

amyris

2022 ANNUAL REPORT

Notice of 2023 Annual Meeting of Stockholders &
Proxy Statement





April 12, 2023

Valued Stockholders:

Our long-standing commitment to ensure that Amyris' science and technology will disrupt entrenched, unsustainable industrial chemistry and accelerate the world's transition to sustainable consumption requires our work to achieve scale rapidly. 2022 was a year of scaling our business.

2022: A YEAR OF INVESTMENT

Throughout 2022, many of the components required to increase our production and distribution to meet rapidly growing industrial demand for clean, sustainable chemistry came together. Of note, our state-of-the-art precision fermentation plant in Barra Bonita, Brazil was commissioned, we entered the healthy aging and menopausal consumer category, and we set in motion our largest strategic licensing transaction which was completed during the first half of 2023.

Our belief and commitment to providing opportunities for people around the world to make choices that directly impact the health of our planet for the better doesn't come without a price. During the year, as global economic conditions worsened, war broke out in eastern Europe and inflation accelerated, we did not hesitate to continue to invest in activity that will allow continued scale up of our business. We are extremely disappointed with the performance of our share price throughout the year, and fully appreciate the optics of elevated uses of cash against the current market backdrop.

To manage a pioneering business with the purpose and promise of Amyris, we must always evaluate if what we are doing in the present will disrupt harmful, unsustainable practices well into the future. Although a difficult year for shareholder returns, the achievements of 2022 will reap great rewards as our business grows and we bridge the time between today and profitability.

I spend a great deal of time meeting with and listening to our customers, suppliers, strategic partners and shareholders. I know how important Amyris' mission is to each of you, and that our shared vision of the future can only be realized if Amyris succeeds. Having made the decision to invest heavily in 2022, our commitment today is to bring the same level of energy to bear on enhancing the sustainability of Amyris financial health.

LOOKING AHEAD

We expect to reduce our need for cash substantially in 2023. We have also reduced several layers of executive and managerial leadership in conjunction with reorganizing our consumer brand portfolio. With brands now falling into either a leadership or growth accelerator category, our resource allocation will be more efficient and tailored to the needs of each brand relative to its level of maturity. Through streamlining our consumer portfolio, we are also able to determine with greater ease, which brands may require simply too much financial and commercial support for them to continue to be a fit within Amyris' unique set of offerings. Through this evaluation, the Company has

"To manage a pioneering business with the purpose and promise of Amyris, we must always evaluate if what we are doing in the present will disrupt harmful, unsustainable practices well into the future."

John G. Melo

President and
Chief Executive Officer

already discontinued three brands and in doing so has raised the performance bar required for remaining brands to continue to be supported.

Our Unrivaled Manufacturing Sets Us Apart

Our Technology Access platform continues to thrive and be validated by leading industrial partners. Our manufacturing capabilities, and subsequently our economics, have been stymied the past several years, first by COVID-19 and more recently by inflation and slowly reawakening global supply chains. Amidst these impediments, we have persisted and now have the most modern, and soon to be, most efficient precision fermentation capacity available for synthetic biology. We now control the production of our science-based ingredients to a degree we have never had before. The positive impact this will have on our cost base and ability to meet rapidly increasing demand will benefit us for many years to come. It also provides increased visibility and certainty of supply to potential strategic partners who can't develop the incredible solutions we offer on their own.

"Everyone who works for Amyris, works with Amyris, or in some other form or fashion experiences the ecosystem we have created, is a part of lasting and sustainable change for the good of all of us."

Our Core Technology Continues to Feed the Pipeline

Dating back to 2017, we have completed a series of strategic transactions related to Technology Access. These transactions have validated our assumptions that each of our molecules, once commercialized, have a market value of a minimum of fifty million dollars. Given our pipeline of projects and repeated success with monetization, this represents a meaningfully underappreciated value proposition. Through leveraging our larger strategic partners sales, marketing, and formulation capacity to distribute our technology, Amyris avoids the time and cost associated with developing its own infrastructure and pulls future cash flows forward to be redeployed in R&D, manufacturing and growing consumer brands that meet our requirements for additional investment.

In Closing

As with most innovation that has changed the world, the path we have taken to arrive at this point has been challenging, and oftentimes takes longer and costs more than planned. When considered as a whole, what Amyris has built and continues to expand is nothing short of amazing. As human beings, we have just a brief amount of time to make a lasting, positive impact. Everyone who works for Amyris, works with Amyris, or in some other form or fashion experiences the ecosystem we have created, is a part of lasting and sustainable change for the good of all of us.

We are humbled by the support of our shareholders and are taking the necessary steps in the areas under our control to reward that support with a sharp rate of improvement in the financial results and health of our Company.

Sincerely,



John G. Melo

President and Chief Executive Officer

Notice of 2023 Annual Meeting of Stockholders

Annual Meeting of Stockholders

Date and Time:

Thursday, May 25, 2023,
2:00 p.m. Pacific Time

Location:

Virtual Meeting:
www.proxydocs.com/AMRS

Record Date:

Tuesday, March 28, 2023

Mail Date:

Notice of Internet Availability of Proxy Materials ("Notice") will be mailed on or about April 12, 2023

Voting Matters

At or before the 2023 Annual Meeting of Stockholders ("Annual Meeting"), we ask that you vote on the following items:

Item 1 Election of four Class I Directors to serve for a three-year term

Item 2 Ratification of the appointment of Independent Registered Public Accounting Firm

Item 3 Non-binding advisory vote on compensation of named executive officers

Item 4 Non-binding advisory vote on frequency of future stockholder say-on-pay votes

Item 5 Approval of amendment to Certificate of Incorporation to increase authorized shares

Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting: our Proxy Statement and 2022 Annual Report are available free of charge on our website at <https://investors.amyris.com/annual-reports>

How to Vote:



Internet

Visit www.proxydocs.com/AMRS and use your unique control number found in your Notice, proxy card or voting instruction form to access the voting site



Mail

Complete and sign the proxy card or voting instruction form and return it by mail.



Telephone

Follow the telephone instructions provided in your Notice, proxy card or voting instruction form.



During the Meeting

This year's Annual Meeting of Stockholders will be virtual. For details on how to pre-register and attend the virtual meeting or on how to vote your shares during the virtual meeting, see p. 75, "Questions and Answers about the Annual Meeting and Voting."

We are using the Internet as our primary means of furnishing proxy materials to our stockholders, instead of mailing printed copies. By doing so, we save costs and reduce our impact on the environment. We will instead mail or otherwise make available to each of our stockholders a Notice of Internet Availability of Proxy Materials, which contains instructions on how to access our proxy materials, and vote, online. The Notice also provides information on how stockholders can obtain paper copies of our proxy materials.

These proxy materials are provided in connection with the solicitation of proxies by the Board of Directors (the "Board") of Amyris, Inc., a Delaware corporation (referred to as "Amyris", the "Company", "we", "us", or "our"), for our Annual Meeting. These proxy materials were first sent on or about April 12, 2023 to stockholders entitled to vote at the Annual Meeting.

Your vote is important, regardless of the number of shares of our stock that you own. Whether or not you plan to attend our virtual Annual Meeting, it is important that your shares are represented and voted. We encourage you to submit your proxy as soon as possible by internet, by telephone, or by signing and returning all proxy cards or instruction forms provided to you.

By Order of the Board of Directors

/s/ Doris Choi

Doris Choi
General Counsel and Secretary
April 11, 2023

Amyris, Inc.
5885 Hollis Street, Suite 100
Emeryville, California 94608

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Sustainability at Amyris

Amyris is deeply committed to sustainability and to protecting the abundance and beauty of nature. Our mission is to accelerate the world's transition to sustainable consumption. At the heart of what we do is chemistry. By modifying the genetics of yeast strains and fermenting them in sugarcane syrup, we have pioneered the ability to convert basic plant sugars to hydrocarbon molecules. We use what is renewable to recreate what is finite.

