maintain a first priority perfected security interest in favor of Collateral Agent, for the ratable benefit of the Lenders, in such property. If Borrower or any of its Subsidiaries decides to register any copyrights or mask works in the United States Copyright Office, Borrower or such Subsidiary shall: (x) provide Collateral Agent and each Lender with at least ten (10) days prior written notice of Borrower's or such Subsidiary's intent to register such copyrights or mask works together with a copy of the application it intends to file with the United States Copyright Office (excluding exhibits thereto); (y) execute an intellectual property security agreement and such other documents and take such other actions as Collateral Agent may reasonably request in its good faith business judgment to perfect and maintain a first priority perfected security interest in favor of Collateral Agent, for the ratable benefit of the Lenders, in the copyrights or mask works intended to be registered with the United States Copyright Office; and (z) record such intellectual property security agreement with the United States Copyright Office contemporaneously with filing the copyright or mask work application(s) with the United States Copyright Office. Borrower or such Subsidiary shall promptly provide to Collateral Agent and each Lender with evidence of the recording of the intellectual property security agreement necessary for Collateral Agent to perfect and maintain a first priority perfected security interest in such property.

6.8 Litigation Cooperation. Commencing on the Effective Date and continuing through the termination of this Agreement, make available to Collateral Agent and the Lenders, without expense to Collateral Agent or the Lenders, Borrower and each of Borrower's officers, employees and agents and Borrower's Books, to the extent that Collateral Agent or any Lender may reasonably deem them necessary to prosecute or defend any third party suit or proceeding instituted by or against Collateral Agent or any Lender with respect to any Collateral or relating to Borrower.

6.9 Landlord Waivers; Bailee Waivers. In the event that Borrower or any of its Subsidiaries, after the Effective Date, intends to add any new offices or business locations where Collateral in excess of Five Hundred Thousand ($500,000.00) will be maintained, including warehouses, or otherwise store any portion of the Collateral with a value in excess of Five Hundred Thousand ($500,000.00) with, or deliver any portion of such Collateral to, a bailee, in each case pursuant to Section 7.2, then Borrower or such Subsidiary will first be required to receive the written consent of Collateral Agent (which consent Collateral Agent may grant or deny in its reasonable discretion) and, at Collateral Agent's election, Borrower or such Subsidiary shall use commercially reasonable efforts to cause

such bailee or landlord, as applicable, to execute and deliver a bailee waiver or landlord waiver, as applicable, in form and substance reasonably satisfactory to Collateral Agent prior to the addition of any new offices or business locations, or any such storage with or delivery to any such bailee, as the case may be.

6.10 Creation/Acquisition of Subsidiaries. In the event any Borrower or any Subsidiary of any Borrower creates or acquires any Subsidiary after the Effective Date, Borrower or such Subsidiary shall promptly notify Collateral Agent of such creation or acquisition with twenty (20) Business Days thereof, and Borrower or such Subsidiary shall take all actions reasonably requested by Collateral Agent to achieve any of the following with respect to such "**New Subsidiary**" (defined as a Subsidiary formed or acquired after the date hereof during the term of this Agreement): (i) to cause such New Subsidiary to become either a co-Borrower hereunder or, if such New Subsidiary is a Foreign Subsidiary, a secured guarantor with respect to the Obligations; and (ii) to grant and pledge to Collateral Agent a perfected security interest in the Shares of such New Subsidiary.

6.11 Further Assurances. Execute any further instruments and take further action as Collateral Agent or any Lender reasonably requests to perfect or continue Collateral Agent's Lien in the Collateral or to effect the purposes of this Agreement, including without limitation, permit Collateral Agent or any Lender to discuss Borrower's financial condition with Borrower's accountants.

6.12 Net Product Revenue Covenant. The Borrower shall comply with the financial covenant set forth in Schedule 6.12.

6.13 Liquidity Covenant. The Borrower shall comply with the liquidity covenant set forth on Schedule 6.13.

6.14 Post-Closing Obligations.

(a) Borrower shall deliver updated Perfection Certificates listing all Material Agreements that Borrower or any of its Subsidiaries is a party to or bound by within fourteen (14) days after the Effective Date.

(b) Borrower shall deliver duly executed Control Agreements with respect to all Collateral Accounts (other than Excluded Accounts) maintained by Borrower or any of its Subsidiaries that is a Loan Party within thirty (30) days after the Effective Date.

(c) Borrower shall dissolve or cause the dissolution of any of its direct or indirect Subsidiaries that are not Loan Parties and existing on the Effective Date within sixty (60) days after the Effective Date.

(d) Within sixty (60) days of the Effective Date, Borrower shall deliver a bailee waiver executed in favor of Collateral Agent in respect of each third party bailee where Borrower or any Subsidiary maintains Collateral having a book value in excess of Five Hundred Thousand Dollars ($500,000.00); provided, that Borrower shall have an additional fifteen (15) days to deliver such bailee waivers so long as Borrower is making diligent efforts to obtain such waivers.

(e) Within sixty (60) days of the Effective Date, Borrower shall deliver a landlord's consent executed in favor of Collateral Agent in respect of all of Borrower's and each Subsidiaries' leased locations where Collateral is maintained with a book value in excess of Five Hundred Thousand Dollars ($500,000.00) or which leased location is the chief executive office of any Borrower; provided, that Borrower shall have an additional fifteen (15) days to deliver such landlord consents so long as Borrower is making diligent efforts to obtain such consents.

(f) Within thirty (30) days of the Effective Date, Borrower shall deliver loss payable and additional insured clauses or endorsements, in favor of Collateral Agent, for the ratable benefit of the Lenders, as required pursuant to Section 6.5, in form and substance reasonably satisfactory to Collateral Agent.

(g) Within ninety (90) days of the Effective Date, Codexis Mayflower Holdings, LLC, shall assign to Borrower all of its active foreign-registered Intellectual Property and its Intellectual property consisting of Copyrights registered or filed with the United States Copyright Office.

7. NEGATIVE COVENANTS

Borrower shall not, and shall not permit any of its Subsidiaries to, do any of the following without the prior written consent of the Required Lenders:

7.1 Dispositions. Convey, sell, lease, transfer, assign, dispose of (collectively, "**Transfer**"), or permit any of its Subsidiaries to Transfer, all or any part of its business or property (including Intellectual Property), except for Transfers (a) of Inventory in the ordinary course of business, of Intellectual Property in lieu of out-licensing related to Deprioritized Biotherapeutics and Deprioritized Life Science Enzymes, Intellectual Property that is not material to the business of Borrower or its Subsidiaries and that otherwise would lapse, be abandoned, forfeited or dedicated to the public, and Intellectual Property in accordance with the terms of Section 6.7; (b) of worn out, surplus, or obsolete Equipment; (c) in connection with Permitted Liens, Permitted Investments and Permitted Licenses; (d) the use or transfer of money or Cash Equivalents of investments in private stock or short term investments in the ordinary course of business; (e) liquidation or dissolution of a Subsidiary of Borrower to the extent permitted under Section 7.2, (f) to any Loan Party; (g) consisting of the granting of Permitted Liens and the making of Permitted Investments, and (h) other Transfers of assets (other than Intellectual Property of Borrower) having a fair market value of not more than $350,000 per fiscal year.

7.2 Changes in Business, Management, Ownership, or Business Locations. (a) Engage in or permit any of its Subsidiaries to engage in any business other than the businesses engaged in by Borrower as of the Effective Date or any business reasonably related thereto; (b) stop conducting or fail to conduct its business in the ordinary course, (c) liquidate or dissolve; provided, that a Subsidiary of Borrower may liquidate or dissolve if, prior to such dissolution, such Subsidiary shall transfer substantially all of its assets to a Loan Party or (d)(i) any Key Person shall cease to be actively engaged in the management of Borrower unless written notice thereof is provided to Collateral Agent and each Lender within ten (10) days of such cessation and such Key Person is replaced with someone approved by the board of directors of Borrower within sixty (60) days of such cessation (furthermore, if such Key Person is terminated for cause, then within ten (10) Business Days of such termination, Borrower shall cause its remaining Key Persons (or other Responsible Officers designated by Borrower in the event of the departure of each of Stephen Dilly and Sri Ryali) to forthrightly discuss the reasons for the departure of the Key Person with Collateral Agent, except to the extent that such discussion would violate attorney-client privilege or the terms of any confidentiality agreement to which any such Responsible Officer is subject), or (ii) enter into any transaction or series of related transactions in which (A) the stockholders of Borrower who were not stockholders immediately prior to the first such transaction own or Control more than 49% of the voting interests and/or economic interests in the capital stock of Borrower or shall have obtained the power (whether or not exercised) to elect a majority of the members of the board of directors of Borrower immediately after giving effect to such transaction or related series of such transactions or (B) Borrower ceases to own and Control 100% of the ownership interests of a Subsidiary of Borrower.

7.3 Mergers or Acquisitions. Merge or consolidate, or permit any of its Subsidiaries to merge or consolidate, with any other Person, or acquire, or permit any of its Subsidiaries to acquire, all or substantially all of the capital stock, shares or property of another Person. A Subsidiary may merge or consolidate into another Subsidiary (provided such surviving Subsidiary is a "co Borrower" hereunder or has provided a secured Guaranty of Borrower's Obligations hereunder) or with (or into) Borrower provided Borrower is the surviving legal entity, and as long as no Event of Default is occurring prior thereto or arises as a result therefrom.

7.4 Indebtedness. Create, incur, assume, or be liable for any Indebtedness, or permit any Subsidiary to do so, other than Permitted Indebtedness.

7.5 Encumbrance. Create, incur, allow, or suffer any Lien on any of its property, or assign or convey any right to receive income, including the sale of any Accounts, or permit any of its Subsidiaries to do so, except for Permitted Liens, or permit any Collateral not to be subject to the first priority security interest granted herein (except for Permitted Liens), or enter into any agreement, document, instrument or other arrangement (except with or in favor of Collateral Agent, for the ratable benefit of the Lenders) with any Person which directly or indirectly prohibits or has the effect of prohibiting Borrower, or any of its Subsidiaries, from assigning, mortgaging, pledging, granting a security interest in or upon, or encumbering any of Borrower's or such Subsidiary's Intellectual Property, except as is otherwise permitted in Section 7.1 hereof and except for "**Permitted Liens**".

7.6 Maintenance of Collateral Accounts. Maintain any Collateral Account except pursuant to the terms of Section 6.6 hereof.

7.7 Restricted Payments. Pay any dividends (other than dividends payable solely in capital stock) or make any distribution or payment in respect of or redeem, retire or purchase any capital stock (other than repurchases pursuant to the terms of employee stock purchase plans, employee restricted stock agreements, stockholder rights plans, director or consultant stock option plans, or similar plans, provided such repurchases do not exceed Two Hundred Fifty Thousand Dollars ($250,000.00) in the aggregate per fiscal year); provided, that (i) Borrower may convert any of its convertible stock (including warrants) into other stock issued by Borrower pursuant to the terms of such convertible securities or otherwise in exchange thereof, (ii) Borrower may convert Subordinated Debt issued by Borrower into capital stock issued by Borrower pursuant to the terms of such Subordinated Debt and to the extent permitted under the terms of the applicable subordination or intercreditor agreement; and (iii) Borrower may make cash payments in lieu of fractional shares in an aggregate amount not to exceed $10,000.

7.8 Investments. Directly or indirectly make any Investment other than Permitted Investments.

7.9 Transactions with Affiliates. Directly or indirectly enter into or permit to exist any material transaction with any Affiliate of Borrower or any of its Subsidiaries, except for (a) transactions that are (i) in the ordinary course of Borrower's or such Subsidiary's business, (ii) upon fair and reasonable terms (and which are in fact on such terms) that are no less favorable to Borrower or such Subsidiary than would be obtained in an arm's length transaction with a non-affiliated Person, and (iii) disclosed to Collateral Agent in writing no later than ten (10) days after becoming effective; provided, that such notice is not required for (A) confidential disclosure agreements or non-disclosure agreements, (B) transactions with Borrower's board of directors, (C) sale and issuance of equity securities of Borrower for the primary purpose of raising capital, or (D) director, officer and employee compensation and employment agreements (other than executive officer compensation agreements), benefit plans, including retirement, health and stock option, and indemnification arrangements, (b) ordinary indemnifications of customary covered persons in their capacities as representatives of a Borrower or a Subsidiary, or (c) Subordinated Debt or equity investments by Borrower's investors in Borrower or its Subsidiaries.

7.10 Subordinated Debt. (a) Make or permit any payment on any Subordinated Debt, except under the terms of the subordination, intercreditor, or other similar agreement to which such Subordinated Debt is subject, or (b) amend any provision in any document relating to the Subordinated Debt which would increase the amount thereof, breach the terms of the subordination, intercreditor, or other similar agreement to which such Subordinated Debt is subject, or otherwise adversely affect the subordination of the Subordinated Debt to Obligations owed to the Lenders.

7.11 Compliance. Become an "investment company" or a company controlled by an "investment company", under the Investment Company Act of 1940, as amended, or undertake as one of its important activities extending credit to purchase or carry margin stock (as defined in Regulation U of the Board of Governors of the Federal Reserve System), or use the proceeds of any Term Loan for that purpose; fail to meet the minimum funding requirements of ERISA, permit a Reportable Event or Prohibited Transaction, as defined in ERISA, to occur; fail to comply with the Federal Fair Labor Standards Act or violate any other law or regulation, if the failure to comply or violation could reasonably be expected to result in a Material Adverse Effect, or permit any of its Subsidiaries to do so; withdraw or permit any Subsidiary to withdraw from participation in, permit partial or complete termination of, or permit the occurrence of any other event with respect to, any present pension, profit sharing and deferred compensation plan which could reasonably be expected to result in any liability of Borrower or any of its Subsidiaries, including any liability to the Pension Benefit Guaranty Corporation or its successors or any other Governmental Authority.

7.12 Compliance with Anti-Terrorism Laws. Neither Borrower nor any of its Subsidiaries shall, nor shall Borrower or any of its Subsidiaries permit any Affiliate to, directly or indirectly, knowingly enter into any documents, instruments, agreements or contracts with any Person listed on the OFAC Lists. Neither Borrower nor any of its Subsidiaries shall, nor shall Borrower or any of its Subsidiaries, permit any Affiliate to, directly or indirectly, (i) conduct any business or engage in any transaction or dealing with any Blocked Person, including, without limitation, the making or receiving of any contribution of funds, goods or services to or for the benefit of any Blocked Person, (ii) deal in, or otherwise engage in any transaction relating to, any property or interests in property blocked pursuant to Executive Order No. 13224 or any similar executive order or other Anti-Terrorism Law, or (iii) engage in or conspire to engage in any transaction that evades or avoids, or has the purpose of evading or avoiding, or attempts to violate, any of the prohibitions set forth in Executive Order No. 13224 or other Anti-Terrorism Law.

7.13 Material Agreements. Neither Borrower nor any of its Subsidiaries shall (i) amend a Material Agreement in a manner materially adverse to the Collateral Agent or Lenders, or (ii) terminate a Material

Agreement, in each case, without providing written notice to Collateral Agent within fourteen (14) days of such amendment or termination, as applicable.