Natural biology inspires our technology to create sustainable ingredients. Our technology platform enables us to produce rare, natural molecules that are integral to medications, health, personal care and beauty products that are both safe and effective. Our technology platform provides a scalable way forward in a world where humanity's demand for the earth's bounty far exceeds its supply. We do all of this without compromise – to quality, cost and to sustainability. Make good. No compromise.®

Amyris is a biotechnology company delivering sustainable science-based ingredients and consumer products that are better for people and the planet. We are focused on the Clean Beauty & Personal Care and Health and Wellness markets through our growing portfolio of consumer brands and as a top supplier of sustainable and natural ingredients to leading global manufacturers and formulators. We have successfully commercialized 15 unique molecules, with dozens more in active development and thousands in the discovery stage in our labs. Our proprietary Lab-to-Market™ technology platform optimizes learning cycles and improves our predictive success, while accelerating our time to market and reducing cost.

Consistent with our mission, we view Environmental, Social, and Governance ("ESG") factors as long-term value drivers for our customers, our Company, our community, our stockholders, and all of our other stakeholders.



ENVIRONMENTAL STEWARDSHIP



Sustainable Ingredients
Environmental Impact
Carbon Footprint



SOCIAL RESPONSIBILITY



Human Capital Management
Health & Safety
Community Investment
Supplier Sustainability



CORPORATE GOVERNANCE



Governance Practices
Ethics & Integrity
ESG Strategy & Oversight

ENVIRONMENTAL STEWARDSHIP

Sustainable Ingredients

Environmental sustainability through science and manufacturing is at the core of Amyris. Our technology platform gives us the ability to make readily available molecules that traditionally come from finite agricultural, animal or petrochemical resources.

Our novel approach to replacing scarce plant and animal molecules with clinically-derived solutions enables us to go from scarcity to abundance, privilege to right, dependence to autonomy.

Environmental Impact and Carbon Footprint

Environmental mission statement: to work with our communities, suppliers and partners to minimize our carbon footprint globally by reducing our requirements for energy and natural resources, manufacturing renewable products, effectively recycling our wastes and byproducts, and responsibly managing our technology.

In support of our mission, our policy is to:

- Ensure that our products and operations comply with existing environmental and labor laws
- Develop products that are sustainably sourced and manufactured
- Responsibly manage the use of all of our materials to preserve the health of local ecosystems
- Use metrics to assess our energy dependencies and identify ways to reduce our carbon footprint and greenhouse gas emissions
- Promote environmental and social responsibility among our employees through company initiatives, recognition and events
- Endeavor to work only with suppliers and distributors who share our commitment to sustainable management practices
- Conduct our operations in a manner that is committed to recycling, conserving natural resources, and protecting our environment from pollution

Awards: Our commitment to environmental stewardship and social responsibility continues to earn us external recognition. Below is a selection of the awards and designations we received over the past year:

**Ecovadis
Silver (top 25%)**



**Bloomberg GEI
designation**



**EPA SmartWay
participant**



SOCIAL RESPONSIBILITY

Human Capital Management

Our Board believes that human capital management, including Diversity, Equity, Inclusion and Belonging (“DEIB”) initiatives, are important to our success.

The Board expanded the remit of the Leadership, Development, Inclusion and Compensation Committee of the Board (“LDICC”) in 2020 to include oversight of DEIB matters, renaming the Committee to add the word “Inclusion.” We conduct an employee engagement survey on an annual basis and the results of these surveys are discussed with the LDICC. In January 2022, we appointed Ana Dutra to our Board, a Latina executive with deep experience in M&A, integration, human capital, and ESG matters.

Amyris is committed to enhancing the diversity of our workforce and promoting a culture of acceptance and equality throughout the organization.

- **A Diverse Workforce:** Our diversity makes us stronger. We strengthen the value we create as a company when we bring a broad-based workforce together to achieve our goals.
- **Promoting Inclusion:** We promote employee affiliation groups focused on specific diverse needs of our workforce, and provide information about these diverse groups to educate and promote awareness of their diversity in an effort to create an inclusive environment for their development at Amyris.
- **Equal Pay for Equal Work:** We believe in compensating our employees fairly and equitably. We have instituted practices to ensure salary transparency, our management is guided on the principle of pay equity, and our compensation structures by job level and geographical market are available to all employees.

In March 2022, we appointed our first Vice President, Diversity, Equity, Inclusion & Belonging to drive Amyris' strategy and implementation of an inclusion and diversity-focused roadmap, including cross-functional programs and initiatives at Amyris.

Since then, we have introduced a diversity framework, which led to development and implementation of a three-year diversity strategy. Our goals are built around the framework, which focuses on the workplace (our culture) workforce (our people), marketplace (product development and external branding) and community. We introduced two new employee resource groups ("ERGs"): Black@ Amyris (for our Black employees and allies) and Amygos (for our Latinx employees and allies), and introduced structure, goals, and guidelines to help our ERGs grow and scale.

We also introduced an internal diversity intranet site and collaborated with our ERG leaders to introduce an ERG intranet, which keeps employees updated on events and activities related to their respective ERG. We also embedded diversity into the employee onboarding process because we believe onboarding to be a pivotal moment for fostering inclusion.

One of our biggest successes was forming a global Diversity Council, composed of employees from each business function throughout our organization. The Diversity Council serves as an advisory body to the company and its leadership team on the strategic direction of the culture of the company.

We have over 1,500 employees in the United States, Brazil, Portugal, and the United Kingdom.

- 50% of our U.S. employees are People of Color
- 54% of our employees are Women
- 55% of our executive leadership team are Women

Our ERGs as well as our Diversity Council will also be guided by our workplace, workforce, marketplace and community framework. We have the following ERGs that are organized around diversity attributes:

- W.E.E. (Women Empowering Each Other)

- Out@Amyris (Lesbian, Gay, Bisexual, Transgender, Queers and Others on Gender and Sexuality Spectrum)
- Black @ Amyris (Black)
- Amygos (Latinx)

Health and Safety

Safety is an Amyris core value which means that maintaining a safe and healthy work environment for our people, as well as our communities, resources, and planet, is our highest priority. We have a Safety Committee that is responsible for developing, promoting, and maintaining safety policies and procedures. We provide customized environmental health and safety training, carry out regular facility audits, assist employees with risk assessments, promote responsible and sustainable waste management practices, provide recommended personal protective equipment, and offer a robust ergonomics program in compliance with CAL-OSHA and the California Department of Public Health.

The global COVID-19 pandemic caused us to take both a short-term and a long-term view of ESG risks and opportunities. Since early 2020, we have closely monitored the impact of the global COVID-19 pandemic on all aspects of our business, including its impact on our employees, partners, supply chain, and distribution network. Since the start of the pandemic, we developed a comprehensive response strategy including establishing a cross-functional COVID-19 Task Force, and we have applied recommended public health strategies to manage and prevent the spread of COVID-19 among our employees and operations. The pandemic has raised the bar on the implementation of business continuity plans to manage the impact of the COVID-19 pandemic, future pandemics as well as other potential emergency scenarios on our employees and our business. We have successfully managed to sustain ongoing critical production campaigns and infrastructure throughout the pandemic and additionally through several severe weather events such as Hurricane Ian.

Community Investment

In support of our communities, Amyris and our employees devote significant time and resources to outreach, such as participating in a variety of donation drives and environmental cleanup efforts. Since the beginning of 2020, our scientists have been volunteering every month to teach STEM lessons to schools in our communities which often includes one-on-one mentoring by our scientists. In 2020, we founded the Amyris Annual Scholarship to provide financial relief and academic scholarships to Black students at historically black colleges and universities (“HBCUs”) and local San Francisco Bay Area universities. In 2021, for example, we partnered with the United Negro College Fund and 10,000 Degrees to fund scholarships to approximately 50 college students through the Amyris Annual Scholarship Fund.

In 2020, we launched a summer internship called the Catalyst Intern Program with an inaugural cohort of 30 college interns, providing students with substantial business experience and networking opportunities. Notably, our inaugural intern class was 67% ethnically diverse and 57% female.

Supplier Sustainability

We require our suppliers to conduct their businesses in alignment with our Supplier Code of Conduct, which contains specific standards on labor and human rights, business ethics, environmental sustainability, social responsibility, privacy, security, and intellectual property. The Supplier Code of Conduct is posted on our website and is part of our overall legal and compliance program. Failure by any of our suppliers to comply with our Supplier Code of Conduct may result in termination of our business relationship with such supplier. We have global channels for the reporting of any suspected unethical, illegal or improper business practices by our employees and suppliers.

CORPORATE GOVERNANCE

We are committed to a strong governance program, and our practices are designed to maintain high standards of oversight, compliance, integrity, and ethics. Each year, we review our corporate governance policies, compliance policies and procedures, and compensation practices and policies to ensure they are consistent with evolving market practices and trends and the promotion of long-term stockholder value.

Governance Practices

Our Board has adopted written Corporate Governance Principles to provide the Board and its Committees with operating principles designed to enhance the effectiveness of the Board and its Committees, to maintain high standards of Board and Committee governance, and to clarify the responsibilities of management in supporting the Board’s activities. The Corporate Governance Principles set forth a framework for Amyris’ governance practices, including composition of the Board and its Committees, functions and responsibilities of the Board and its Committees, director nominee selection, Board membership criteria, director compensation, Board education, meeting responsibilities, access to information and employees, executive sessions of independent directors, and responsibilities of management vis-à-vis the Board and its Committees.

Corporate Governance Strengths

Strong independent oversight	Board qualifications and accountability	Board oversight of strategy and risk management
<ul style="list-style-type: none"> 9 out of 11 directors are independent 	<ul style="list-style-type: none"> Diverse Board in terms of tenure, gender, race, ethnicity, experience and skills 	<ul style="list-style-type: none"> Risk oversight by the full Board and Committees
<ul style="list-style-type: none"> Independent Board Chair and independent Board Committees 	<ul style="list-style-type: none"> Annual Board and Committee self-evaluation 	<ul style="list-style-type: none"> Independent compensation program risk analysis and reporting directly to the LDICC
<ul style="list-style-type: none"> Executive sessions of independent directors 	<ul style="list-style-type: none"> No poison pill anti-takeover defenses 	<ul style="list-style-type: none"> Audit Committee oversight of cybersecurity

Ethics & Integrity

Integrity is another one of our core values. We strive to be honest, ethical, and deal fairly with each other and all third parties, holding ourselves accountable and delivering on our commitments. We maintain a robust compliance program that includes a Code of Business Conduct and Ethics that applies to all directors, officers, employees, consultants, agents and contractors of Amyris as required by The Nasdaq Stock Market (“Nasdaq”) governance rules. Our Code of Business Conduct and Ethics includes a section entitled “Code of Ethics for Chief Executive Officer and Senior Financial Officers,” providing additional principles for ethical leadership and a requirement that such individuals foster a culture throughout Amyris that helps ensure the fair and timely reporting of our financial results and condition. Our Code of Business Conduct and Ethics is available on the corporate governance section of our website at <https://investors.amyris.com/corporate-governance>.

Stockholders may also obtain a printed copy of our Code of Business Conduct and Ethics and our Corporate Governance Principles by writing to the Secretary of Amyris at 5885 Hollis Street, Suite 100, Emeryville, California 94608. If we make any substantive amendment to a provision of our Code of Business Conduct and Ethics that applies to any of our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions, or if we grant any waiver from any of such provisions to any such person, we

will promptly disclose the nature of the amendment or waiver on the corporate governance section of our website at <https://investors.amyris.com/corporate-governance>.

ESG Strategy & Oversight

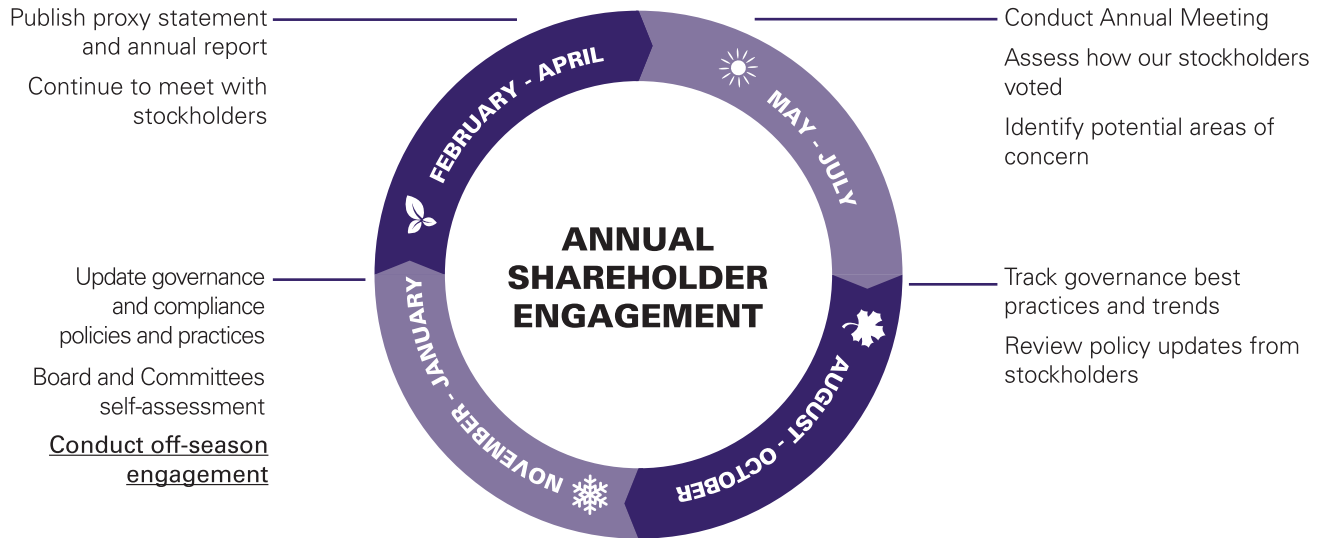
Our Chief Engagement & Sustainability Officer (“CESO”) is responsible for framing the ESG issues and goals in strategic terms, leading systemic ESG improvements, and communicating the strategic direction for the Company’s ESG objectives. As part of our ongoing identification and assessment of ESG risks and opportunities, Amyris completed a materiality and gap analysis utilizing frameworks including those of the Sustainability Accounting Standards Board and Global Reporting Initiative. In addition, our CESO has engaged a cross-functional team consisting of members of finance, supply chain, quality, research and development, human resources, and legal as the ESG Council. The Company published its second annual ESG Report in 2022. Management reports on the status of certain ESG activities and related disclosures to the Nominating & Governance Committee (“NGC”) of the Board on a quarterly basis.

To actively engage in ESG-related initiatives, our management team has also taken steps toward advancing a formalized ESG program, led by the ESG Council, to identify, coordinate, and advance our ESG priorities and objectives.

Stockholder Engagement

We recognize the benefits of maintaining a robust dialogue with stockholders, which is why we engage in proactive outreach efforts with certain of our largest stockholders. We solicit feedback from our stockholders on a variety of topics, including our business and growth strategy, corporate governance practices, executive compensation matters, and various other ESG matters. This engagement enables us to build meaningful relationships over time with our stockholders and obtain valuable feedback that helps inform our decisions and our strategy throughout the year.

The following graphic describes our typical stockholder outreach and engagement cycle.



Following our 2022 annual meeting, we reached out to stockholders who collectively held approximately 17% of our then-outstanding shares (not including any related parties) to request meetings, and held meetings with each stockholder who accepted our request for engagement.

Proposal 1

Election of Directors

Nominees for Election to the Board of Directors

Under our Certificate of Incorporation and Bylaws, the number of authorized Amyris directors has been fixed at 11, and the Board is divided into the following three classes with staggered three-year terms:

- Class I directors, whose term will expire at this 2023 Annual Meeting of stockholders and who have been nominated for re-election;
- Class II directors, whose term will expire at the annual meeting of stockholders to be held in 2024; and
- Class III directors, whose term will expire at the annual meeting of stockholders to be held in 2025.

In accordance with our Certificate of Incorporation, the Board has assigned each member of the Board to one of the three classes, with the number of directors in each class divided as equally as reasonably possible. As of the date of this Proxy Statement, there are four Class I seats, four Class II seats, and three Class III seats constituting the 11 seats on the Board.