7.14 Subsidiaries. No more than five percent (5%) of the assets or revenues of Borrower and its Subsidiaries on a consolidated basis shall be owned or produced by any Foreign Subsidiary. Borrower shall not directly or indirectly lend to, contribute capital to, or guarantee obligations of, Foreign Subsidiaries in an amount exceeding $250,000.00 in the aggregate. No Subsidiary of Borrower existing on the Effective Date that is not a Loan Party may (i) own any assets with a value in excess of $1,000, individually, or in the aggregate, (ii) own any Intellectual Property, other than, with respect to Codexis Mayflower Holdings, LLC, non-active Intellectual Property, foreign-registered or filed Intellectual Property and United States Copyrights to be transferred to Borrower in accordance with Section 6.14(g), or (iii) conduct any operations or transactions other than those required for liquidation or dissolution of such Subsidiary.

8. EVENTS OF DEFAULT

Any one of the following shall constitute an event of default (an "**Event of Default**") under this Agreement:

8.1 Payment Default. Borrower fails to (a) make any payment of principal or interest on any Term Loan on its due date, or (b) pay any other Obligations within three (3) Business Days after such Obligations are due and payable (which three (3) Business Day grace period shall not apply to payments due on the Maturity Date or the date or acceleration pursuant to Section 9.1(a) hereof);

8.2 Covenant Default.

(a) Borrower or any of its Subsidiaries fails or neglects to perform any obligation in Sections 6.2 (Financial Statements, Reports, Certificates), 6.4 (Taxes), 6.5 (Insurance), 6.6 (Operating Accounts), 6.7 (Protection of Intellectual Property Rights), 6.10 (Creation/Acquisition of Subsidiaries), 6.12 (Financial Covenant), 6.13 (Liquidity Covenant), or 6.14 (Post-Closing Obligations) or Borrower violates any provision in Section 7;provided, however, in the event that Borrower fails to comply with the requirements of the financial covenant set forth in Section 6.12, Borrower may cure such breach by means of submitting a new Board-approved financial plan to Collateral Agent under which Borrower is expected to (i)(x) break even on a cash flow basis prior to Maturity Date (which financial plan must be acceptable to Collateral Agent in its sole discretion) and (y) pay all of its Obligations under the Loan Documents (including, without limitation, all payments of interest and principal), no later than thirty (30) days after the occurrence of the breach of the financial covenant and (ii) raise, no later than thirty (30) days after the submission of such financial plan to Collateral Agent, such amount of capital from the sale and issuance of its equity securities having terms acceptable to Required Lenders as required per the new financial plan; provided, that upon such cure a set forth in (i) and (ii) above, the parties shall amend the covenant in Section 6.12 in accordance with the new financial plan which amendment must be acceptable to Collateral Agent and shall, among other things, require Borrower to achieve One Hundred percent (100.00%) of the revenue projections set forth in the new financial plan; provided further, in the event that Borrower fails to comply with the requirement to deliver an Unqualified Audit Opinion on the financial statements set forth in Section 6.2(a)(ii), Borrower may cure such breach by either (i) raising, no later than sixty (60) days following the date of such audit opinion, an amount of capital, from the sale and issuance of its equity securities or Subordinated Debt, in each case on terms acceptable to Required Lenders, equal to the difference between the Borrower's projected twelve months cash burn and the Borrower's cash balance at the time of the audit opinion, or (ii) electing to increase the applicable minimum Liquidity Covenant in Section 6.13 to 35% of the aggregate principal amount of Term Loans funded (subject to appropriate increase in the event of Borrower's delinquency in payment of its rent or accounts payable to critical vendors) until the issuance of an Unqualified Audit Opinion; or

(b) Borrower, or any of its Subsidiaries, fails or neglects to perform, keep, or observe any other term, provision, condition, covenant or agreement contained in this Agreement or any Loan Documents, and as to any default (other than those specified in this Section 8) under such other term, provision, condition, covenant or agreement that can be cured, has failed to cure the default within ten (10) days after the occurrence thereof; provided, however, that if the default cannot by its nature be cured within the ten (10) day period or cannot after diligent attempts by Borrower be cured within such ten (10) day period, and such default is likely to be cured within a reasonable time, then Borrower shall have an additional period (which shall not in any case exceed thirty (30) days) to attempt to cure such default, and within such reasonable time period the failure to cure the default shall not be deemed an Event of Default (but no Term Loan shall be made during such cure period);

8.3 Material Adverse Change. A Material Adverse Change has occurred;

8.4 Attachment; Levy; Restraint on Business.

(a) (i) The service of process seeking to attach, by trustee or similar process, any funds of Borrower or any of its Subsidiaries or of any entity under control of Borrower or its Subsidiaries on deposit with any institution at which Borrower or any of its Subsidiaries maintains a Collateral Account, or (ii) a notice of lien, levy, or assessment is filed against Borrower or any of its Subsidiaries or their respective assets by any government agency, and the same under subclauses (i) and (ii) hereof are not, within thirty (30) days after the occurrence thereof, discharged or stayed (whether through the posting of a bond or otherwise); and

(b) (i) any material portion of Borrower's or any of its Subsidiaries' assets is attached, seized, levied on, or comes into possession of a trustee or receiver, or (ii) any court order enjoins, restrains, or prevents Borrower or any of its Subsidiaries from conducting any part of its business;

8.5 Insolvency. (a) Borrower or any of its Subsidiaries is or becomes Insolvent; (b) Borrower or any of its Subsidiaries begins an Insolvency Proceeding; or (c) an Insolvency Proceeding is begun against Borrower or any of its Subsidiaries and not dismissed or stayed within forty-five (45) days (but no Term Loan shall be extended while Borrower or any Subsidiary is Insolvent and/or until any Insolvency Proceeding is dismissed);

8.6 Other Agreements. There is (a) a default in any agreement to which Borrower or any of its Subsidiaries is a party with a third party or parties (i) resulting in a right by such third party or parties, whether or not exercised, to accelerate the maturity of any Indebtedness in an amount in excess of Five Hundred Thousand Dollars ($500,000.00) or (ii) that could reasonably be expected to result in a Material Adverse Effect; provided, however, that the Event of Default under this Section 8.6(a)(ii) caused by the occurrence of a default under such other agreement shall be cured or waived for purposes of this Agreement upon Collateral Agent receiving written notice from the party asserting cure or waiver of the default under such other agreement, if at the time of such cure or waiver under such other agreement (x) Collateral Agent has not declared an Event of Default under this Agreement and/or exercised any rights with respect thereto; (y) any such cure or waiver does not result in an Event of Default under any other provision of this Agreement or any other Loan Document; and (z) in connection with any such cure or waiver under such other agreement, the terms of any agreement with such third party are not modified or amended in any manner which could in the good faith business judgment of Collateral be materially less advantageous to the Borrower or applicable Subsidiary; (b) any default by Borrower or any Subsidiary under a Material Agreement that permits the counterparty thereto to accelerate the payments owed thereunder; or (c) a revocation of a Material Agreement to the extent such revocation would materially adversely impair Collateral Agent's ability to exercise its rights and remedies under this Agreement or would materially impair the perfection or priority of Collateral Agent's Lien on the Collateral.

8.7 Judgments. (a) One or more judgments, orders, or decrees for the payment of money in an amount, individually or in the aggregate, of at least Seven Hundred Fifty Thousand Dollars ($750,000.00) (not covered by independent third party insurance) shall be rendered against Borrower or any of its Subsidiaries and shall remain unsatisfied, unvacated, or unstayed for a period of thirty (30) days after the entry thereof or (b) any judgments, orders or decrees rendered against Borrower that could reasonably be expected to have a Material Adverse Effect;

8.8 Misrepresentations. Borrower or any of its Subsidiaries or any Person acting for Borrower or any of its Subsidiaries makes any representation, warranty, or other statement now or later in this Agreement, any Loan Document or in any writing delivered to Collateral Agent and/or Lenders or to induce Collateral Agent and/or the Lenders to enter this Agreement or any Loan Document, and such representation, warranty, or other statement, when taken as a whole, is incorrect in any material respect when made;

8.9 Subordinated Debt. A default or breach occurs under any agreement between Borrower or any of its Subsidiaries and any creditor of Borrower or any of its Subsidiaries that signed a subordination, intercreditor, or other similar agreement with Collateral Agent or the Lenders, or any creditor that has signed such an agreement with Collateral Agent or the Lenders breaches any terms of such agreement;

8.10 Guaranty. (a) Any Guaranty terminates or ceases for any reason to be in full force and effect; (b) any Guarantor does not perform any obligation or covenant under any Guaranty; (c) any circumstance described in Section 8 occurs with respect to any Guarantor; or (d) a Material Adverse Change with respect to any Guarantor;

8.11 Governmental Approvals; FDA Action. (a) Any Governmental Approval shall have been revoked, rescinded, suspended, modified in an adverse manner, or not renewed in the ordinary course for a full term and such revocation, rescission, suspension, modification or non-renewal has resulted in or could reasonably be

expected to result in a Material Adverse Effect; or (b)(i) the FDA, DOJ, or other Governmental Authority initiates a Regulatory Action or any other enforcement action against Borrower or any of its Subsidiaries or any supplier of Borrower or any of its Subsidiaries that causes Borrower or any of its Subsidiaries to recall, withdraw, remove or discontinue manufacturing, distributing, and/or marketing any of its products and such enforcement action could reasonably be expected to result in a Material Adverse Effect, even if such action is based on previously disclosed conduct; (ii) the FDA issues a warning letter or Regulatory Action to Borrower or any of its Subsidiaries with respect to any of its activities or products which could reasonably be expected to result in a Material Adverse Effect; (iii) Borrower or any of its Subsidiaries conducts a mandatory or voluntary recall which could reasonably be expected to result in liability and expense to Borrower or any of its Subsidiaries of Seven Hundred Fifty Thousand Dollars ($750,000.00) or more; (iv) Borrower or any of its Subsidiaries enters into a settlement agreement with the FDA, DOJ, or other Governmental Authority that results in aggregate liability as to any single or related series of transactions, incidents or conditions, of Seven Hundred Fifty Thousand Dollars ($750,000.00) or more, or that could reasonably be expected to result in a Material Adverse Effect even if such settlement agreement is based on previously disclosed conduct; or (v) Borrower or any of its Subsidiaries fails to remediate observations identified in an FDA Form 483 notice of inspection observation to Collateral Agent's reasonable satisfaction within six (6) months of receipt; or (vi) the FDA revokes any authorization or permission granted under any Registration, or Borrower or any of its Subsidiaries withdraws any Registration, that could reasonably be expected to result in a Material Adverse Change.

8.12 Lien Priority; Intellectual Property. Any Lien created hereunder or by any other Loan Document shall at any time fail to constitute a valid and perfected Lien on any of the Collateral purported to be secured thereby, subject to no prior or equal Lien, other than Permitted Liens arising as a matter of applicable law. Any Intellectual Property material to Borrower's business shall cease to be validly owned or licensed by Borrower free and clear of any Liens other than Permitted Liens, or the Borrower or any of its Subsidiaries is prohibited, banned, enjoined, restrained or prevented from developing, manufacturing or commercializing any product as a result of an infringement or other violation of any such Intellectual Property.

8.13 Delisting. The shares of common stock of Borrower are delisted from the primary stock exchange on which they are traded after their initial public offering and such delisting results in such shares not being listed immediately on any other nationally recognized stock exchange in the United States having listing standards at least as restrictive as the primary stock exchange on which such shares were traded after their initial public offering.

8.14 Stock Price Decline. The price as of the shares of common stock of Borrower listed on the primary stock exchange on which they are listed decreases by 95% or more in the aggregate (and after taking into account any stock splits and stock combinations) from the closing price on the Effective Date, and remains at such decreased level for a period of thirty consecutive calendar days.

9. RIGHTS AND REMEDIES

9.1 Rights and Remedies.

(a) Upon the occurrence and during the continuance of an Event of Default, Collateral Agent may, without notice or demand, do any or all of the following: (i) deliver notice of the Event of Default to Borrower, (ii) by notice to Borrower declare all Obligations immediately due and payable (but if an Event of Default described in Section 8.5 occurs all Obligations shall be immediately due and payable without any action by Collateral Agent or the Lenders); provided, however, all obligations, if any, of the Lenders to advance money or extend credit for Borrower's benefit under this Agreement or under any other agreement between Borrower and Collateral Agent and/or the Lenders shall be immediately terminated without any action by Collateral Agent or the Lenders.

(b) Without limiting the rights of Collateral Agent and the Lenders set forth in Section 9.1(a) above, upon the occurrence and during the continuance of an Event of Default, Collateral Agent shall have the right, without notice or demand, to do any or all of the following:

(i) engage such industry, workout, liquidation, and other such consultants as it may elect, and the reasonable fees and expenses thereof shall become part of the Obligations;

(ii) give written notice to Borrower to not dispose of, conceal, transfer, sell, or encumber any or all of the Collateral (including cash) without Collateral Agent's prior written consent, even if such disposition would otherwise be permitted hereunder in the ordinary course of business absent an Event of Default. Any such disposition, concealment, transfer, or sale after the giving of such notice shall constitute a wrongful

conversion of the Collateral. Collateral Agent may obtain a temporary restraining order, injunction, or other equitable relief, without bond, to enforce Borrower's obligation to refrain from so impairing the Collateral;

(iii) foreclose upon and/or sell or otherwise liquidate all or any portion of the Collateral;

(1) to the extent that notice of a particular disposition may be required under the UCC, the notice shall be commercially reasonable if given at least ten (10) days prior to the disposition, unless a shorter notice period is commercially reasonable under the circumstances. Once notice is given of the date after which a private disposition may occur, the notice shall remain in effect regardless of the period of time between the notice date and the ultimate disposition, unless and until the notice is revoked by Collateral Agent in writing;

(2) Collateral Agent may sufficiently advertise dispositions of Collateral through publications or media of general business circulation; may contact other persons, whether or not in the same business as Borrower, for expressions of interest in acquiring all or any portion of the Collateral; may publicly advertise the Collateral for sale by type, providing further details that Collateral Agent may have readily available only to prospective purchasers who make direct inquiry; may require potential purchasers to execute confidentiality agreements; and may require potential purchasers to post deposits and/or to otherwise demonstrate their financial ability and legal eligibility to perform upon any bid;

(3) the Collateral may be disposed of in such lots as Collateral Agent may elect. Collateral Agent may adjourn any public or private sale to a different time or place without notice or publication of such adjournment, and may adjourn any sale either before or after offers are received. Collateral Agent (i) may disclaim disposition warranties, including warranties of title, infringement, possession, quiet enjoyment, merchantability, or other like warranties, whether express or implied; (ii) may dispose of assets in wholesale rather than retail markets; (iii) may dispose of Collateral by utilizing Internet sites that provide for the auction of assets of the types of Collateral so offered or that generally match buyers and sellers of assets; (iv) may require the purchaser at any foreclosure sale to indemnify Collateral Agent and other parties against damages incurred in connection with their removal or possession of the Collateral, to require such purchaser to maintain insurance in connection therewith, or both; and (v) shall not be obligated to, and may rely upon a buyer to, obtain any third-party consents for access to Collateral or to obtain governmental or third party consents for the collection or disposition of Collateral to be collected or disposed of;

(iv) apply to the Obligations any (a) balances and deposits of Borrower that Collateral Agent or any Lender holds or controls, or (b) any amount held or controlled by Collateral Agent or any Lender owing to or for the credit or the account of Borrower; and/or

(v) commence and prosecute an Insolvency Proceeding or consent to Borrower commencing any Insolvency Proceeding.