At the 2023 Annual Meeting, we are asking our stockholders to vote on the election of four Class I directors, Ana Dutra, Geoffrey Duyk, James McCann and Steven Mills to serve until our 2026 annual meeting. The nominees are all current directors of Amyris.

Vote Required and Board Recommendation

Directors are elected by a plurality of the votes present in person or represented by proxy at the meeting and entitled to vote. This means that the four Class I nominees receiving the highest number of affirmative (i.e., "For") votes will be elected. At the Annual Meeting, proxies cannot be voted for a greater number of persons than the four nominees named in this Proposal 1 and stockholders cannot cumulate votes in the election of directors. Shares represented by executed proxies will be voted by the proxy holders, if authority to do so is not withheld for any or all of the nominees, "For" the election of the four nominees named below. If any nominee is unable or declines to serve as a director at the time of the meeting, the proxies will be voted for a nominee, if any, designated by the Board to fill that vacancy. As of the date of this Proxy Statement, the Board is not aware that any nominee up for election is unable or will decline to serve as a director. If you hold shares through a broker, bank or other custodian, nominee, trustee or fiduciary (an "Intermediary"), you must instruct your Intermediary of record how to vote so that your vote can be counted on this proposal. Broker non-votes will not count toward the vote total for this proposal and therefore will not affect the outcome of this proposal.

The Board recommends a vote "FOR" each nominee.

Director Biographies

Nominees for Class I Directors for a Term Expiring in 2026



Director since 2022

Age 58

Board Committees

Leadership, Development, Inclusion & Compensation Committee
Nominating & Governance Committee

Other Current Public Directorships

CarParts.com
CME Group, Inc.
Pembina Pipeline

Ana Dutra

Ms. Dutra is the CEO of Mandala Global Advisors Inc., which she founded in 2013, and has over 30 years of experience in P&L management, deal structuring, digital technology, business growth and C-Level business consulting in over 25 countries. Ms. Dutra also currently serves on the board of directors of CarParts.com, CME Group, Inc., and Pembina Pipeline, and certain private companies in the United States and abroad. Ms. Dutra previously served on the board of directors of Health, Harvest & Recreation Inc. until its acquisition in September 2021 as well as First Internet Bancorp until December 2022. Ms. Dutra holds an MBA from Kellogg School of Management at Northwestern University, a Master's in Economics from Pontificia Universidade do Rio de Janeiro, and a Juris Doctor from Universidade do Estado do Rio de Janeiro.

Key Qualifications

Ms. Dutra's extensive experience assisting boards of directors, CEOs and management teams to identify and execute growth strategies through innovation, acquisitions, and new technologies, as well as her rich experience and knowledge regarding branding, enables her to provide valuable contributions to our management team and Board.



Director since 2012

Interim Board Chair since May 2014

Age 63

Board Committees

Audit Committee

Other Current Public Directorships

None

Geoffrey Duyk

Dr. Duyk previously served on the Board from May 2006 to May 2011. Dr. Duyk is a partner of Circularis Partners, a technology focused investment firm, and serves as Interim CEO and Board Chair of Grove Biopharma, a biotechnology startup. Previously, Dr. Duyk served as a partner and managing director of TPG Alternative & Renewable Technologies (TPG ART), a technology focused investment firm (together with its affiliates, "TPG"), from 2004 to 2017. Prior to TPG, he served on the board of directors and was President of Research and Development at Exelixis, Inc., a biopharmaceutical company focusing on drug discovery, from 1996 to 2003. Prior to Exelixis, Dr. Duyk was Vice President of Genomics and one of the founding scientific staff at Millennium Pharmaceuticals, from 1993 to 1996. Before that, Dr. Duyk was an Assistant Professor at Harvard Medical School in the Department of Genetics and Assistant Investigator of the Howard Hughes Medical Institute. Dr. Duyk currently serves on the boards of directors of: Anuvia Plant Nutrients; Concentric Ag Corporation (interim CEO since 2019); and ReGen Holdings Limited, as well as on the Board of Trustees of Case Western Reserve University. Dr. Duyk is also a member of the Institute Board of Directors of the Moffitt Cancer Center where he chairs the Research and Development committee. He is the Chairman of the board of directors of OncoBay Clinical, a private contract research organization (subsidiary of Moffitt Cancer Center). Dr. Duyk serves as a member of Scientific Advisory Board for Lawrence Berkeley National Laboratory (DOE) and a member of the Advisory Board of Innovatus Capital Partners. Dr. Duyk holds a Bachelor of Arts degree in Biology from Wesleyan University and a Ph.D. in Biochemistry and M.D. from Case Western Reserve University.

Key Qualifications

Dr. Duyk's experience with the biotechnology and pharmaceutical industries, as well as his expertise in technology investing, enables him to provide insight and guidance to our management team and Board and to help us connect our science to our business.



James McCann

Mr. McCann is the founder and Chairman of the board of directors of 1-800-FLOWERS.COM, Inc., a floral and gourmet foods gift retailer and distribution company founded in 1976, and served as chief executive officer of 1-800-FLOWERS.COM, Inc. from 1976 until June 2016. Mr. McCann also serves on the board of directors of International Game Technology PLC (formerly GTECH S.p.A. and Lottomatica Group S.p.A.) and previously served on the board of directors of Willis Towers Watson PLC (formerly Willis Group Holdings PLC) from 2004 until May 2019 and The Scotts Miracle-Gro Company from 2014 until January 2020.

Director since 2019

Age 71

Board Committees

Leadership, Development, Inclusion & Compensation Committee (Chair)
Nominating & Governance Committee

Other Current Public Directorships

1-800-FLOWERS.COM, Inc. (Chairman)
International Game Technology PLC

Key Qualifications

Mr. McCann brings to the Board extensive experience in business leadership, entrepreneurship and innovation, as well as a deep understanding of consumer and e-marketing, which enables him to assist our CEO in the growth and development of our business.

PROXY



Steven Mills

Mr. Mills has 40 years of experience in the fields of accounting, corporate finance, strategic planning, risk management, and mergers and acquisitions. He served as Chief Financial Officer of Amyris from May 2012 to December 2013. Prior to joining Amyris, Mr. Mills had a 33-year career at Archer-Daniels-Midland Company (“ADM”), one of the world’s largest agricultural processors and food ingredient providers. At ADM, he held various senior executive roles, including Chief Financial Officer, Controller, and head of Global Strategic Planning. Since 2014, Mr. Mills has served as a consultant and advisor to clients in the private equity, agribusiness, and financial services fields. Mr. Mills is currently serving as a consultant and advisor to Arianna S.A., a European specialized investment fund. He also serves on the boards of Black Hills Corporation (where he serves as Chair of the board), Farmers Edge, Inc., Illinois College (where he also serves as the Chair of the board), First Illinois Corporation (along with its wholly-owned banking subsidiary, Hickory Point Bank & Trust) and Arianna S.A. Mr. Mills holds a Bachelor of Science degree in Mathematics from Illinois College.

Director since 2018

Age 67

Board Committees

Audit Committee (Chair)
Leadership, Development, Inclusion & Compensation Committee

Other Current Public Directorships

Black Hills Corporation
Farmers Edge, Inc.

Key Qualifications

Mr. Mills’ familiarity with Amyris, as well as his expertise in accounting, finance, and management, enables him to assist our management team and Board build and improve our business, and financial and risk management processes.

Class II Incumbent Directors with a Term Expiring in 2024



Director since 2017

Age 54

Board Committees

None

Other Current Public Directorships

None

Philip Eykerman

Mr. Eykerman has served as the Executive Vice-President, Corporate Strategy & Acquisitions of Koninklijke DSM N.V. (together with its affiliates, “DSM”), a global science-based company in nutrition, health and sustainable living and an entity with which Amyris has a commercial and financial relationship and which is an owner of greater than five percent of the Company’s outstanding common stock, since 2011. In this role, he has been responsible for corporate and business group strategy development, budgeting and planning, improvement programs, and all M&A activities. In 2015, he was also appointed as a member of the DSM Executive Committee. Since September 2020, he is also serving as the President Health Nutrition & Care, thereby managing and overseeing all the group’s activities in health, nutrition & care, while maintaining the responsibility for the DSM Mergers & Acquisitions activities. In addition to these roles within DSM, he is also a Supervisory Board member of ChemicalInvest (DSM/CVC JV) and AnQore TopCo B.V. Before joining DSM, Mr. Eykerman worked for 14 years at McKinsey & Company, the last 9 years of which he served as a Partner and leader of McKinsey’s Chemicals Practice in the Benelux and France. He holds a Master’s degree in Chemical Engineering from the KU Leuven (Belgium), and a Master’s degree in Refinery Engineering from the Institut Francais du Pétrole (France).

Key Qualifications

Mr. Eykerman’s experience in corporate strategy, mergers and acquisitions, and operations, enables him to provide insight to the Board regarding potential new opportunities for Amyris.



Director since 2017

Age 74

Board Committees

None

Other Current Public Directorships

None

Frank Kung

Dr. Kung is a founding member of Vivo Capital LLC (“Vivo”), a healthcare focused investment firm founded in 1996 in Palo Alto, California. Dr. Kung started his career in the biotechnology industry in 1979 when he joined Cetus Corporation. He later co-founded Cetus Immune Corporation in 1981, which was acquired by its parent company in 1983. In 1983, he co-founded Genelabs Technologies, Inc. where he served as Chairman and CEO until 1995. During his tenure in Genelabs, he brought the company public in 1991, and built it to a 175-employee international biotech company with operations in the United States, Belgium, Singapore, Switzerland and Taiwan. Dr. Kung currently serves on the boards of directors of a number of healthcare and biotechnology companies. Dr. Kung holds a Bachelor of Science degree in chemistry from the National Tsing Hua University in Taiwan, a PhD in molecular biology and an MBA from the University of California, Berkeley.

Key Qualifications

Dr. Kung’s experience in the healthcare biotechnology industries, experience with investing in companies, and strong operations and strategy experience enable him to provide the Board and management with guidance regarding the Company’s business strategy and access to the financial markets.



John Melo

Mr. Melo has nearly three decades of combined experience as an entrepreneur and thought leader in the global fuels industry and technology innovation. Mr. Melo has served as our CEO and a director since January 2007 and as our President since June 2008. Before joining Amyris, Mr. Melo served in various senior executive positions at BP Plc (formerly British Petroleum), one of the world’s largest energy firms, from 1997 to 2006, most recently as President of U.S. Fuels Operations. During his tenure at BP, Mr. Melo also served as Chief Information Officer of the refining and marketing segment, Senior Advisor for e-business strategy to Lord Browne, BP Chief Executive, and Director of Global Brand Development. Before joining BP, Mr. Melo was with Ernst & Young, an accounting firm, and served on the management teams of several startup companies, including Computer Aided Services, a management systems integration company, and Alldata Corporation, a provider of automobile repair software to the automotive service industry. Mr. Melo currently serves on the boards of Renmatix, Inc., the Industrial and Environmental section of the Biotechnology Innovation Organization, and the California Life Sciences Association. Mr. Melo was formerly an appointed member to the U.S. section of the U.S.-Brazil CEO Forum.

Director since 2007

Age 57

Board Committees

None

Other Current Public Directorships

None

Key Qualifications

Mr. Melo’s experience as a senior executive at one of the world’s largest energy companies provides critical leadership in shaping strategic direction and business transactions, and in building teams to drive innovation, and as our CEO of over 15 years, he brings to our Board a deep and comprehensive knowledge of our business as well as shareholder-focused insight into effectively executing the Company’s strategy and business plans to maximize shareholder value.

PROXY



Julie Spencer Washington

Ms. Washington has served as Chief Marketing, Communications & Customer Experience Officer of Trinity Health, a Catholic health care delivery system, since January 2020. She previously served as Chief Marketing Officer of Champion Petfoods from 2017 to 2019 and held a number of executive positions at Jamba Juice from 2010 to 2016, including as Chief Marketing & Innovation Officer and prior to that, as Chief Brand Officer and Vice President and as General Manager, Consumer Products. Prior to that, Ms. Washington served in multiple senior leadership positions at Luxottica Retail, Procter & Gamble and Nestlé Purina. Ms. Washington holds a MBA from Washington University, a Bachelor of Arts degree in Chemistry and Psychology from Emory University, and an Executive in Education Certificate on Driving Digital and Social Strategy from Harvard University.

Director since 2020

Age 57

Board Committees

Audit Committee

Leadership, Development, Inclusion & Compensation Committee

Other Current Public Directorships

None

Key Qualifications

Ms. Washington’s experience in building and developing high-performing teams, fostering DEI efforts, leading business transformation, and driving sustainable corporate growth enables her to provide guidance to the Board and management on operating strategy, consumer needs and behaviors, market dynamics, and digital trends relevant to the Company’s business.

Class II Incumbent Directors with a Term Expiring in 2025



John Doerr

Mr. Doerr is Chairman at Kleiner Perkins Caufield & Byers (“KPCB”), a venture capital firm where he has worked since 1980. He currently serves on the board of directors of the following public companies: Alphabet and DoorDash. He previously served as a director of Bloom Energy, Coursera, and Quantumscape. Mr. Doerr was previously a director of Amazon from 1996 to 2010. He holds a B.S. in Electrical Engineering and an M.S. in Electrical Engineering and Computer Science from Rice University and an M.B.A. from Harvard Business School.

Director since 2006

Age 71

Board Committees

Nominating & Governance Committee
(Chair)

Other Current Public Directorships

Alphabet Inc.
DoorDash, Inc.

Key Qualifications

Mr. Doerr’s global and broad business leadership as general partner of KPCB, as well as his outside board experience as director of several public and private companies, enables him to provide valuable insight and guidance to our management team and the Board.



Ryan Panchadsaram

Mr. Panchadsaram is a partner at Foris Ventures and serves as an advisor to the Chairman at Kleiner Perkins since 2016. He invests in bold founders and disruptive technologies that are tackling the climate crisis, fixing our healthcare system, and improving the way we live and work. Prior to Kleiner Perkins, Mr. Panchadsaram worked at the White House and served as the deputy chief technology officer for the United States. In 2015, he served as a delegate to the United Nations to launch the Solutions Summit, a grassroots effort to spotlight the work of exceptional innovators around the world tackling the United Nations’ Sustainable Development Goals. Prior to government service, he was a health technology entrepreneur and worked at Microsoft and Salesforce.com. Mr. Panchadsaram holds a Bachelor of Science degree in Industrial Engineering and Operations Research from U.C. Berkeley.

Director since 2021

Age 38

Board Committees

None

Other Current Public Directorships

None

Key Qualifications

Mr. Panchadsaram’s experience with the consumer products industry and innovative technology solutions enables him to provide insight and guidance to our management team and Board. Additionally, Mr. Panchadsaram’s cross-industry mindset and keen eye towards financial returns and business decisions make him an invaluable contributing member to our management team and Board.



Lisa Qi

Ms. Qi has been a member of the Board since May 2019. Ms. Qi is the founder and chief executive officer of Silver Gift Limited and Daling Xinchao (Beijing) Trading Co., Ltd., which operate the Daling Family e-commerce platform in China.

Key Qualifications

Ms. Qi brings deep knowledge and significant experience in the areas of e-commerce, product branding, sales and management of high-growth companies, which enable her to make a strategic contribution to the Board and provide guidance to the management team in these areas. Ms. Qi's expansive retail business knowledge and international perspective also provide our management team with greater insight on the global e-retail experience.

Director since 2019

Age 51

Board Committees

Nominating & Governance
Committee

Other Current Public Directorships

None

Arrangements Concerning Selection of Directors

Pursuant to a Stockholder Agreement entered into in May 2017, and subsequently amended and restated in August 2017, in connection with the sale of our Series B 17.38% Convertible Preferred Stock and warrants to DSM (the “DSM Stockholder Agreement”), we agreed to appoint, and to use reasonable efforts consistent with the Board’s fiduciary duties to cause the re-nomination by the Board in the future of, two persons designated by DSM to serve as members of the Board. DSM’s designation rights terminate, with respect to one designee, at such time as DSM beneficially owns less than 10% of our outstanding common stock and, with respect to both designees, at such time as DSM beneficially owns less than 4.5% of our outstanding common stock. As of March 1, 2023, DSM beneficially owned 16,701,210 shares of our common stock, representing approximately 4.6% of our outstanding common stock. Mr. Eykerman, an employee of DSM, has served on the Board since 2017 and receives compensation and benefits from DSM pursuant to its standard compensation policies and practices.