(c) Without limiting the rights of Collateral Agent and the Lenders set forth in Sections 9.1(a) and (b) above, upon the occurrence and during the continuance of an Event of Default, Collateral Agent shall have the right, without notice or demand, to do any or all of the following:

(i) settle or adjust disputes and claims directly with Account Debtors for amounts on terms and in any order that Collateral Agent considers advisable, notify any Person owing Borrower money of Collateral Agent's security interest in such funds, and verify the amount of such account;

(ii) make any payments and do any acts it considers necessary or reasonable to protect the Collateral and/or its security interest in the Collateral. Borrower shall assemble the Collateral if Collateral Agent requests and make it available in a location as Collateral Agent reasonably designates. Collateral Agent may enter premises where the Collateral is located, take and maintain possession of any part of the Collateral, and pay, purchase, contest, or compromise any Lien which appears to be prior or superior to its security interest and pay all expenses incurred. Borrower grants Collateral Agent a license to enter and occupy any of its premises, without charge, to exercise any of Collateral Agent's rights or remedies;

(iii) ship, reclaim, recover, store, finish, maintain, repair, prepare for sale, and/or advertise for sale, the Collateral. Collateral Agent is hereby granted a nonexclusive, royalty free license or other right to use, without charge, Borrower's and each of its Subsidiaries' labels, Patents, Copyrights, mask works, rights of use of any name, trade secrets, trade names, Trademarks, service marks, and advertising matter, or any similar property as it pertains to the Collateral, in completing production of, advertising for sale, and selling any Collateral

and, in connection with Collateral Agent's exercise of its rights under this Section 9.1, Borrower's and each of its Subsidiaries' rights under all licenses and all franchise agreements inure to Collateral Agent, for the benefit of the Lenders;

(iv) place a "hold" on any account maintained with Collateral Agent or the Lenders and/or deliver a notice of exclusive control, any entitlement order, or other directions or instructions pursuant to any Control Agreement or similar agreements providing control of any Collateral;

(v) demand and receive possession of Borrower's Books;

(vi) appoint a receiver to seize, manage and realize upon any of the Collateral, and such receiver shall have any right and authority as any competent court will grant or authorize in accordance with any applicable law, including any power or authority to manage the business of Borrower or any of its Subsidiaries. Borrower hereby irrevocably consents to and waives any right to object to or otherwise contest the appointment of a receiver as provided above. Borrower (i) grants such waiver and consent knowingly after having discussed the implications thereof with counsel, (ii) acknowledges that (A) the uncontested right to have a receiver appointed for the foregoing purposes is considered essential by Collateral Agent in connection with the enforcement of its rights and remedies hereunder and under the other Loan Documents and (B) the availability of such appointment as a remedy under the foregoing circumstances was a material factor in inducing Lenders to extend the Term Loans, and (iii) agrees to enter into any and all stipulations in any legal actions, or agreements or other instruments in connection with the foregoing, and to cooperate fully with Lenders and Collateral Agent in connection with the assumption and exercise of control by any receiver; and

(vii) subject to Section 9.1(a) and (b), exercise all rights and remedies available to Collateral Agent and each Lender under the Loan Documents or at law or equity, including all remedies provided under the Code (including disposal of the Collateral pursuant to the terms thereof).

(d) With respect to a security interest in any Shares:

(i) Collateral Agent may cause any Issuer to register the ownership of its Shares in the name of Collateral Agent or of Collateral Agent's nominee or transferee. Such registration shall be deemed a registration for the purpose of facilitating Collateral Agent's preservation of rights, and not a disposition or strict foreclosure, unless and until all requirements of Section 9-610 or Section 9-620 of the UCC are satisfied;

(ii) upon written notice to the applicable Borrower and Issuer, whether or not the Shares are registered in the name of Collateral Agent or its nominee, Collateral Agent (or Collateral Agent's nominee if so registered) may exercise any or all of any Borrower's rights arising from ownership of such Shares, pursuant to the irrevocable proxy granted in Section 9.1(d)(v) of this Agreement or any other proxy or as otherwise permitted under applicable law. Without limiting the foregoing, Collateral Agent or its nominee may (a) cast any votes in any matter, (b) take actions by written consent in any matter, (c) receive distributions, and (d) otherwise exercise or waive such Borrower's rights in all respects. Upon further written notice to such Borrower and Issuer, Collateral Agent or its nominee may terminate the exercise of such voting rights and likewise reinstate them from time to time;

(iii) Borrower acknowledges that although the Shares may be securities for the purpose of applicable securities laws, as of the Effective Date, none of the Shares have been registered for public sale pursuant to applicable securities laws. Borrower acknowledges and agrees that (a) although a disposition of such Shares absent such a registration may result in prices and other terms less favorable than if such sale were a sale made absent such restrictions, Collateral Agent shall be under no obligation to delay a sale of any of the Shares for the period of time necessary to permit an Issuer or Borrower to register such securities for public sale under the Securities Act of 1933, as amended, or under applicable state securities laws, even if the Issuer or Borrower would agree to do so, (b) Collateral Agent may restrict such sale to purchasers who will represent and agree that such purchaser is purchasing for its own account, for investment, and not with a view to the distribution or sale of such Shares or part thereof, and (c) Collateral Agent may take such other actions as Collateral Agent deems appropriate to assure that the sale is undertaken in compliance with all applicable securities laws;

(iv) Borrower is aware that the staff of the Securities and Exchange Commission have issued various No-Action Letters that describe procedures which, in the view of which staff, permit a foreclosure sale of securities to occur in a manner that is public for purposes of Part 6 of Article 9 of the UCC, yet not public for purposes of Section 4(2) of the Securities Act. Borrower agrees that a foreclosure sale conducted in conformity with the principles set forth in such No-Action Letters (a) shall be considered to be a "public disposition"

for purposes of Section 9-610(c) of the UCC; (b) shall be considered commercially reasonable notwithstanding that Collateral Agent has not registered or sought to register the interests under the Securities Act, even if such Borrower or the applicable Issuer would agree to pay all costs of the registration process; and (c) shall not be considered to be commercially unreasonable on account of such procedures;

(v) Borrower hereby irrevocably appoints Collateral Agent as the proxy and attorney-in-fact of such Borrower, with full authority in the place and stead of Borrower, and in the name of Borrower or otherwise, to cast the votes and otherwise exercise all rights arising from the ownership of the Shares as provided in this Agreement upon and during the continuation of an Event of Default. **THIS APPOINTMENT IS IRREVOCABLE AND COUPLED WITH AN INTEREST AND SHALL BE EFFECTIVE UNTIL ALL OBLIGATIONS (OTHER THAN INCHOATE INDEMNITY OBLIGATIONS) HAVE BEEN FULLY REPAID AND PERFORMED AND COLLATERAL AGENT'S AND THE LENDERS' OBLIGATION TO PROVIDE THE TERM LOAN TERMINATES**. No separate proxy shall be necessary to evidence such proxy rights, but if there is such a proxy, Collateral Agent's rights thereunder are cumulative with those in this Agreement.

As provided in Annex I, Collateral Agent shall have the exclusive right to exercise any and all remedies referenced in this Section 9.1. Additionally, notwithstanding any other provision of this Agreement, Collateral Agent may take any action that Collateral Agent deems appropriate to address an Exigent Circumstance, even if such action would ordinarily require the consent of the Required Lenders or of all Lenders under other Sections of this Agreement.

9.2 Power of Attorney. Borrower hereby irrevocably appoints Collateral Agent as its lawful attorney in fact, exercisable upon the occurrence and during the continuance of an Event of Default, to: (a) endorse Borrower's or any of its Subsidiaries' name on any checks or other forms of payment or security; (b) sign Borrower's or any of its Subsidiaries' name on any invoice or bill of lading for any Account or drafts against Account Debtors; (c) settle and adjust disputes and claims about the Accounts directly with Account Debtors, for amounts and on terms Collateral Agent determines reasonable; (d) make, settle, and adjust all claims under Borrower's insurance policies; (e) pay, contest or settle any Lien, charge, encumbrance, security interest, and adverse claim in or to the Collateral, or any judgment based thereon, or otherwise take any action to terminate or discharge the same; and (f) transfer the Collateral into the name of Collateral Agent or a third party as the Code or any applicable law permits. Borrower hereby appoints Collateral Agent as its lawful attorney in fact to sign Borrower's or any of its Subsidiaries' name on any documents necessary to perfect or continue the perfection of Collateral Agent's security interest in the Collateral regardless of whether an Event of Default has occurred until all Obligations (other than inchoate indemnity obligations) have been satisfied in full and Collateral Agent and the Lenders are under no further obligation to extend the Term Loan hereunder. Collateral Agent's foregoing appointment as Borrower's or any of its Subsidiaries' attorney in fact, and all of Collateral Agent's rights and powers, coupled with an interest, are irrevocable until all Obligations (other than inchoate indemnity obligations) have been fully repaid and performed and Collateral Agent's and the Lenders' obligation to provide the Term Loan terminates.

9.3 Protective Payments. If Borrower or any of its Subsidiaries fail to obtain the insurance called for bySection 6.5 or fails to pay any premium thereon or fails to pay any other amount which Borrower or any of its Subsidiaries is obligated to pay under this Agreement or any other Loan Document, Collateral Agent may obtain such insurance or make such payment, and all amounts so paid by Collateral Agent are Lenders' Expenses and immediately due and payable, bearing interest at the Default Rate, and secured by the Collateral. Collateral Agent will make reasonable efforts to provide Borrower with notice of Collateral Agent obtaining such insurance or making such payment at the time it is obtained or paid or within a reasonable time thereafter. No such payments by Collateral Agent are deemed an agreement to make similar payments in the future or Collateral Agent's waiver of any Event of Default.

9.4 Application of Payments and Proceeds. Notwithstanding anything to the contrary contained in this Agreement, upon the occurrence and during the continuance of an Event of Default, (a) Borrower irrevocably waives the right to direct the application of any and all payments at any time or times thereafter received by Collateral Agent from or on behalf of Borrower or any of its Subsidiaries of all or any part of the Obligations, and, as between Borrower on the one hand and Collateral Agent and Lenders on the other, Collateral Agent shall have the continuing and exclusive right to apply and to reapply any and all payments received against the Obligations in such manner as Collateral Agent may deem advisable notwithstanding any previous application by Collateral Agent, and (b) the proceeds of any sale of, or other realization upon all or any part of the Collateral shall be applied: first, to the Lenders' Expenses; second, to accrued and unpaid interest and any make-whole amount due on the Obligations (including any amounts which, but for the provisions of the United States Bankruptcy Code, would have accrued on such amounts); third, to any applicable Prepayment Fee or Final Fee; fourth, to the principal amount of the Obligations outstanding; and fifth, to any other indebtedness or obligations of Borrower owing to Collateral Agent or any Lender under the Loan Documents. Any balance remaining shall be delivered to Borrower or to whoever may

be lawfully entitled to receive such balance or as a court of competent jurisdiction may direct. In carrying out the foregoing, (x) amounts received shall be applied in the numerical order provided until exhausted prior to the application to the next succeeding category, and (y) each of the Persons entitled to receive a payment in any particular category shall receive an amount equal to its *pro rata* share of amounts available to be applied pursuant thereto for such category. Any reference in this Agreement to an allocation between or sharing by the Lenders of any right, interest or obligation "ratably," "proportionally" or in similar terms shall refer to Pro Rata Share unless expressly provided otherwise. Collateral Agent, or if applicable, each Lender, shall promptly remit to the other Lenders such sums as may be necessary to ensure the ratable repayment of each Lender's portion of any Term Loan and the ratable distribution of interest, fees and reimbursements paid or made by Borrower. Notwithstanding the foregoing, a Lender receiving a scheduled payment shall not be responsible for determining whether the other Lenders also received their scheduled payment on such date; provided, however, if it is later determined that a Lender received more than its ratable share of scheduled payments made on any date or dates, then such Lender shall remit to Collateral Agent or other Lenders such sums as may be necessary to ensure the ratable payment of such scheduled payments, as instructed by Collateral Agent. If any payment or distribution of any kind or character, whether in cash, properties or securities, shall be received by a Lender in excess of its ratable share, then the portion of such payment or distribution in excess of such Lender's ratable share shall be received by such Lender in trust for and shall be promptly paid over to the other Lender for application to the payments of amounts due on the other Lenders' claims. To the extent any payment for the account of Borrower is required to be returned as a voidable transfer or otherwise, the Lenders shall contribute to one another as is necessary to ensure that such return of payment is on a pro rata basis. If any Lender shall obtain possession of any Collateral, it shall hold such Collateral for itself and as agent and bailee for Collateral Agent and other Lenders for purposes of perfecting Collateral Agent's security interest therein.

9.5 Liability for Collateral. So long as Collateral Agent and the Lenders comply with reasonable lending practices regarding the safekeeping of the Collateral in the possession or under the control of Collateral Agent and the Lenders, Collateral Agent and the Lenders shall not be liable or responsible for: (a) the safekeeping of the Collateral; (b) any loss or damage to the Collateral; (c) any diminution in the value of the Collateral; or (d) any act or default of any carrier, warehouseman, bailee, or other Person. Borrower bears all risk of loss, damage or destruction of the Collateral.

9.6 No Waiver; Remedies Cumulative. Failure by Collateral Agent or any Lender, at any time or times, to require strict performance by Borrower of any provision of this Agreement or any other Loan Document shall not waive, affect, or diminish any right of Collateral Agent or any Lender thereafter to demand strict performance and compliance herewith or therewith. No waiver hereunder shall be effective unless signed by Collateral Agent and the Required Lenders and then is only effective for the specific instance and purpose for which it is given. The rights and remedies of Collateral Agent and the Lenders under this Agreement and the other Loan Documents are cumulative. Collateral Agent and the Lenders have all rights and remedies provided under the Code, any applicable law, by law, or in equity. The exercise by Collateral Agent or any Lender of one right or remedy is not an election, and Collateral Agent's or any Lender's waiver of any Event of Default is not a continuing waiver. Collateral Agent's or any Lender's delay in exercising any remedy is not a waiver, election, or acquiescence.

9.7 Demand Waiver. Borrower waives, to the fullest extent permitted by law, demand, notice of default or dishonor, notice of payment and nonpayment, notice of any default, nonpayment at maturity, release, compromise, settlement, extension, or renewal of accounts, documents, instruments, chattel paper, and guarantees held by Collateral Agent or any Lender on which Borrower or any Subsidiary is liable.