In August 2017, pursuant to a Stockholder Agreement entered into in connection with the sale of our common stock, Series D Convertible Preferred Stock and warrants to Vivo (the “Vivo Stockholder Agreement”), we agreed to appoint, and to use reasonable efforts consistent with the Board’s fiduciary duties to cause the re-nomination by the Board in the future of, one person designated by Vivo to serve as a member of the Board. Pursuant to the Vivo Stockholder Agreement, Vivo designated Dr. Kung to serve as the Vivo representative on the Board. Vivo’s designation rights terminate at such time as Vivo beneficially owns less than 4.5% of our outstanding common stock. As of March 1, 2023, Vivo beneficially owned less than 4.5% of our outstanding common stock. Notwithstanding Vivo’s current stock ownership, Dr. Kung continues to serve on the Board, as the Board values his contributions, and we expect him to continue to serve as a director until his resignation or until his successor is duly elected by the holders of our common stock. Dr. Kung is a founding member of Vivo and receives compensation and benefits from Vivo pursuant to its standard compensation policies and practices.

Mr. Doerr and Dr. Duyk were initially designated to serve on the Board by KPCB and TPG, respectively, pursuant to a voting agreement amended and restated on June 21, 2010. Dr. Duyk resigned from the Board in May 2011 and was re-appointed to the Board in May 2012. As of the date of this Proxy Statement, notwithstanding the expiration of the voting agreement upon completion of our initial public offering in September 2010, Mr. Doerr and Dr. Duyk continue to serve on the Board, and we expect each of them to continue to serve as a director until his resignation or until his successor is duly elected by the holders of our common stock. Mr. Doerr receives compensation and benefits from KPCB pursuant to its standard compensation policies and practices, and Dr. Duyk retains a carried interest in certain funds managed by TPG.

Independence of Directors

Under the corporate governance rules of Nasdaq, a majority of the members of the Board must qualify as “independent,” as affirmatively determined by the Board. The Board and the NGC of the Board consult with our legal counsel to ensure that the Board’s determinations are consistent with all relevant securities and other laws and regulations regarding the definition of “independent,” including those set forth in the applicable Nasdaq rules.

The Nasdaq criteria include various objective standards and a subjective test. A member of the Board is not considered independent under the objective standards if, for example, he or she is, or at any time during the past three years was, employed by Amyris, he or she received compensation (other than standard compensation for Board service) in excess of \$120,000 during a period of twelve months within the past three years, or he or she is an executive officer of any organization to which Amyris made, or from which Amyris received, payments for property or services (other than payments arising solely from investments in our securities or payments under non-discretionary charitable contribution matching programs) in the current or any of the past three fiscal years that exceed 5% of the recipient’s gross revenues for that year, or \$200,000, whichever is more.

The subjective test under the Nasdaq rules for director independence requires that each independent director not have a relationship which, in the opinion of the Board, would interfere with the exercise of independent judgment in carrying out the responsibilities of a director. The subjective evaluation of director independence by the Board was made in the context of the objective standards referenced above. In making independence determinations, the Board generally considers commercial, financial and professional services, and other transactions and relationships between Amyris and each director and his or her family members and affiliated entities.

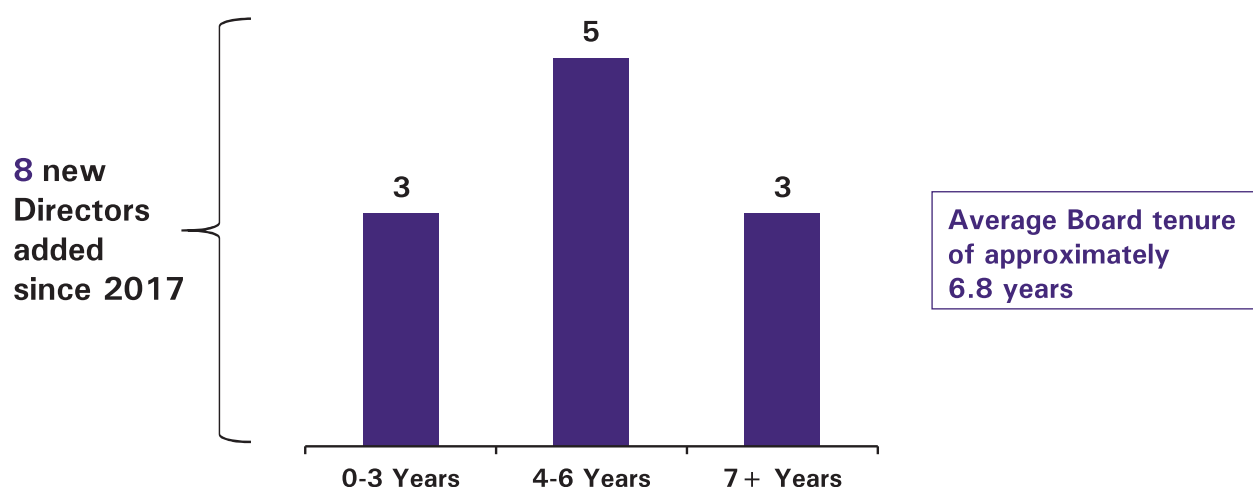
Based on such criteria, the Board determined that (i) Mr. Melo is not independent because he is an Amyris employee and (ii) Mr. Eykerman is not independent because he is an employee of DSM (with which we have commercial and financial relationships, as described below under “Transactions with Related Persons”).

For each of the directors other than Messrs. Melo and Eykerman, the Board determined that none of the transactions or other relationships of such directors (and their respective family members and affiliated entities) with Amyris, our executive officers, and our independent registered public accounting firm exceeded the Nasdaq objective standards and none would otherwise interfere with the exercise of independent judgment in carrying out his or her responsibilities as a director. The following is a description of these relationships:

- Mr. Doerr indirectly beneficially owns all of the membership interests in (i) Foris, which beneficially owned 119,849,364 shares of our common stock, (ii) Ferrara Ventures, LLC, which beneficially owned 3,333,333 shares of our common stock, (iii) Clarus, LLC, which beneficially owned 9,648 shares of our common stock, and (iv) The Vallejo Ventures Trust U/T/A 2/12/96, which beneficially owned 567 shares of our common stock, representing in the aggregate approximately 33.7% of our outstanding common stock as of March 1, 2023. Mr. Doerr is also a manager of the general partners of entities affiliated with KPCB. As of March 1, 2023, Kleiner Perkins Caufield & Byers XII, LLC and KPCB XII Founders Fund, LLC, held 248,304 and 4,531 shares of our common stock, respectively, which represented less than 1% of our outstanding common stock.
- Dr. Kung is a founding member of, and was designated to serve as a director by Vivo. As of March 1, 2023, Vivo beneficially owned 7,844,226 shares of our common stock, representing approximately 2.1% of our outstanding common stock. In addition, Dr. Kung’s daughter is a non-executive employee of Amyris.
- Mr. Panchadsaram is a partner at Foris, which beneficially owned 119,849,364 shares of our common stock, representing in the aggregate approximately 32.8% of our outstanding stock as of March 1, 2023. Mr. Panchadsaram also serves as an advisor to the Chairman of KPCB. As of March 1, 2023, Kleiner Perkins Caufield & Byers XII, LLC and KPCB XII Founders Fund, LLC, held 248,304 and 4,531 shares of our common stock, respectively, which represented less than 1% of our outstanding common stock.

Consistent with these considerations, after a review of all relevant transactions and relationships between each director, any of his or her family members and affiliated entities, Amyris, our executive officers and our independent registered public accounting firm, the Board affirmatively determined that a majority of the Board is comprised of independent directors, and that the following directors are independent: John Doerr, Ana Dutra, Geoffrey Duyk, Frank Kung, James McCann, Steven Mills, Ryan Panchadsaram, Lisa Qi, and Julie Spencer Washington.

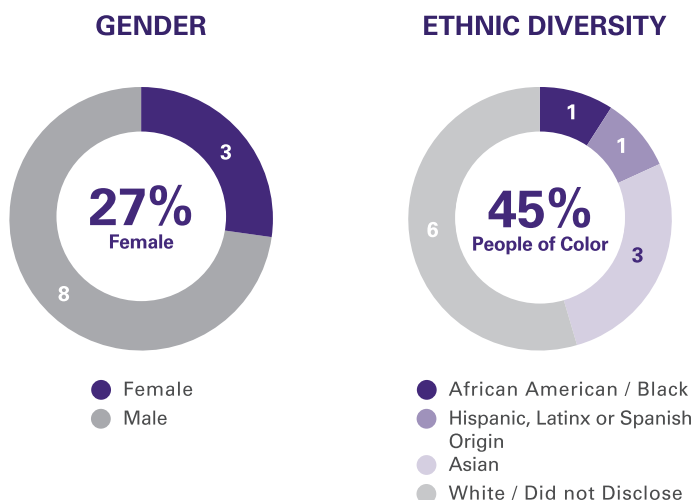
Board Tenure



Board Skills and Diversity

Board Skills, Experience and Attributes

Accounting/Audit	1
Beauty industry	3
Biotechnology industry	3
Company board service: Non-profit	7
Company board service: Private	7
Company board service: Public	6
Consumer products industry	6
Corporate development, M&A, strategy	9
Corporate finance, controls, and risk management	5
Corporate governance	6
Cybersecurity	1
Digital channels	5
ESG oversight and experience	6
Executive leadership	9
Global operations, manufacturing	6
Health, wellness industry	3
International expansion	7
Marketing and sales	4
Retail industry	5
Risk oversight	4
Scientific/R&D/product development experience	2
Startup/Disruptive technology and innovation	6
Supply chain/manufacturing	2
Talent development, culture, compensation	6



The following Board Diversity Matrix presents our Board diversity statistics in accordance with Nasdaq Rule 5606, as self-disclosed by our directors, confirming compliance with the minimum objectives of such rule.

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Board Diversity Matrix (As of March 31, 2023)				
Total Number of Directors	11			
	Female	Male	Non-Binary	Did not Disclose Gender
Directors	3	8	—	—
Number of Directors who identify in Any of the Categories Below:				
African American or Black	1	—	—	—
Alaskan Native or Native American	—	—	—	—
Asian	1	2	—	—
Hispanic or Latinx	1	—	—	—
Native Hawaiian or Pacific Islander	—	—	—	—
White	—	5	—	—
Two or More Races or Ethnicities	—	—	—	—
LGBTQ+	—	—	—	—
Other	—	1	—	—

Board Leadership Structure

The Board is composed of our CEO, John Melo, and ten non-management directors. Geoffrey Duyk, one of our independent directors, currently serves the principal Board leadership role as the interim Board Chair. The Board does not have any policy that the Board Chair must necessarily be separate from the CEO, but the Board appointed Dr. Duyk as interim Board Chair in May 2014 and he continues to serve in this role today. Dr. Duyk’s current responsibilities as interim Board Chair include working with the CEO to develop agendas for Board meetings, calling special meetings of the Board or Committees, presiding at executive sessions of independent Board members, and ensuring that an annual self- assessment process is conducted in order to provide feedback to the Board, its Committees and Committee Chairs, and the CEO, as appropriate, and serving as CEO in the absence of another designated CEO. The Board believes that having an independent Board Chair helps reinforce the Board’s independence from management in its oversight of our business and affairs.



















In addition, the Board believes that this structure helps to create an environment that is conducive to objective evaluation and oversight of management’s performance and related compensation, increasing management accountability and improving the ability of the Board to monitor whether management’s actions are in our best interests and those of our stockholders. Further, this structure permits our CEO to focus on the management of our day-to-day operations. Accordingly, we believe our current Board leadership structure contributes to the effectiveness of the Board as a whole and, as a result, is the most appropriate structure for us at the present time.



Board Committees and Meetings

The Board has established an Audit Committee, a LDICC, and an NGC, each as described below. Members are appointed by the Board to serve on these Committees until their resignations or until otherwise determined by the Board. A copy of each Committee’s charter can be found on our website at <https://investors.amyris.com/corporate-governance>.

During 2022, the Board held five meetings, and its three standing Committees (the Audit Committee, LDICC and NGC) collectively held 15 meetings. Each incumbent director attended at least 75% of the meetings of the Board and of the Committees on which such director served that were held during the period that such director served in 2022. The Board’s policy is that directors are encouraged to attend our annual meetings of stockholders. No directors attended our 2022 annual meeting of stockholders.

The following table provides membership for the Board’s standing committees as of December 31, 2022:

	Independent Director	Audit Committee	Nominating & Governance Committee	Leadership, Development, Inclusion & Compensation Committee
John Doerr				
Ana Dutra ⁽¹⁾				
Geoffrey Duyk M.D., Ph.D.				
James McCann				
Steve Mills				
Ryan Panchadsaram ⁽²⁾				
Lisa Qi				
Julie Spencer Washington ⁽²⁾				

 Chair  Member

⁽¹⁾ In March 2023, Ms. Dutra was appointed as a member of the Nominating & Governance Committee.

⁽²⁾ In March 2023, Mr. Panchadsaram stepped down from, and Ms. Washington was appointed to, the Audit Committee.

Outlined below are brief descriptions of the roles and responsibilities of each standing Committee.

Audit Committee

Current members:

Steve Mills (Chair)
Geoffrey Duyk
Julie Spencer Washington

Others who served in 2022:

Ryan Panchadsaram*

* In March 2023, Mr. Panchadsaram stepped down from, and Ms. Washington was appointed to, the Audit Committee.

Number of meetings held in 2022: 6

The Board has determined that each member of the Audit Committee is independent (as defined in the relevant Nasdaq and Securities and Exchange Commission (“SEC”) rules and regulations), and is financially literate and able to read and understand fundamental financial statements, including a company’s balance sheet, income statement and cash flow statement.

In addition, the Board has determined that Mr. Mills is an “audit committee financial expert” as defined in Item 407(d)(5)(ii) of Regulation S-K promulgated under the Securities Act of 1933, as amended (the “Securities Act”), with employment experience in finance and accounting and other comparable experience that results in his financial sophistication.

Role and Responsibilities

The Audit Committee assists the Board in fulfilling the Board’s oversight of our accounting and system of internal controls, the quality and integrity of our financial reports, legal and regulatory matters, and the retention, independence and performance of our independent registered public accounting firm.

The Audit Committee performs, among others, the following functions:

- oversees our accounting and financial reporting processes and audits of our consolidated financial statements and disclosure thereof;
- oversees our relationship with our independent auditors, including appointing or changing our independent auditors and ensuring their independence;
- monitors our risk assessment and management, and compliance with legal and regulatory requirements, including oversight of cybersecurity risks;
- reviews and approves the audit and permissible non-audit services to be provided to us by our independent auditors;
- facilitates communication among our independent auditors, our financial and senior management, and the Board;
- monitors the periodic reviews of the adequacy of our accounting and financial reporting processes and systems of internal control that are conducted by our independent auditors and our financial and senior management; and
- oversees management’s plans and objectives for Amyris’s capitalization and reviews and approves new offerings of debt, equity or hybrid securities, stock splits, and credit agreements, as well as minority investments by Amyris.

The Audit Committee also reviews and approves any proposed transaction between Amyris and any related party, establishes procedures for the receipt, retention and treatment of complaints received by Amyris regarding accounting, internal accounting controls or auditing matters, and together with the Secretary and Compliance Officer, for the confidential, anonymous submission by Amyris employees of their concerns regarding suspected violations of laws, governmental rules or regulations, accounting, internal accounting controls or auditing matters, or company policies (including the administration of our whistleblower policy), and in coordination with the Secretary, oversees the review of any complaints and submissions received through the complaint and anonymous reporting procedures.