9.8 Standards. Where not expressly founded upon specific rights of Collateral Agent as a secured party under the UCC, the provisions of this Article 9 shall be interpreted as the agreement of Collateral Agent, Lenders and Borrower as to the standards measuring the fulfillment of the duties of Collateral Agent as a secured party. Borrower warrants, represents, and agrees that none of the provisions of this Article are "manifestly unreasonable" for the purposes of Section 9-603 of Article 9 of the UCC. Nothing contained in this Article shall be construed to grant any rights to Borrower or to impose any duties on Collateral Agent that would not have been granted or imposed by this Agreement or by applicable law in the absence of this Article.

10. NOTICES

All notices, consents, requests, approvals, demands, or other communication (collectively, "**Communication**") by any party to this Agreement or any other Loan Document must be in writing and shall be deemed to have been validly served, given, or delivered: (a) upon the earlier of actual receipt and three (3) Business Days after deposit in the U.S. mail, first class, registered or certified mail return receipt requested, with proper postage prepaid; (b) upon transmission, when sent by facsimile or email transmission with confirmation; (c) one (1) Business Day after deposit

with a reputable overnight courier with all charges prepaid and required verification of delivery; or (d) when delivered, if hand delivered by messenger, all of which shall be addressed to the party to be notified and sent to the address, facsimile number, or email address indicated below. Any of Collateral Agent, Lender or Borrower may change its mailing address or facsimile number by giving the other party written notice thereof in accordance with the terms of this Section 10.

If to Borrower: CODEXIS, INC.
200 Penobscot Drive
Redwood City, CA 94063
Attn: Sri Ryali
Email: [*]

with a copy (which shall not constitute notice) to:
Sidley Austin LLP
1001 Page Mill Road, Building 1 Palo Alto, CA 94304
Attn: Cynthia Bai
Email: [*]

If to Collateral Agent: INNOVATUS LIFE SCIENCES LENDING FUND I, LP
777 Third Avenue, 25th Floor
New York, NY 10017
Attn: Claes Ekstrom, Webb George
Email: [*]

with a copy (which shall not constitute notice) to: Cooley LLP
3 Embarcadero Center, 20th Floor
San Francisco, CA 94111
Attn: Mischi a Marca
Fax: (415) 693 2222
Email: [*]

11. CHOICE OF LAW, VENUE AND JURY TRIAL WAIVER

11.1 Waiver of Jury Trial. EACH OF BORROWER, COLLATERAL AGENT AND LENDERS UNCONDITIONALLY WAIVES ANY AND ALL RIGHT TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION (WHETHER BASED ON CONTRACT, TORT OR OTHERWISE) BASED UPON OR ARISING OUT OF THIS AGREEMENT, ANY OF THE OTHER LOAN DOCUMENTS, ANY OF THE INDEBTEDNESS SECURED HEREBY, ANY DEALINGS AMONG BORROWER, COLLATERAL AGENT AND/OR LENDERS RELATING TO THE SUBJECT MATTER OF THIS TRANSACTION OR ANY RELATED TRANSACTIONS, AND/OR THE RELATIONSHIP THAT IS BEING ESTABLISHED AMONG BORROWER, COLLATERAL AGENT AND/OR LENDERS. THE SCOPE OF THIS WAIVER IS INTENDED TO BE ALL ENCOMPASSING OF ANY AND ALL DISPUTES THAT MAY BE FILED IN ANY COURT. THIS WAIVER IS IRREVOCABLE. THIS WAIVER MAY NOT BE MODIFIED EITHER ORALLY OR IN WRITING. THE WAIVER ALSO SHALL APPLY TO ANY SUBSEQUENT AMENDMENTS, RENEWALS, SUPPLEMENTS OR MODIFICATIONS TO THIS AGREEMENT, ANY OTHER LOAN DOCUMENTS, OR TO ANY OTHER DOCUMENTS OR AGREEMENTS RELATING TO THIS TRANSACTION OR ANY RELATED TRANSACTION. THIS AGREEMENT MAY BE FILED AS A WRITTEN CONSENT TO A TRIAL BY THE COURT.

11.2 Governing Law and Jurisdiction.

(a) Governing Law. THIS AGREEMENT, THE OTHER LOAN DOCUMENTS (EXCLUDING THOSE LOAN DOCUMENTS THAT BY THEIR OWN TERMS ARE EXPRESSLY GOVERNED BY THE LAWS OF ANOTHER JURISDICTION) AND THE RIGHTS AND OBLIGATIONS OF THE PARTIES HEREUNDER AND THEREUNDER AND ALL MATTERS ARISING FROM OR RELATED THERETO SHALL IN ALL RESPECTS BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH, THE INTERNAL LAWS OF THE STATE OF NEW YORK (WITHOUT REGARD TO THE CONFLICT OF LAWS PRINCIPLES THAT WOULD RESULT IN THE APPLICATION OF ANY LAWS OTHER THAN THE LAWS OF THE STATE OF NEW YORK), INCLUDING ALL MATTERS OF CONSTRUCTION, VALIDITY

AND PERFORMANCE, REGARDLESS OF THE LOCATION OF THE COLLATERAL, PROVIDED, HOWEVER, THAT IF THE LAWS OF ANY JURISDICTION OTHER THAN NEW YORK SHALL GOVERN IN REGARD TO THE VALIDITY, PERFECTION OR EFFECT OF PERFECTION OF ANY LIEN OR IN REGARD TO PROCEDURAL MATTERS AFFECTING ENFORCEMENT OF ANY LIENS IN COLLATERAL, SUCH LAWS OF SUCH OTHER JURISDICTIONS SHALL CONTINUE TO APPLY TO THAT EXTENT.

(b) Submission to Jurisdiction. Any legal action or proceeding with respect to the Loan Documents shall be brought exclusively in the courts of the State of New York located in the City of New York, Borough of Manhattan, or of the United States of America for the Southern District of New York and, by execution and delivery of this Agreement, Borrower hereby accepts for itself and in respect of its Property, generally and unconditionally, the jurisdiction of the aforesaid courts. Notwithstanding the foregoing, Collateral Agent and Lenders shall have the right to bring any action or proceeding against Borrower (or any property of Borrower) in the court of any other jurisdiction Collateral Agent or Lenders deem necessary or appropriate in order to realize on the Collateral or other security for the Obligations. The parties hereto hereby irrevocably waive any objection, including any objection to the laying of venue or based on the grounds of forum non conveniens, that any of them may now or hereafter have to the bringing of any such action or proceeding in such jurisdictions.

(c) Service of Process. Borrower irrevocably waives personal service of any and all legal process, summons, notices and other documents and other service of process of any kind and consents to such service in any suit, action or proceeding brought in the United States of America with respect to or otherwise arising out of or in connection with any Loan Document by any means permitted by applicable requirements of law, including by the mailing thereof (by registered or certified mail, postage prepaid) to Codexis, Inc., attention: Sri Ryali, located at 200 Penobscot Drive, Redwood City, California 94063, and each Borrower hereby appoints Codexis, Inc. as its agent to receive such service of process. Borrower agrees that a final judgment in any such action or proceeding shall be conclusive and may be enforced in other jurisdictions by suit on the judgment or in any other manner provided by law.

(d) Non-exclusive Jurisdiction. Nothing contained in this Section 11.2 shall affect the right of Collateral Agent or Lenders to serve process in any other manner permitted by applicable requirements of law or commence legal proceedings or otherwise proceed against Borrower in any other jurisdiction.

12. GENERAL PROVISIONS

12.1 Successors and Assigns. This Agreement binds and is for the benefit of the successors and permitted assigns of each party. Borrower may not transfer, pledge or assign this Agreement or any rights or obligations under it without Collateral Agent's prior written consent (which may be granted or withheld in Collateral Agent's discretion, subject to Section 12.5). The Lenders have the right, without the consent of or notice to Borrower, to sell, transfer, assign, pledge, negotiate, or grant participation in (any such sale, transfer, assignment, negotiation, or grant of a participation, a "**Lender Transfer**") all or any part of, or any interest in, the Lenders' obligations, rights, and benefits under this Agreement and the other Loan Documents.

12.2 Indemnification. Borrower agrees to indemnify, defend and hold Collateral Agent and the Lenders and their respective directors, officers, employees, consultants, agents, attorneys, or any other Person affiliated with or representing Collateral Agent or the Lenders (each, an "**Indemnified Person**") harmless against: (a) all obligations, demands, claims, and liabilities (collectively, "**Claims**") asserted by any other party in connection with; related to; following; or arising from, out of or under, the transactions contemplated by the Loan Documents; and (b) all losses or Lenders' Expenses incurred, or paid by Indemnified Person in connection with; related to; following; or arising from, out of or under, the transactions contemplated by the Loan Documents between Collateral Agent, and/or the Lenders and Borrower (including reasonable attorneys' fees and expenses), except for Claims and/or losses directly caused by such Indemnified Person's gross negligence or willful misconduct (as determined in a final, non-appealable judgment of a court of competent jurisdiction). Borrower hereby further indemnifies, defends and holds each Indemnified Person harmless from and against any and all liabilities, obligations, losses, damages, penalties, actions, judgments, suits, claims, costs, expenses and disbursements of any kind or nature whatsoever (including the fees and disbursements of counsel for such Indemnified Person) in connection with any investigative, response, remedial, administrative or judicial matter or proceeding, whether or not such Indemnified Person shall be designated a party thereto and including any such proceeding initiated by or on behalf of Borrower, and the reasonable expenses of investigation by engineers, environmental consultants and similar technical personnel and any commission, fee or compensation claimed by any broker (other than any broker retained by Collateral Agent or Lenders) asserting any right to payment for the transactions contemplated hereby which may be imposed on, incurred by or asserted against such Indemnified Person as a result of or in connection with the transactions contemplated hereby and the use or intended use of the proceeds of the loan proceeds except

for liabilities, obligations, losses, damages, penalties, actions, judgments, suits, claims, costs, expenses and disbursements directly caused by such Indemnified Person's gross negligence or willful misconduct (as determined in a final, non-appealable judgment of a court of competent jurisdiction).

12.3 Severability of Provisions. Each provision of this Agreement is severable from every other provision in determining the enforceability of any provision. Notwithstanding the foregoing, this Agreement and any other Loan Document may be amended by Collateral Agent without the need to obtain the consent of Borrower or any Lender if such amendment is delivered in order to correct or cure (x) ambiguities, errors, omissions, or defects, (y) to effect administrative changes of a technical or immaterial nature or (z) incorrect cross references or similar inaccuracies in this Agreement or the applicable Loan Document.

12.4 Interest Rate Limitation. Notwithstanding anything herein to the contrary, if at any time the interest rate applicable to any Loan, together with all fees, charges and other amounts that are treated as interest on such Loan under Applicable Law (collectively, "**charges**"), shall exceed the maximum lawful rate (the "**Maximum Rate**") that may be contracted for, charged, taken, received or reserved by the Lender holding such Loan in accordance with Applicable Law, the rate of interest payable in respect of such Loan hereunder, together with all charges payable in respect thereof, shall be limited to the Maximum Rate. To the extent lawful, the interest and charges that would have been paid in respect of such Loan but were not paid as a result of the operation of this Section shall be cumulated and the interest and charges payable to such Lender in respect of other Loans or periods shall be increased (but not above the amount collectible at the Maximum Rate therefor). Any amount collected by such Lender that exceeds the maximum amount collectible at the Maximum Rate shall be applied to the reduction of the principal balance of such Loan or refunded to Borrower so that at no time shall the interest and charges paid or payable in respect of such Loan exceed the maximum amount collectible at the Maximum Rate.

12.5 Correction of Loan Documents. Collateral Agent may correct patent errors and fill in any blanks in this Agreement and the other Loan Documents consistent with the agreement of the parties, and shall provide Borrower copies of any such amended Loan Documents.

12.6 Amendments in Writing; Integration.

(a) No amendment, modification, termination or waiver of any provision of this Agreement or any other Loan Document, no approval or consent thereunder, or any consent to any departure by Borrower or any of its Subsidiaries therefrom, shall in any event be effective unless the same shall be in writing and signed by Borrower, Collateral Agent and the Required Lenders provided that:

(i) no such amendment, waiver or other modification that would have the effect of increasing or reducing a Lender's Term Loan Commitment or Commitment Percentage shall be effective as to such Lender without such Lender's written consent;

(ii) no such amendment, waiver or modification that would affect the rights and duties of Collateral Agent shall be effective without Collateral Agent's written consent or signature;

(iii) no such amendment, waiver or other modification shall, unless signed by all the Lenders directly affected thereby, (A) reduce the principal of, rate of interest on or any fees with respect to any Term Loan or forgive any principal, interest (other than default interest) or fees (other than late charges) with respect to any Term Loan; (B) postpone the date fixed for, or waive, any payment of principal of any Term Loan or of interest on any Term Loan (other than default interest) or any fees provided for hereunder (other than late charges or for any termination of any commitment); (C) change the definition of the term "Required Lenders" or the percentage of Lenders which shall be required for the Lenders to take any action hereunder; (D) release all or substantially all, or any material portion, of the Collateral, authorize Borrower to sell or otherwise dispose of all or substantially all, or any material portion, of the Collateral or release any Guarantor of all or any portion of the Obligations or its guaranty obligations with respect thereto, except, in each case with respect to this clause (D), as otherwise may be expressly permitted under this Agreement or the other Loan Documents (including in connection with any disposition permitted hereunder); (E) amend, waive or otherwise modify this Section 12.6 or the definitions of the terms used in this Section 12.6 insofar as the definitions affect the substance of this Section 12.6; (F) consent to the assignment, delegation or other transfer by Borrower of any of its rights and obligations under any Loan Document or release Borrower of its payment obligations under any Loan Document, except, in each case with respect to this clause (F), pursuant to a merger or consolidation permitted pursuant to this Agreement; (G) amend any of the provisions of Section 9.4 or amend any of the definitions of Pro Rata Share, Term Loan Commitment, Commitment Percentage or that provide for the Lenders to receive their Pro Rata Shares of any fees, payments, setoffs or proceeds of Collateral hereunder; (H) subordinate the Liens granted in favor of Collateral Agent securing the Obligations; or

(I) amend any of the provisions of Section 12.6. It is hereby understood and agreed that all Lenders shall be deemed directly affected by an amendment, waiver or other modification of the type described in the preceding clauses (C), (D), (E), (F), (G) and (H) of the immediately preceding sentence; and

(iv) Borrower's consent shall not be required as to any amendment or waiver to Annex I, except as to Section 9 thereof.

(b) Other than as expressly provided for in Section 12.5(a)(i) and (iii), Collateral Agent may, if requested by the Required Lenders, from time to time designate covenants in this Agreement less restrictive by notification to a representative of Borrower.

(c) This Agreement and the Loan Documents represent the entire agreement about this subject matter and supersede prior negotiations or agreements with respect to such subject matter. All prior agreements, understandings, representations, warranties, and negotiations between the parties about the subject matter of this Agreement and the Loan Documents merge into this Agreement and the Loan Documents.

12.7 Counterparts. This Agreement may be executed in any number of counterparts and by different parties on separate counterparts, each of which, when executed and delivered, is an original, and all taken together, constitute one Agreement.

12.8 Survival. All covenants, representations and warranties made in this Agreement continue in full force and effect until this Agreement has terminated pursuant to its terms and all Obligations (other than inchoate indemnity obligations and any other obligations which, by their terms, are to survive the termination of this Agreement) have been satisfied. The obligation of Borrower in Section 12.2 to indemnify each Lender and Collateral Agent, as well as the confidentiality provisions in Section 12.8 below, shall survive until the statute of limitations with respect to such claim or cause of action shall have run.

12.9 Confidentiality. In handling any confidential information each of Borrower, the Lenders and Collateral Agent shall exercise the same degree of care that it exercises for their own proprietary information, but disclosure of information may be made: (a) subject to the terms and conditions of this Agreement, to the Lenders' and Collateral Agent's Subsidiaries or Affiliates; (b) to prospective transferees (other than those identified in (a) above) or purchasers of any interest in the Term Loan (provided, however, the Lenders and Collateral Agent shall, except upon the occurrence and during the continuance of an Event of Default, obtain such prospective transferee's or purchaser's agreement to the terms of this provision or to similar confidentiality terms); (c) as required by law, regulation, subpoena, or other order; (d) to Lenders' or Collateral Agent's regulators (including any self-regulatory authority) or as otherwise required in connection with an examination or audit; (e) in exercising remedies under the Loan Documents or in connection with any suit, action or proceeding relating to this Agreement, any other Loan Document or the enforcement of rights hereunder or the defense of any claim, suit, action or proceeding; (f) with the consent of the Borrower, and (g) to third party service providers of the Lenders and/or Collateral Agent so long as such service providers have executed a confidentiality agreement or have agreed to similar confidentiality terms with the Lenders and Collateral Agent with terms no less restrictive than those contained herein. Confidential information does not include information that either: (i) is in the public domain or in the Lenders' and/or Collateral Agent's possession when disclosed to the Lenders and/or Collateral Agent, or becomes part of the public domain after disclosure to the Lenders and/or Collateral Agent at no fault of the Lenders or Collateral Agent; or (ii) is disclosed to the Lenders and/or Collateral Agent by a third party, if the Lenders and/or Collateral Agent does not know that the third party is prohibited from disclosing the information; or (iii) is independently developed by such Person other than as a result of a breach of this Section 12.8. Collateral Agent and the Lenders may use confidential information for any purpose, including, without limitation, for the development of client databases, reporting purposes, and market analysis. The provisions of the immediately preceding sentence shall survive the termination of this Agreement. The agreements provided under this Section 12.8 supersede all prior agreements, understanding, representations, warranties, and negotiations between the parties about the subject matter of this Section 12.8.

12.10 Limitations of Damages. In no event shall Lenders or Collateral Agent ever be liable to Borrower, nor shall Borrower be liable to Collateral Agent or any Lender for (i) special, consequential, incidental, or other such damages arising from or related to the Term Loans or any of the Loan Documents, or (ii) punitive, exemplary, or other such damages arising from or related to the Term Loans or any of the Loan Documents.

12.11 Waiver as to Assignees. To the fullest extent permitted by Section 9-403 of the UCC, Borrower agrees not to assert against an assignee of any of the Obligations any claim or defense that they may have against Collateral Agent or a Lender.

12.12 Right of Set Off. Borrower hereby grants to Collateral Agent and to each Lender, a lien, security interest and right of set off as security for all Obligations to Collateral Agent and each Lender hereunder, whether now existing or hereafter arising upon and against all deposits, credits, collateral and property, now or hereafter in the possession, custody, safekeeping or control of Collateral Agent or the Lenders or any entity under the control of Collateral Agent or the Lenders (including a Collateral Agent affiliate) or in transit to any of them. At any time after the occurrence and during the continuance of an Event of Default, without demand or notice, Collateral Agent or the Lenders may set off the same or any part thereof and apply the same to any liability or obligation of Borrower even though unmatured and regardless of the adequacy of any other collateral securing the Obligations. ANY AND ALL RIGHTS TO REQUIRE COLLATERAL AGENT TO EXERCISE ITS RIGHTS OR REMEDIES WITH RESPECT TO ANY OTHER COLLATERAL WHICH SECURES THE OBLIGATIONS, PRIOR TO EXERCISING ITS RIGHT OF SETOFF WITH RESPECT TO SUCH DEPOSITS, CREDITS OR OTHER PROPERTY OF BORROWER ARE HEREBY KNOWINGLY, VOLUNTARILY AND IRREVOCABLY WAIVED BY BORROWER.

12.13 Cooperation of Borrower. If necessary, Borrower agrees to (i) execute any documents reasonably required to effectuate and acknowledge each assignment of a Term Loan Commitment or Term Loan to an assignee in accordance with Section 12.1, (ii) make Borrower's management available to meet with Collateral Agent and prospective participants and assignees of Term Loan Commitments (which meetings shall be conducted no more often than twice every twelve months unless an Event of Default has occurred and is continuing), and (iii) assist Collateral Agent or the Lenders in the preparation of information relating to the financial affairs of Borrower as any prospective participant or assignee of a Term Loan Commitment or Term Loan reasonably may request. Subject to the provisions of Section 12.9, Borrower authorizes each Lender to disclose to any prospective participant or assignee of a Term Loan Commitment, any and all information in such Lender's possession concerning Borrower and its financial affairs which has been delivered to such Lender by or on behalf of Borrower pursuant to this Agreement, or which has been delivered to such Lender by or on behalf of Borrower in connection with such Lender's credit evaluation of Borrower prior to entering into this Agreement.

12.14 Public Announcement. Borrower hereby agrees that Collateral Agent and each Lender may make a public announcement of the transactions contemplated by this Agreement, and may publicize the same in marketing materials, newspapers and other publications, and otherwise, and in connection therewith may use Borrower's name, tradenames and logos.

12.15 Collateral Agent and Lender Agreement. Collateral Agent and each Lender hereby agree to the terms and conditions set forth onAnnex I attached hereto. Borrower acknowledges and agrees to the terms and conditions set forth on Annex I attached hereto.

12.16 Borrower Liability. Any Borrower may, acting singly, request Credit Extensions hereunder. Each Borrower hereby appoints the other as agent for the other for all purposes hereunder, including with respect to requesting Credit Extensions hereunder. Each Borrower hereunder shall be jointly and severally obligated to repay all Credit Extensions made hereunder, regardless of which Borrower actually receives said Credit Extension, as if each Borrower hereunder directly received all Credit Extensions. Each Borrower waives (a) any suretyship defenses available to it under the Code or any other applicable law, and (b) any right to require Collateral Agent or any Lender to: (i) proceed against any Borrower or any other person; (ii) proceed against or exhaust any security; or (iii) pursue any other remedy. Collateral Agent and or any Lender may exercise or not exercise any right or remedy it has against any Borrower or any security it holds (including the right to foreclose by judicial or non-judicial sale) without affecting any Borrower's liability. Notwithstanding any other provision of this Agreement or other related document, each Borrower (i) irrevocably waives all rights that it may have at law or in equity subrogating Borrower to the rights of Collateral Agent and the Lenders under this Agreement or otherwise allowing Borrower to benefit from, or to participate in, any security for the Obligations and (ii) waives, until the Obligations have been paid in full, all rights that it may have at law or in equity to seek contribution, indemnification or any other form of reimbursement from any other Borrower, or any other Person now or hereafter primarily or secondarily liable for any of the Obligations, for any payment made by Borrower with respect to the Obligations in connection with this Agreement or otherwise. Any agreement providing for indemnification, reimbursement or any other arrangement prohibited or limited under this Section shall be null and void to the extent of such prohibition or limitation. If any payment is made to a Borrower in contravention of this Section, such Borrower shall hold such payment in trust for Collateral Agent and the Lenders and such payment shall be promptly delivered to Collateral Agent for application to the Obligations, whether matured or unmatured.

13. DEFINITIONS

As used in this Agreement, the following terms have the following meanings:

"**Account**" is any "account" as defined in the Code.

"**Account Debtor**" is any "account debtor" as defined in the Code with such additions to such term as may hereafter be made under the Code.

"**Affiliate**" means, with respect to a specified Person, another Person that, directly or indirectly through one or more intermediaries, (i) Controls or is Controlled by, or is under common Control with, the Person specified, (ii) owns, is owned by, or is under common ownership with, the Person specified, as to more than ten percent (10%) of voting equity or of equity value, or (iii) has a Managing Role with respect to the Person specified or with another Person that is an Affiliate of the specified Person by operation of subsection (i) of this definition.

"**Amortization Date**" is the earliest of (i) an Event of Default occurring and (ii)(x) March 1, 2027, or (y) if the I/O Extension Event occurs, March 1, 2028.

"**Annual Projections**" is defined in Section 6.2(a)(iii).

"**Anti-Terrorism Laws**" are any laws relating to terrorism or money laundering, including without limitation Executive Order No. 13224 (effective September 24, 2001), the USA PATRIOT Act, the laws comprising or implementing the Bank Secrecy Act, and the laws administered by OFAC.

"**Basic Rate**" is with respect to each Term Loan, the floating per annum rate of interest (based on a year of three hundred sixty five (365) days) equal to the sum of (a) the greater of (i) Prime Rate, subject to Section 2.3(f), and (ii) seven and one half percent (7.50%), plus (b) three and one quarter percent (3.25%).

"**Blocked Person**" is any Person: (a) listed in the annex to, or is otherwise subject to the provisions of, Executive Order No. 13224, (b) a Person owned or controlled by, or acting for or on behalf of, any Person that is listed in the annex to, or is otherwise subject to the provisions of, Executive Order No. 13224, (c) a Person with which any Lender is prohibited from dealing or otherwise engaging in any transaction by any Anti-Terrorism Law, (d) a Person that commits, threatens or conspires to commit or supports "terrorism" as defined in Executive Order No. 13224, or (e) a Person that is named a "specially designated national" or "blocked person" on the most current list published by OFAC or other similar list.

"**Borrower's Books**" are Borrower's or any of its Subsidiaries' books and records including ledgers, federal, and state tax returns, records regarding Borrower's or its Subsidiaries' assets or liabilities, the Collateral, business operations or financial condition, and all computer programs or storage or any equipment containing such information.

"**Business Day**" is any day that is not a Saturday, Sunday or a day on which Collateral Agent is closed.

"**Cash Equivalents**" are (a) marketable direct obligations issued or unconditionally guaranteed by the United States or any agency or any State thereof having maturities of not more than one (1) year from the date of acquisition; (b) commercial paper maturing no more than one (1) year after its creation and having the highest rating from either Standard & Poor's Ratings Group or Moody's Investors Service, Inc., and (c) certificates of deposit maturing no more than one (1) year after issue provided that the account in which any such certificate of deposit is maintained is subject to a Control Agreement in favor of Collateral Agent.

"**Code**" is the Uniform Commercial Code, as the same may, from time to time, be enacted and in effect in the State of New York; provided, that, to the extent that the Code is used to define any term herein or in any Loan Document and such term is defined differently in different Articles or Divisions of the Code, the definition of such term contained in Article or Division 9 shall govern; provided further, that in the event that, by reason of mandatory provisions of law, any or all of the attachment, perfection, or priority of, or remedies with respect to, Collateral Agent's Lien on any Collateral is governed by the Uniform Commercial Code in effect in a jurisdiction other than the State of New York, the term "**Code**" shall mean the Uniform Commercial Code as enacted and in effect in such other jurisdiction solely for purposes of the provisions thereof relating to such attachment, perfection, priority, or remedies and for purposes of definitions relating to such provisions.

"**Collateral**" is any and all properties, rights and assets of Borrower described on Exhibit A.

"**Collateral Account**" is any Deposit Account, Securities Account, or Commodity Account, or any other bank account maintained by Borrower or any Subsidiary at any time.

"**Commitment Percentage**" is set forth in Schedule 1.1, as amended from time to time.

"**Commodity Account**" is any "commodity account" as defined in the Code with such additions to such term as may hereafter be made under the Code, except for deposit accounts exclusively used for payroll, payroll taxes and other employee wage and benefit payments to or for the benefit of Borrower's, or any of its Subsidiaries', employees and identified to Collateral Agent by Borrower as such in the Perfection Certificate.

"**Compliance Certificate**" is that certain certificate in substantially the form attached hereto as Exhibit C.

"**Contingent Obligation**" is, for any Person, any direct or indirect liability, contingent or not, of that Person for (a) any indebtedness, lease, dividend, letter of credit or other obligation of another Person such as an obligation directly or indirectly guaranteed, endorsed, co made, discounted or sold with recourse by that Person, or for which that Person is directly or indirectly liable; (b) any obligations for undrawn letters of credit for the account of that Person; and (c) all obligations from any interest rate, currency or commodity swap agreement, interest rate cap or collar agreement, or other agreement or arrangement designated to protect a Person against fluctuation in interest rates, currency exchange rates or commodity prices; but "Contingent Obligation" does not include endorsements in the ordinary course of business. The amount of a Contingent Obligation is the stated or determined amount of the primary obligation for which the Contingent Obligation is made or, if not determinable, the maximum reasonably anticipated liability for it determined by the Person in good faith; but the amount may not exceed the maximum of the obligations under any guarantee or other support arrangement.

"**Control**" means the possession, directly or indirectly, of the power to direct or cause the direction of the management or policies of a Person, whether through the ability to exercise voting power, by contract or otherwise. "Controlling" and "Controlled" have meanings analogous thereto.

"**Control Agreement**" is any control agreement entered into among the depository institution at which Borrower or any of its Subsidiaries maintains a Deposit Account or the securities intermediary or commodity intermediary at which Borrower or any of its Subsidiaries maintains a Securities Account or a Commodity Account, Borrower and such Subsidiary, and Collateral Agent pursuant to which Collateral Agent, for the benefit of the Lenders, obtains "control" (within the meaning of the Code) over such Deposit Account, Securities Account, or Commodity Account.

"**Copyrights**" are any and all copyright rights, copyright applications, copyright registrations and like protections in each work of authorship and derivative work thereof, whether published or unpublished and whether or not the same also constitutes a trade secret.

"**Credit Extension**" means an advance of funds under a Term Loan.

"**Default**" means an event that with the passage of time could result in an Event of Default.

"**Deposit Account**" is any "deposit account" as defined in the Code with such additions to such term as may hereafter be made.

"**Deprioritized Biotherapeutics**" are [*].

"**Deprioritized Life Science Enzymes**" are [*].

"**Disbursement Letter**" is that certain form attached hereto as Exhibit B-2.

"**DOJ**" means the U.S. Department of Justice or any successor thereto or any other comparable Governmental Authority.

"**Dollars**," "dollars" and "$" each mean lawful money of the United States.

"**Equipment**" is all "equipment" as defined in the Code with such additions to such term as may hereafter be made, and includes without limitation all machinery, fixtures, and vehicles (including motor vehicles and trailers) not held for sale or lease, and any interest in any of the foregoing.

"**ERISA**" is the Employee Retirement Income Security Act of 1974, as amended, and its regulations.

"**Excluded Account**" means (i) deposit accounts exclusively used for payroll, payroll taxes and other employee wage and benefit payments to or for the benefit of Borrower's, or any of its Subsidiaries' employees, (ii) collateral accounts permitted under clause (l) of the definition of Permitted Liens, in each case identified to Collateral Agent by Borrower as such, and (iii) any other deposit account of Borrower or any Subsidiary which Collateral Agent agrees in its discretion may be deemed an "Excluded Account".

"**Exigent Circumstance**" means any event or circumstance that, in the reasonable judgment of Collateral Agent, imminently threatens the ability of Collateral Agent to realize upon all or any material portion of the Collateral, such as, without limitation, fraudulent removal, concealment, or abscondment thereof, destruction or material waste thereof, or failure of Borrower or any of its Subsidiaries after reasonable demand to maintain or reinstate adequate casualty insurance coverage, or which, in the judgment of Collateral Agent, could reasonably be expected to result in a material diminution in value of the Collateral.

"**Facility Fee**" is a fee due on each Funding Date, an amount equal to 1.00% of the amount of Term Loan funded on such Funding Date, payable to the Lenders in accordance with their respective Pro Rata Shares.

"**FDA**" means the U.S. Food and Drug Administration or any successor thereto or any other comparable Governmental Authority.

"**Final Fee**" is a payment (in addition to and not a substitution for the regular monthly payments of principal or accrued interest or any other fee payable hereunder) due on the earliest to occur of (a) the Maturity Date, or (b) the acceleration of any Term Loan, or (c) the prepayment of the Term Loan pursuant to Section 2.2(c) or (d), in each case equal to three percent (3.00%) *multiplied* by the aggregate amount of the Term Loans funded under this Agreement, payable to Lenders in accordance with their respective Pro Rata Shares.

"**Foreign Subsidiary**" is a Subsidiary that is not an entity organized under the laws of the United States or any state thereof.

"**Funding Date**" is any date on which the Term Loan is made to or on account of Borrower, which shall be a Business Day.

"**GAAP**" is generally accepted accounting principles set forth in the opinions and pronouncements of the Accounting Principles Board of the American Institute of Certified Public Accountants and statements and pronouncements of the Financial Accounting Standards Board or in such other statements by such other Person as may be approved by a significant segment of the accounting profession in the United States, which are applicable to the circumstances as of the date of determination.

"**General Intangibles**" are all "general intangibles" as defined in the Code in effect on the date hereof with such additions to such term as may hereafter be made, and includes without limitation, all copyright rights, copyright applications, copyright registrations and like protections in each work of authorship and derivative work, whether published or unpublished, any patents, trademarks, service marks and, to the extent permitted under applicable law, any applications therefor, whether registered or not, any trade secret rights, including any rights to unpatented inventions, payment intangibles, royalties, contract rights, goodwill, franchise agreements, purchase orders, customer lists, route lists, telephone numbers, domain names, claims, income and other tax refunds, security and other deposits, options to purchase or sell real or personal property, rights in all litigation presently or hereafter pending (whether in contract, tort or otherwise), insurance policies (including without limitation key man, property damage, and business interruption insurance), payments of insurance and rights to payment of any kind.

"**Governmental Approval**" is any consent, authorization, approval, order, license, franchise, permit, certificate, accreditation, registration, filing or notice, of, issued by, from or to, or other act by or in respect of, any Governmental Authority.

"**Governmental Authority**" is any nation or government, any state or other political subdivision thereof, any agency, authority, instrumentality, regulatory body (including, without limitation, the FDA and any state board of pharmacy or state pharmacy licensing authority), court, central bank, arbitration authority, or other entity exercising executive, legislative, judicial, quasi-judicial, taxing, regulatory or administrative functions of or pertaining to government, any securities exchange and any self-regulatory organization.

"**Guarantor**" is any Person providing a Guaranty in favor of Collateral Agent for the benefit of the Lenders.

"**Guaranty**" is any guarantee of all or any part of the Obligations, as the same may from time to time be amended, restated, modified or otherwise supplemented.

"**I/O Extension Event**" means Borrower has achieved, prior to March 1, 2027, trailing twelve months of Operating Cash Flow greater than $0.

"**Indebtedness**" is (a) indebtedness for borrowed money or the deferred price of property or services, such as reimbursement and other obligations for surety bonds and letters of credit, excluding unsecured trade payables arising in the ordinary course of business, (b) obligations evidenced by notes, bonds, debentures or similar instruments, (c) capital lease obligations, and (d) Contingent Obligations.

"**Insolvency Proceeding**" is any proceeding by or against any Person under the United States Bankruptcy Code, or any other bankruptcy or insolvency law, including assignments for the benefit of creditors, compositions or proceedings seeking reorganization, arrangement, or other relief.

"**Insolvent**" means not Solvent.

"**Intellectual Property**" means all of Borrower's or any of its Subsidiaries' right, title and interest in and to the following:

(a) its Copyrights, Trademarks and Patents;

(b) any and all trade secrets and trade secret rights, including, without limitation, any rights to unpatented inventions, know how, operating manuals;

(c) any and all source code;

(d) any and all design rights which may be available to Borrower;

(e) any and all claims for damages by way of past, present and future infringement of any of the foregoing, with the right, but not the obligation, to sue for and collect such damages for said use or infringement of the Intellectual Property rights identified above;

(f) all amendments, renewals and extensions of any of the Copyrights, Trademarks or Patents; and

(g) all licenses, sublicenses or other contracts under which Borrower or any Subsidiary is granted rights by third parties in any Intellectual Property asset.

"**Inventory**" is all "inventory" as defined in the Code in effect on the date hereof with such additions to such term as may hereafter be made under the Code, and includes without limitation all merchandise, raw materials, parts, supplies, packing and shipping materials, work in process and finished products, including without limitation such inventory as is temporarily out of any Person's custody or possession or in transit and including any returned goods and any documents of title representing any of the above.

"**Investment**" is any beneficial ownership interest in any Person (including stock, partnership interest or other securities), and any loan, advance or capital contribution to any Person.

"**IP Security Agreement**" is that certain Intellectual Property Security Agreement executed and delivered by Borrower to Collateral Agent and dated as of the Effective Date, as may be amended, restated, or otherwise modified or supplemented from time to time.

"**Issuer**" means an issuer of Shares.

"**Key Person**" is each of Borrower's (i) [*], (ii) [*]and (iii) [*].

"**Knowledge**" means to the "best of" Borrower's knowledge, or with a similar qualification, knowledge or awareness means the actual knowledge, after reasonable investigation, of the Responsible Officers.

"**Lender**" is any one of the Lenders.

"**Lenders**" are the Persons identified on Schedule 1.1 hereto and each assignee that becomes a party to this Agreement pursuant to Section 12.1.

"**Lenders' Expenses**" are all reasonable and documented audit fees and expenses, costs, and expenses (including reasonable and documented out-of-pocket attorneys' fees and expenses, as well as appraisal fees, fees incurred on account of lien searches, inspection fees, auditor fees and filing fees) for preparing, amending, negotiating, administering, defending and enforcing the Loan Documents (including, without limitation, those incurred in connection with appeals or Insolvency Proceedings) or otherwise incurred by Collateral Agent and/or the Lenders in connection with the Loan Documents.

"**Lien**" is a claim, mortgage, deed of trust, levy, charge, pledge, security interest, or other encumbrance of any kind, whether voluntarily incurred or arising by operation of law or otherwise against any property.

"**Loan Documents**" are, collectively, this Agreement, the IP Security Agreement, each Secured Promissory Note, each Warrant, the Perfection Certificate(s), each Control Agreement, each Compliance Certificate, each Loan Payment Request Form, each Disbursement Letter, any subordination agreements, any note, or notes or guaranties executed by Borrower or any other Person, and any other present or future agreement entered into by Borrower, any Guarantor or any other Person for the benefit of the Lenders and Collateral Agent in connection with this Agreement; all as amended, restated, or otherwise modified or supplemented from time to time.

"**Loan Party**" or "**Loan Parties**" means each Borrower and each Guarantor.

"**Loan Payment Request Form**" is that certain form attached hereto as Exhibit B-1.

"**Management Plan**" is Borrower's projected revenue provided to Collateral Agent as of the Effective Date, as such Management Plan may be updated from time to time in accordance with Section 8.2.

"**Managing Role**" means a managing member, manager, director, executive officer, or other role with senior management responsibilities as to a Person.

"**Market Capitalization**" means, with respect to Borrower, as of any date of determination, an amount equal to the closing price (or 30-day volume weighted average price where specified) of Borrower's common shares multiplied by the total outstanding common shares of Borrower as of such date.

"**Material Adverse Change**" is an event or circumstance that, either individually or in the aggregate, has had or could reasonably be expected to have a Material Adverse Effect.

"**Material Adverse Effect**" is (a) a material adverse change in, or a material adverse effect on, the operations, business, properties, liabilities (actual or contingent), condition (financial or otherwise), or prospects of Borrower or any Subsidiary or guarantor of the Obligations, including such changes affecting Borrower that result from matters that generally affect the industries and markets in which Borrower operates, such as changes in financial markets or general economic conditions and outbreak or escalation of war or major hostilities or epidemic or acts of terrorism, or (b) a material adverse effect on (i) the ability of Borrower to timely perform its Obligations including with respect to the Collateral, (ii) the legality, validity, binding effect, or enforceability against Borrower of any Loan Document to which it is a party or (iii) the rights, remedies and benefits available to, or conferred upon, Collateral Agent or any Lender under any Loan Documents.

"**Material Agreement**" is any license, agreement or other contractual arrangement with any Person (i) whereby Borrower or any of its Subsidiaries is or is reasonably likely to pay or receive aggregate consideration on or after the Effective Date equal to at least $5,000,000, (ii) that is otherwise material to the business, condition (financial or otherwise), operations, performance, properties, or prospects of Borrower or any Subsidiary such that the termination thereof of or default thereunder by any Person would reasonably be expected to have a Material Adverse Effect.

"**Maturity Date**" is February 13, 2029.

"**Net Product Revenue**" is the sum, as of any period of determination, of (i) consolidated product revenue determined in accordance with GAAP for such period and (ii) revenue from licensing, royalties, collaboration and

partnership transactions for such period related to Borrower's ECO Synthesis and CodeEvolver platforms, or other partnered enzymes that may not be accounted for as product revenue under GAAP (but otherwise determined in accordance with GAAP); provided that Net Product Revenue excludes Research and Development Revenue and Paxlovid Revenue.

"**Obligations**" are all of Borrower's obligations to pay when due any debts, principal, interest, make-whole amount, Lenders' Expenses, the Prepayment Fee, the Final Fee, and other amounts Borrower owes the Lenders now or later, in connection with, related to, following, or arising from, out of or under, this Agreement or the other Loan Documents (other than the Warrant), or otherwise, and including interest and other amounts accruing after Insolvency Proceedings begin (whether or not allowed) and debts, liabilities, or obligations of Borrower assigned to the Lenders and/or Collateral Agent, and the performance of Borrower's duties under the Loan Documents (other than the Warrant).

"**OFAC**" is the U.S. Department of Treasury Office of Foreign Assets Control.

"**OFAC Lists**" are, collectively, the Specially Designated Nationals and Blocked Persons List maintained by OFAC pursuant to Executive Order No. 13224, 66 Fed. Reg. 49079 (Sept. 25, 2001) and/or any other list of terrorists or other restricted Persons maintained pursuant to any of the rules and regulations of OFAC or pursuant to any other applicable Executive Orders.

"**Operating Cash Flow**" is, for any period, cash flow from operations including capital expenditures for such period, determined in accordance with GAAP.

"**Operating Documents**" are, for any Person, such Person's formation documents, as certified by the Secretary of State (or equivalent agency) of such Person's jurisdiction of organization on a date that is no earlier than thirty (30) days prior to the Effective Date, and, (a) if such Person is a corporation, its bylaws in current form, (b) if such Person is a limited liability company, its limited liability company agreement (or similar agreement), and (c) if such Person is a partnership, its partnership agreement (or similar agreement), each of the foregoing with all current amendments or modifications thereto.

"**Patents**" means all patents, patent applications and like protections including without limitation improvements, divisions, continuations, renewals, reissues, re-examination certificates, utility models, extensions and continuations-in-part of the same.

"**Paxlovid Revenue**" is the retainer fee to the extent recognized as revenue on Borrower's statement of operations prepared in accordance with GAAP arising out of the sale of CDX-616 to Pfizer Inc. and its affiliates for the manufacture of Paxlovid (including any such revenue recognized in respect of that certain Enzyme Supply Agreement, dated July 14, 2022, between Borrower and Pfizer Ireland Pharmaceuticals, as amended, restatement, replaced, supplemented or otherwise modified from time to time).

"**Payment Date**" is the first (1st) calendar day of each calendar month, commencing on March 1, 2024.

"**Permitted Exclusive Licenses**" are (i) exclusive licenses existing as of the Effective Date and disclosed to Lender in the Perfection Certificate, including any extensions, renewals, and replacements thereof, (ii) [*], (iii) [*], (iv) [*], and (v) [*].

"**Permitted Indebtedness**" is:

(a) Borrower's Indebtedness to the Lenders and Collateral Agent under this Agreement and the other Loan Documents;

(h) Indebtedness existing on the Effective Date and disclosed on the Perfection Certificate(s);

(i) Subordinated Debt;

(j) Indebtedness in connection with credit cards incurred in the ordinary course of business;

(k) Indebtedness consisting of capitalized lease obligations and purchase money Indebtedness, in each case incurred by Borrower or any of its Subsidiaries to finance the acquisition, repair, improvement or construction of fixed or capital assets of such Person, provided that (i) the aggregate outstanding

principal amount of all such Indebtedness does not exceed Two Hundred Fifty Thousand Dollars ($250,000.00) at any time and (ii) the principal amount of such Indebtedness does not exceed the lower of the cost or fair market value of the property so acquired or built or of such repairs or improvements financed with such Indebtedness (each measured at the time of such acquisition, repair, improvement or construction is made);

(l) Indebtedness incurred as a result of endorsing negotiable instruments received in the ordinary course of Borrower's business;

(m) Indebtedness consisting of letters of credit in an amount not to exceed Five Hundred Thousand Dollars ($500,000) in the aggregate at any time;

(n) Intercompany indebtedness constituting a Permitted Investment;

(o) guarantees of Permitted Indebtedness;

(p) unsecured Indebtedness in an aggregate amount not to exceed Two Hundred Fifty Thousand Dollars ($250,000) at any time; and

(q) extensions, refinancings, modifications, amendments and restatements of any items of Permitted Indebtedness (a) through (j) above, provided that the principal amount thereof is not increased or the terms thereof are not modified to impose materially more burdensome terms upon Borrower, or its Subsidiary, as the case may be.

"**Permitted Investments**" are:

(a) Investments disclosed on the Perfection Certificate(s) and existing on the Effective Date;

(b) Investments consisting of cash and Cash Equivalents, and any Investments permitted by Borrower's investment policy, as amended from time to time, provided that such investment policy (and any such amendment thereto) has been approved in writing by Collateral Agent;

(c) Investments consisting of the endorsement of negotiable instruments for deposit or collection or similar transactions in the ordinary course of Borrower;

(d) Investments consisting of Excluded Accounts and Deposit Accounts in which Collateral Agent has a perfected security interest;

(e) Investments in connection with Transfers permitted by Section 7.1;

(f) Investments consisting of (i) travel advances and employee relocation loans and other employee loans and advances in the ordinary course of business, and (ii) loans to employees, officers or directors relating to the purchase of equity securities of Borrower or its Subsidiaries pursuant to employee stock purchase plans or agreements approved by Borrower's board of directors, not to exceed One Hundred Seventy Five Thousand Dollars ($175,000.00) in the aggregate for (i) and (ii) in any fiscal year;

(g) Investments (including debt obligations) received in connection with the bankruptcy or reorganization of customers or suppliers and in settlement of delinquent obligations of, and other disputes with, customers or suppliers arising in the ordinary course of business;

(h) Investments consisting of notes receivable of, or prepaid royalties and other credit extensions, to customers and suppliers who are not Affiliates, in the ordinary course of business; provided that this paragraph (h) shall not apply to Investments of Borrower in any Subsidiary;

(i) Investments (i) by a Loan Party in another Loan Party, (ii) by a Subsidiary that is not a Loan Party in a Loan Party, (iii) by a Loan Party in Subsidiaries (other than Subsidiaries existing on the Effective Date that are not Loan Parties), that are not Loan Parties in an aggregate amount not to exceed Fifty Thousand Dollars ($50,000.00) per fiscal year;

(j) cash Investments in joint ventures or strategic alliances in an amount not to exceed Two Hundred Fifty Thousand Dollars ($250,000.00) in any fiscal year and One Million Dollars ($1,000,000.00) in the aggregate;

(k) non-cash Investments in joint ventures or strategic alliances in the ordinary course of Borrower's business consisting of the non-exclusive licensing of technology, the development of technology or the providing of technical support; and

(l) other Investments not exceeding Five Hundred Thousand Dollars ($500,000) in the aggregate in any fiscal year of Borrower.

"**Permitted Licenses**" are (A) licenses of over-the-counter software that is commercially available to the public, (B) non-exclusive licenses for the use of the Intellectual Property of Borrower or any of its Subsidiaries related to ECO Synthesis and CodeEvolver platforms entered into in the ordinary course of business, (C) Permitted Exclusive Licenses, (D) any other licenses for the use of the Intellectual Property of Borrower or any of its Subsidiaries consented to by the Required Lenders (which shall not be unreasonably withheld), and (E) non-exclusive intercompany licenses, sublicenses or grants of rights for development, manufacture, production, commercialization (including commercial sales to end users), marketing, promotion, co-promotion, sales or distribution, in each case, solely among the Loan Parties; provided, that, with respect to each such license described in clauses (B), (C) or (D), the license constitutes an arm's-length transaction, the terms of which, on their face, do not provide for a sale or assignment of such Intellectual Property that would result in or the equivalent of a transfer of title of such Intellectual Property, and do not restrict the ability of Borrower or any of its Subsidiaries, as applicable, to (i) pledge, grant a security interest in or lien on, or assign or otherwise Transfer any Intellectual Property or (ii) grant a security interest to Collateral Agent therein.

"**Permitted Liens**" are:

(a) Liens existing on the Effective Date and disclosed on the Perfection Certificates or arising under this Agreement and the other Loan Documents;

(b) Liens for taxes, fees, assessments or other government charges or levies, either (i) not due and payable or (ii) being contested in good faith and for which Borrower maintains adequate reserves on Borrower's Books, provided that no notice of any such Lien has been filed or recorded under the Internal Revenue Code of 1986, as amended, and the Treasury Regulations adopted thereunder;

(c) liens securing Indebtedness permitted under clause (e) of the definition of "Permitted Indebtedness," provided that (i) such liens exist prior to the acquisition of, or attach substantially simultaneous with, or within twenty (20) days after the, acquisition, lease, repair, improvement or construction of, such property financed or leased by such Indebtedness and (ii) such liens do not extend to any property of Borrower other than the property (and proceeds thereof) acquired, leased or built, or the improvements or repairs, financed by such Indebtedness;

(d) Liens of carriers, warehousemen, suppliers, or other Persons that are possessory in nature arising in the ordinary course of business so long as such Liens attach only to Inventory, securing liabilities in the aggregate amount not to exceed Three Hundred Fifty Thousand Dollars ($350,000.00), and which are not delinquent or remain payable without penalty or which are being contested in good faith and by appropriate proceedings which proceedings have the effect of preventing the forfeiture or sale of the property subject thereto;

(e) Liens to secure payment of workers' compensation, employment insurance, old age pensions, social security and other like obligations incurred in the ordinary course of business (other than Liens imposed by ERISA);

(f) servitudes, easements, rights of way, restrictions and other similar encumbrances on real property imposed by applicable laws and encumbrances consisting of zoning or building restrictions, easements, licenses, restrictions on the use of property or minor imperfections in title thereto which, in the aggregate, are not material, and which do not in any case materially detract from the value of the property subject thereto or interfere with the ordinary conduct of the business;

(g) deposits or pledges of cash to secure bids, tenders, contracts (other than contracts for the payment of money), leases, surety and appeal bonds and other obligations of a like nature arising in the ordinary

course of business, in an aggregate amount not exceeding Two Hundred and Fifty Thousand Dollars ($250,000) at any time;

(h) Liens incurred in the extension, renewal or refinancing of the indebtedness secured by Liens described in (a) through (c), but any extension, renewal or replacement Lien must be limited to the property encumbered by the existing Lien and the principal amount of the indebtedness may not increase;

(i) leases or subleases of real property granted in the ordinary course of Borrower's business (or, if referring to another Person, in the ordinary course of such Person's business), and leases, subleases, non-exclusive licenses or sublicenses of personal property (other than Intellectual Property) granted in the ordinary course of Borrower's business (or, if referring to another Person, in the ordinary course of such Person's business), if the leases, subleases, licenses and sublicenses do not prohibit granting Collateral Agent or any Lender a security interest in such license;

(j) banker's liens, rights of setoff and Liens in favor of financial institutions incurred in the ordinary course of business arising in connection with Borrower's deposit accounts or securities accounts held at such institutions solely to secure payment of fees and similar costs and expenses and provided such accounts are maintained in compliance with Section 6.6 hereof;

(k) Liens arising from judgments, decrees or attachments in circumstances not constituting an Event of Default under Section 8.4 or 8.7;

(l) Liens securing Indebtedness described in clause (g) of the definition of "Permitted Indebtedness"; and

(m) Permitted Licenses.

"**Person**" is any individual, sole proprietorship, partnership, limited liability company, joint venture, company, trust, unincorporated organization, association, corporation, institution, public benefit corporation, firm, joint stock company, estate, entity or Governmental Authority.

"**Prepayment Fee**" is, with respect to any Term Loan subject to prepayment prior to the Maturity Date, whether by mandatory or voluntary prepayment, acceleration or otherwise, an additional fee payable to the Lenders in amount equal to:

(a) for a prepayment made on or after the Effective Date through and including the first anniversary of the Effective Date, three percent (3.00%) of the principal and accrued interest amount of the Term Loan prepaid; provided, however, no voluntary prepayment may be made during such period;

(b) for a prepayment made after the date which is the first anniversary of the Effective Date through and including the date which is the second anniversary of the Effective Date, two percent (2.00%) of the principal and accrued interest amount of the Term Loan prepaid; and

(c) for a prepayment made after the date which is the second anniversary of the Effective Date through and including the date which is the third anniversary of the Effective Date, one percent (1.00%) of the principal and accrued interest amount of the Term Loan prepaid; and

(d) for a prepayment made after the date which is the third anniversary of the Effective Date and prior to the Maturity Date, zero percent (0.00%) of the principal and accrued interest amount of the Term Loan prepaid.

"**Prime Rate**" is the Prime Rate published in the Money Rates section of The Wall Street Journal.

"**Property**" means any interest in any kind of property or asset, whether real, personal or mixed, and whether tangible or intangible.

"**Pro Rata Share**" is, as of any date of determination, with respect to each Lender, a percentage (expressed as a decimal, rounded to the ninth decimal place) determined by dividing the outstanding principal amount of the Term Loan held by such Lender by the aggregate outstanding principal amount of the Term Loan.

"**Registered Organization**" is any "registered organization" as defined in the Code with such additions to such term as may hereafter be made under the Code.

"**Registration**" means any registration, authorization, approval, license, permit, clearance, certificate, and exemption issued or allowed by the FDA or state pharmacy licensing authorities (including, without limitation, new drug applications, abbreviated new drug applications, biologics license applications, investigational new drug applications, over-the-counter drug monograph, device pre-market approval applications, device pre-market notifications, investigational device exemptions, product recertifications, manufacturing approvals, registrations and authorizations, CE Marks, pricing and reimbursement approvals, labeling approvals or their foreign equivalent, controlled substance registrations, and wholesale distributor permits).

"**Regulatory Action**" means an administrative, regulatory, or judicial enforcement action, proceeding, investigation or inspection, FDA Form 483 notice of inspectional observation, warning letter, untitled letter, other notice of violation letter, recall, seizure, Section 305 notice or other similar written communication, injunction or consent decree, issued by the FDA or a federal or state court.

"**Related Persons**" means, with respect to any Person, each Affiliate of such Person and each director, officer, employee, agent, trustee, representative, attorney, accountant and each insurance, environmental, legal, financial and other advisor and other consultants and agents of or to such Person or any of its Affiliates.

"**Required Lenders**" means (i) for so long as all of the Persons that are Lenders on the Effective Date (each an "**Original Lender**") have not assigned or transferred any of their interests in the Term Loan, Lenders holding one hundred percent (100%) of the aggregate outstanding principal balance of the Term Loan, or (ii) at any time from and after any Original Lender has assigned or transferred any interest in its Term Loan, Lenders holding at least fifty one percent (51%) of the aggregate outstanding principal balance of the Term Loan.

"**Requirement of Law**" is as to any Person, the organizational or governing documents of such Person, and any law (statutory or common), treaty, rule or regulation or determination of an arbitrator or a court or other Governmental Authority, in each case applicable to or binding upon such Person or any of its property or to which such Person or any of its property is subject.

"**Research and Development Revenue**" is all research services fees classified as research and development revenue on Borrower's statement of operations prepared in accordance with GAAP.

"**Responsible Officer**" is any of the [*].

"**Secured Promissory Note**" is defined in Section 2.6.

"**Secured Promissory Note Record**" is a record maintained by each Lender with respect to the outstanding Obligations owed by Borrower to Lender and credits made thereto.

"**Securities Account**" is any "securities account" as defined in the Code with such additions to such term as may hereafter be made under the Code.

"**Shares**" is one hundred percent (100.00%) of the stock, units or other evidence of ownership held by Borrower or its Subsidiaries of any Subsidiary; provided, however, as to any stock, units or other evidence of ownership held by Borrower or its Subsidiary in a Foreign Subsidiary, "Shares" shall be limited to the greater of sixty-five percent (65%) of the Foreign Subsidiary or the maximum portion thereof that may from time to time be pledged without causing a material adverse tax consequence to Borrower.

"**Solvent**" is, with respect to any Person: the fair salable value of such Person's consolidated assets (including goodwill minus disposition costs) exceeds the fair value of such Person's liabilities; such Person is not left with unreasonably small capital after the transactions in this Agreement; and such Person is able to pay its debts (including trade debts) as they mature in the ordinary course (without taking into account any forbearance and extensions related thereto).

"**Subordinated Debt**" is indebtedness incurred by Borrower or any of its Subsidiaries subordinated to all Indebtedness of Borrower and/or its Subsidiaries to the Lenders (pursuant to a subordination, intercreditor, or other similar agreement in form and substance satisfactory to Collateral Agent and the Lenders entered into between

Collateral Agent, Borrower, and/or any of its Subsidiaries, and the other creditor), on terms acceptable to Collateral Agent and the Lenders, as determined in their sole discretion.

"**Subsidiary**" is, with respect to any Person, any Person of which more than fifty percent (50%) of the voting stock or other equity interests (in the case of Persons other than corporations) is owned or controlled, directly or indirectly, by such Person or through one or more intermediaries. Unless otherwise specified, references herein to a Subsidiary means a Subsidiary of Borrower.

"**Term Loan**" is defined in Section 2.2(a)(ii).

"**Term A Loan**" is defined in Section 2.2(a)(i).

"**Term B Loan**" is defined in Section 2.2(a)(ii).

"**Term B Draw Period**" means the period commencing on the later of January 1, 2025 and the first date on which Borrower achieves the Term B Milestone and ending on the earlier of (i) June 30, 2025 or (ii) the occurrence of an Event of Default (unless such Event of Default is waived by Collateral Agent and Lenders for the purposes of the continuation of the Term B Draw Period); provided, however, that the Term B Draw Period shall not commence if when Borrower achieves the Term B Milestone, an Event of Default has occurred and is continuing.

"**Term B Milestone**" is the achievement by Borrower of (i) TTM Net Product Revenue of [*], and (ii) the pro forma, after giving effect to the Term B Loan, ratio of aggregate amount of Indebtedness of Borrower to its then Market Capitalization (based on a 30-day volume weighted average price) equal to twenty five percent (25.00%) or less.

"**Term Loan Commitment**" is, for any Lender, the obligation of such Lender to make the Term Loan, up to the principal amount shown on Schedule 1.1. "**Term Loan Commitments**" means the aggregate amount of such commitments of all Lenders.

"**Trademarks**" means any trademark and servicemark rights, whether registered or not, applications to register and registrations of the same and like protections, and the entire goodwill of the business of Borrower and each of its Subsidiaries connected with and symbolized by such trademarks.

"**TTM Net Product Revenue**" means trailing twelve (12) months' Net Product Revenue, as of any date of determination.

"**Warrant**" means any of that certain Warrant to Purchase Stock dated the Effective Date issued by Borrower in favor of each Lender or such Lender's Affiliates or any other warrant entered into in connection with the Term Loan, all as may be amended, restated, or otherwise modified or supplemented from time to time.

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IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the Effective Date.

BORROWER:

CODEXIS, INC.

By /s/ Sri Ryali
Name: Sri Ryali
Title: Chief Financial Officer

COLLATERAL AGENT AND LENDER:

INNOVATUS LIFE SCIENCES LENDING FUND I, LP

By: Innovatus Life Sciences GP, LP
Its: General Partner

By /s/ Andy Dym
Name: Andy Dym
Title: Authorized Signer

[*] = CERTAIN MARKED INFORMATION HAS BEEN OMITTED FROM THIS EXHIBIT BECAUSE IT IS BOTH NOT MATERIAL AND IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

SCHEDULE 1.1

Lenders and Commitments

[*]

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EXHIBIT A

Description of Collateral

The Collateral consists of all of Borrower's presently owned and hereafter acquired or arising right, title and interest in and to following personal property and fixtures:

All goods, Accounts (including health care insurance receivables), Equipment, fixtures, Inventory, contract rights or rights to payment of money, leases, license agreements, franchise agreements, General Intangibles (including Intellectual Property, payment intangibles, and software), commercial tort claims, documents, instruments (including any promissory notes), chattel paper (whether tangible or electronic), cash, money, deposit accounts and other Collateral Accounts, all certificates of deposit, fixtures, letters of credit (whether or not the letter of credit is evidenced by a writing) and letter-of-credit rights, investment property (including certificated securities, uncertificated securities, securities entitlements, securities accounts, commodity contracts, and commodity accounts), supporting obligations, and financial assets, whether now owned or hereafter acquired, wherever located; and

All Borrower's Books relating to the foregoing, and any and all claims, rights and interests in any of the above and all substitutions for, additions, attachments, accessories, accessions and improvements to and replacements, products, proceeds and insurance proceeds of any or all of the foregoing.

Notwithstanding the foregoing, the Collateral shall not include: (i) any interest of a Loan Party as a lessee under an Equipment lease if such Loan Party is prohibited by the terms of such lease from granting a security interest in such lease or under which such an assignment or Lien would cause a default to occur under such lease; provided, however, that upon termination of such prohibition, such interest shall immediately become Collateral without any action by any Loan Party or Lender, (ii) Equipment that is subject to a Permitted Lien in connection with the financing of such Equipment if the holder of such Lien has prohibited in writing the applicable Loan Party from granting Liens on such property in favor of third parties; provided that immediately upon the ineffectiveness, lapse or termination of any such provision, the term "Collateral" shall automatically include, and the applicable Loan Party shall be deemed to have granted a security interest in, all of its rights, title and interests in and to such property as if such provision had never been in effect, (iii) any Excluded Accounts, (iv) the equity interests in any joint venture where the pledge of such equity interests would be prohibited by any applicable contractual requirement pertaining to any such joint venture, or (v) any leases, licenses, permits or agreements to which Borrower is a party, or any of its right, title or interest thereunder, to the extent that, and for so long as, a grant of a security interest therein would, under the express terms of such lease, license, permit or agreement, result in a breach of the terms of, constitute a default under or create a right of termination in favor of any party thereto (other than Borrower) under, such lease, license, permit or agreement (other than to the extent that any such term (a) has been waived or (b) would be rendered ineffective pursuant to Sections 9-406, 9-407, 9-408, 9-409 of the UCC or other applicable provisions of the UCC of any relevant jurisdiction or any other applicable law or principles of equity); provided, however, that (x) the Collateral shall include (and such security interest shall attach) immediately upon the ineffectiveness, lapse, termination or waiver of such provision and (y) the Collateral shall include all proceeds arising under or from any such lease, license, permit or contract.

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EXHIBIT B-1

Loan Payment Request Form

[*]

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EXHIBIT B-2

Form of Disbursement Letter

[*]

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EXHIBIT C-1

Compliance Certificate

[*]

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Exhibit C-2

Loan Confirmation

[*]

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EXHIBIT D

Form of Secured Promissory Note

[see attached]

[*] = CERTAIN MARKED INFORMATION HAS BEEN OMITTED FROM THIS EXHIBIT BECAUSE IT IS BOTH NOT MATERIAL AND IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

SECURED PROMISSORY NOTE
(Term [A][B] Loan)

$_____ Dated: [_____], 2024

FOR VALUE RECEIVED, the undersigned, CODEXIS, INC., a Delaware corporation ("**Borrower**") HEREBY PROMISES TO PAY to the order of INNOVATUS LIFE SCIENCES LENDING FUND I, LP ("**Lender**") the principal amount of [_____] MILLION DOLLARS ($_____) or such lesser amount as shall equal the outstanding principal balance of the Term [A][B] Loan made to Borrower by Lender, plus interest on the aggregate unpaid principal amount of such Term [A][B] Loan, at the rates and in accordance with the terms of the Loan and Security Agreement dated February 13, 2024 by and among Borrower, Lender, INNOVATUS LIFE SCIENCES LENDING FUND I, LP, as Collateral Agent, and the other Lenders from time to time party thereto (as amended, restated, supplemented or otherwise modified from time to time, the "**Loan Agreement**"). If not sooner paid, the entire principal amount and all accrued and unpaid interest hereunder shall be due and payable on the Maturity Date as set forth in the Loan Agreement. Any capitalized term not otherwise defined herein shall have the meaning attributed to such term in the Loan Agreement.

Principal, interest and all other amounts due with respect to the Term [A][B] Loan, are payable in lawful money of the United States of America to Lender as set forth in the Loan Agreement and this Secured Promissory Note (this "**Note**"). The principal amount of this Note and the interest rate applicable thereto, and all payments made with respect thereto, shall be recorded by Lender and, prior to any transfer hereof, endorsed on the grid attached hereto which is part of this Note.

The Loan Agreement, among other things, (a) provides for the making of a secured Term [A][B] Loan by Lender to Borrower, and (b) contains provisions for acceleration of the maturity hereof upon the happening of certain stated events.

This Note may not be prepaid except as set forth inSection 2.2(c) and Section 2.2(d) of the Loan Agreement.

This Note and the obligation of Borrower to repay the unpaid principal amount of the Term [A][B] Loan, interest on the Term [A][B] Loan and all other amounts due Lender under the Loan Agreement is secured under the Loan Agreement.

Presentment for payment, demand, notice of protest and all other demands and notices of any kind in connection with the execution, delivery, performance and enforcement of this Note are hereby waived.

Borrower shall pay all reasonable fees and expenses, including, without limitation, reasonable attorneys' fees and costs, incurred by Lender in the enforcement or attempt to enforce any of Borrower's obligations hereunder not performed when due.

This Note shall be governed by, and construed and interpreted in accordance with, the internal laws of the State of New York.

The ownership of an interest in this Note shall be registered on a record of ownership maintained by Lender or its agent. Notwithstanding anything else in this Note to the contrary, the right to the principal of, and stated interest on, this Note may be transferred only if the transfer is registered on such record of ownership and the transferee is identified as the owner of an interest in the obligation. Borrower shall be entitled to treat the registered holder of this Note (as recorded on such record of ownership) as the owner in fact thereof for all purposes and shall not be bound to recognize any equitable or other claim to or interest in this Note on the part of any other person or entity.

[Balance of Page Intentionally Left Blank]

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IN WITNESS WHEREOF, Borrower has caused this Note to be duly executed by one of its officers thereunto duly authorized on the date hereof.

BORROWER:

CODEXIS, INC.

By
Name:
Title:

296116227 v13

[*] = CERTAIN MARKED INFORMATION HAS BEEN OMITTED FROM THIS EXHIBIT BECAUSE IT IS BOTH NOT MATERIAL AND IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

EXHIBIT E
CORPORATE BORROWING CERTIFICATE

[*]

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ANNEX I

Collateral Agent and Lender Terms

[*]

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ANNEX Y

LOAN INTEREST RATE AND PAYMENT OF PRINCIPAL
(Term Loan)

[*]

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SCHEDULE 6.12

NET PRODUCT REVENUE COVENANT

[*]

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SCHEDULE 6.13

LIQUIDITY COVENANT

[*]

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

Codexis, Inc.
Redwood City, California

We hereby consent to the incorporation by reference in the Registration Statements on Form S-3 (No. 333-255926) and Form S-8 (No. 333-167752, 333-172166, 333-179903, 333-187711, 333-194524, 333-202596, 333-210022, 333-216587, 333-223693, 333-224885, 333-230037, 333-232262, 333-269163, 333-273661, and 333-273662) of Codexis, Inc. of our reports dated February 28, 2024, relating to the consolidated financial statements, and the effectiveness of the Company's internal control over financial reporting, which appear in this Annual Report on Form 10-K.

/s/ BDO USA, P.C.
San Francisco, CA

February 28, 2024

Exhibit 31.1

CERTIFICATION

I, Stephen Dilly, certify that:

1. I have reviewed this Annual Report on Form 10-K of Codexis, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting.
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 28, 2024

/s/Stephen Dilly

Stephen Dilly
President and Chief Executive Officer

Exhibit 31.2

CERTIFICATION

I, Sriram Ryali, certify that:

1. I have reviewed this Annual Report on Form 10-K of Codexis, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting.
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 28, 2024

/s/Sriram Ryali

Sriram Ryali
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 Codexis, Inc. (the "Company") on Form 10-K for the fiscal year ended December 31, 2023, as filed with the Securities and Exchange Commission (the "Report"), Stephen Dilly, President and Chief Executive Officer of the Company and Sriram Ryali, Chief Financial Officer of the Company, respectively, do each hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

- The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- The information in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: February 28, 2024

/s/Stephen Dilly
Stephen Dilly
President and Chief Executive Officer

/s/Sriram Ryali
Sriram Ryali
Chief Financial Officer

CODEXIS, INC.
POLICY ON RECOUPMENT OF INCENTIVE COMPENSATION

Introduction

The Board of Directors (the "***Board***") of Codexis, Inc. (the "***Company***") has adopted this Policy on Recoupment of Incentive Compensation (this "***Policy***"), which provides for the recoupment of compensation in certain circumstances in the event of a restatement of financial results by the Company. This Policy shall be interpreted to comply with the requirements of U.S. Securities and Exchange Commission ("***SEC***") rules and Nasdaq Stock Market ("***Nasdaq***") listing standards implementing Section 954 of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (the "***Dodd-Frank Act***") and, to the extent this Policy is in any manner deemed inconsistent with such rules, this Policy shall be treated as retroactively amended to be compliant with such rules.

Administration

This Policy shall be administered by the Compensation Committee (the "***Compensation Committee***") of the Board. Any determinations made by the Compensation Committee shall be final and binding on all affected individuals. The Compensation Committee is authorized to interpret and construe this Policy and to make all determinations necessary, appropriate or advisable for the administration of this Policy, in all cases consistent with the Dodd-Frank Act. The Board or Compensation Committee may amend this Policy from time to time in its discretion.

Covered Executives

This Policy applies to any current or former "executive officer," within the meaning of Rule 10D-1 under the Securities Exchange Act of 1934, as amended, of the Company or a subsidiary of the Company (each such individual, an "***Executive***"). This Policy shall be binding and enforceable against all Executives and their beneficiaries, executors, administrators, and other legal representatives.

Recoupment Upon Financial Restatement

If the Company is required to prepare an accounting restatement due to the material noncompliance of the Company with any financial reporting requirement under the securities laws, including any required accounting restatement to correct an error in previously issued financial statements that is material to the previously issued financial statements, or that would result in a material misstatement if the error were corrected in the current period or left uncorrected in the current period (a "***Financial Restatement***"), the Compensation Committee shall cause the Company to recoup from each Executive, as promptly as reasonably possible, any erroneously awarded Incentive-Based Compensation, as defined below.

No-Fault Recovery

Recoupment under this Policy shall be required regardless of whether the Executive or any other person was at fault or responsible for accounting errors that contributed to the need for the Financial Restatement or engaged in any misconduct.

Compensation Subject to Recovery; Enforcement

This Policy applies to all compensation granted, earned or vested based wholly or in part upon the attainment of any financial reporting measure determined and presented in accordance with

the accounting principles used in preparing the Company's financial statements, and any measure that is derived wholly or in part from such measures, whether or not presented within the Company's financial statements or included in a filing with the SEC, including stock price and total shareholder return ("***TSR***"), including but not limited to performance-based cash, stock, options or other equity-based awards paid or granted to the Executive ("***Incentive-Based Compensation***"). Compensation that is granted, vests or is earned based solely upon the occurrence of non-financial events, such as base salary, restricted stock or options with time-based vesting, or a bonus awarded solely at the discretion of the Board or Compensation Committee and not based on the attainment of any financial measure, is not subject to this Policy.

In the event of a Financial Restatement, the amount to be recovered will be the excess of (i) the Incentive-Based Compensation received by the Executive during the Recovery Period (as defined below) based on the erroneous data and calculated without regard to any taxes paid or withheld, over (ii) the Incentive-Based Compensation that would have been received by the Executive had it been calculated based on the restated financial information, as determined by the Compensation Committee. For purposes of this Policy, "***Recovery Period***" means the three completed fiscal years immediately preceding the date on which the Company is required to prepare the Financial Restatement, as determined in accordance with the last sentence of this paragraph, or any transition period that results from a change in the Company's fiscal year (as set forth in Section 5608(b)(i)(D) of the Nasdaq Listing Rules). The date on which the Company is required to prepare a Financial Restatement is the earlier to occur of (A) the date the Board or a Board committee (or authorized officers of the Company if Board action is not required) concludes, or reasonably should have concluded, that the Company is required to prepare a Financial Restatement or (B) the date a court, regulator, or other legally authorized body directs the Company to prepare a Financial Restatement.

For Incentive-Based Compensation based on stock price or TSR, where the amount of erroneously awarded compensation is not subject to mathematical recalculation directly from the information in the Financial Restatement, then the Compensation Committee shall determine the amount to be recovered based on a reasonable estimate of the effect of the Financial Restatement on the stock price or TSR upon which the Incentive-Based Compensation was received and the Company shall document the determination of that estimate and provide it to Nasdaq.

Incentive-Based Compensation is considered to have been received by an Executive in the fiscal year during which the applicable financial reporting measure was attained or purportedly attained, even if the payment or grant of such Incentive-Based Compensation occurs after the end of that period.

The Company may use any legal or equitable remedies that are available to the Company to recoup any erroneously awarded Incentive-Based Compensation, including but not limited to by collecting from the Executive cash payments or shares of Company common stock from or by forfeiting any amounts that the Company owes to the Executive.

No Indemnification

The Company shall not indemnify any Executive or pay or reimburse the premium for any insurance policy to cover any losses incurred by such Executive under this Policy.

Exceptions

The compensation recouped under this Policy shall not include Incentive-Based Compensation received by an Executive (i) prior to beginning service as an Executive or (ii) if he or she did not serve as an Executive at any time during the performance period applicable to the Incentive-

Based Compensation in question. The Compensation Committee (or a majority of independent directors serving on the Board) may determine not to seek recovery from an Executive in whole or part to the extent it determines in its sole discretion that such recovery would be impracticable because (A) the direct expense paid to a third party to assist in enforcing recovery would exceed the recoverable amount (after having made a reasonable attempt to recover the erroneously awarded Incentive-Based Compensation and providing corresponding documentation of such attempt to Nasdaq), (B) recovery would violate the home country law that was adopted prior to November 28, 2022, as determined by an opinion of counsel licensed in the applicable jurisdiction that is acceptable to and provided to Nasdaq, or (C) recovery would likely cause the Company's 401(k) plan or any other tax-qualified retirement plan to fail to meet the requirements of Section 401(a)(13) or Section 411(a) of the Internal Revenue Code of 1986, as amended, and the regulations thereunder.

Other Remedies Not Precluded

The exercise by the Compensation Committee of any rights pursuant to this Policy shall be without prejudice to any other rights or remedies that the Company, the Board or the Compensation Committee may have with respect to any Executive subject to this Policy.

Effective Date and Applicability

This Policy has been adopted by the Board on August 24, 2023, and shall apply to any Incentive-Based Compensation that is received by an Executive on or after October 2, 2023.