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Nominating & Governance Committee

Current members:

John Doerr (Chair)
Ana Dutra*
James McCann
Lisa Qi

* In March 2023, Ms. Dutra was appointed as a member of the NGC.

Number of meetings held in 2022: 4

The Board has determined that each member of the NGC is independent (as defined in the relevant Nasdaq and SEC rules and regulations).

Role and Responsibilities

The NGC ensures that the Board is properly constituted to meet its fiduciary obligations to stockholders and Amyris, and to assist the Board with respect to corporate governance matters, including:

- identifying, considering and nominating candidates for membership on the Board;
- overseeing and recommending corporate governance guidelines and policies for Amyris (including our Corporate Governance Principles, Code of Business Conduct and Ethics and Insider Trading Policy);
- overseeing the development and achievement of ESG objectives by management;
- overseeing the evaluation of the Board and its committees; and
- advising the Board on corporate governance and Board performance matters, including recommendations regarding the structure and composition of the Board and Board Committees.

The NGC also monitors the size, structure and composition of the Board and its Committees and makes any recommendations to the Board regarding improvements to each Committee’s operations (including Committee reports to the Board), and structure (including member qualifications, appointment and removal), reviews our narrative disclosures in SEC filings regarding the director nomination process, director qualifications, Board leadership structure and risk oversight by the Board, considers and approves requested waivers for our directors or executive officers under our Code of Business Conduct and Ethics, reviews and makes recommendations to the Board regarding formal procedures for stockholder communications with members of the Board, and oversees an annual self-assessment process for the Board, its Committees and the Directors.

Leadership, Development, Inclusion & Compensation Committee

Current members:

James McCann (Chair)
Ana Dutra*
Steve Mills
Julie Spencer Washington

* Ms. Dutra was appointed to the LDICC as of March 2022, and Mr. Panchadsaram stepped down from his position on the LDICC as of May 2022.

Number of meetings held in 2022: 5

The Board, after consideration of all factors specifically relevant to determining whether any of Mr. McCann, Ms. Dutra, Mr. Mills, or Ms. Washington has a relationship to Amyris that is material to that director's ability to be independent from management in connection with the duties of a LDICC member, including, but not limited to, (i) the source of compensation of such director, including any consulting, advisory or other compensatory fee paid by Amyris to such director and (ii) whether such director is affiliated with Amyris, has determined that each member of the LDICC is independent (as further defined in the relevant Nasdaq and SEC rules and regulations).

Role and Responsibilities

The purpose of the LDICC is to provide guidance and periodic monitoring for all of our compensation, benefits and equity programs. The LDICC, through delegation from the Board, has principal responsibility to evaluate, recommend, approve, and review executive officer and director compensation arrangements, plans, policies and programs maintained by Amyris and to administer our equity-based and cash-based compensation plans, and may also make recommendations to the Board relating to executive compensation. The LDICC discharges the responsibilities of the Board relating to compensation of our executive officers, and, among other things:

- reviews and approves the compensation of our executive officers;
- reviews and recommends to the Board the compensation of our non-employee directors;
- reviews and recommends to the Board the terms of material amendments to equity compensation agreements in which our executive officers may participate;
- reviews and approves the terms of cash-based compensation agreements with our executive officers;
- administers our stock and equity incentive plans;
- reviews and makes recommendations to the Board with respect to incentive compensation and equity incentive plans other than as described above;
- establishes and reviews our overall compensation strategy;
- reviews with our CEO and Board leadership the succession plans for the executive officers; and
- oversees human capital management and DEIB strategies and practices.

Board and Committee Oversight of Risk Management

Full Board

The Board as a whole oversees our risk management systems and processes. Each of the standing Committees has been delegated oversight of certain categories of risk and provides the Board with regular reports regarding the Committees' activities.

Assessing and managing risk is the responsibility of our management, which establishes and maintains risk management processes, including prioritization, action plans and mitigation measures, designed to balance the risk and benefit of opportunities and strategies. It is management's responsibility to anticipate, identify and communicate risks to the Board and/or its Committees and discuss strategic plans and objectives, business results, financial condition, compensation programs, strategic transactions, and other matters in the context of various categories of risk.



Audit Committee

Responsible for overseeing our financial controls and risk, litigation and regulatory matters, and certain legal compliance matters, as well as enterprise risk prioritization and mitigation (including cybersecurity risk), and management's plans and objectives for our capitalization

Nominating & Governance Committee

Responsible for overseeing risks related to Board and Committee composition and succession, certain legal compliance matters, and corporate governance policies and practices (including ESG goals)

Leadership, Development, Inclusion & Compensation Committee

Responsible for overseeing risks associated with our Board, executive and employee compensation programs and related plans, effective management of executive succession, and management's plans, policies and practices related to human capital (including DEIB strategies)

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Director Nomination Process

In carrying out its duties to consider and nominate candidates for membership on the Board, the NGC considers a mix of perspectives, qualities and skills that would contribute to the overall corporate goals and objectives of Amyris and to the effectiveness of the Board. The NGC's goal is to nominate directors who will provide a balance of industry, business and technical knowledge, experience and capability. To this end, the NGC considers a variety of characteristics for director candidates, including demonstrated ability to exercise sound business judgment, relevant industry or business experience, understanding of, and experience with, issues and requirements facing public companies, excellence and a record of professional achievement in the candidate's field, relevant technical knowledge or aptitude, having sufficient time and energy to devote to the affairs of Amyris, independence for purposes of compliance with Nasdaq and SEC rules and regulations, as applicable, and commitment to rigorously represent the long-term interests of our stockholders. Although the NGC uses these and other criteria to evaluate potential nominees, we have no stated minimum criteria for nominees. While we do not have a formal policy with regard to the consideration of diversity in identifying director nominees, the NGC strives to reflect current legal developments and modifications to public company standards regarding diversity and inclusion on public company boards, and to nominate directors with a variety of complementary skills and experience. Accordingly, the NGC endeavors for the Board, as a group, to possess the appropriate talent, skills and experience to oversee our business. With respect to four of the most recent additions to our Board membership, the Board considered diversity in its elections of Ms. Dutra, Mr. Panchadsaram, Ms. Qi, and Ms. Washington, and the value of adding additional gender and ethnic diversity to our Board, in addition to their specific professional areas of professional expertise and other qualifications.

The NGC generally uses the following processes for identifying and evaluating nominees for director:

- In the case of incumbent directors, the NGC reviews the directors' overall service to Amyris during each annual assessment process, including performance, effectiveness, participation, and independence.
- In seeking to identify new director candidates, the NGC may use its network of contacts, together with the network of contacts of our CEO and Secretary, to compile a list of potential candidates and may also engage, if deemed appropriate, a professional search firm. The NGC would conduct any appropriate and necessary inquiries into the backgrounds and qualifications of possible candidates after considering the structure and needs of the Board. Our CEO and Secretary regularly review potential candidates with the NGC in order to discuss and consider such candidates' qualifications prior to organizing meetings with select nominees which may lead to recommendations to the Board of such candidates' membership by majority vote.

Stockholder Nominations

The NGC will consider director candidates recommended by stockholders and will use the same criteria to evaluate all candidates. We have not received a recommendation for a director nominee for the 2023 Annual Meeting from any stockholder. Stockholders who wish to recommend individuals for consideration by the NGC to become nominees for election to the Board may do so by delivering a written recommendation to the NGC at the following address: NGC Chair c/o Secretary of Amyris, Inc. at 5885 Hollis Street, Suite 100, Emeryville, California 94608, not later than the close of business on the 75th day, nor earlier than the close of business on the 105th day, prior to the anniversary date of the preceding year's annual meeting of stockholders, which for our 2024 annual meeting of stockholders is not later than March 11, 2024 nor earlier than February 10, 2024. You are also advised to review our Bylaws, which contain additional requirements about advance notice of stockholder proposals and director nominations. Submissions must include the full name of the proposed nominee, a description of the proposed nominee's business experience and directorships for at least the previous five years, complete biographical information, a description of the proposed nominee's qualifications as a director, a representation that the nominating stockholder is a beneficial or record owner of our common stock, certain information regarding the proposed nominee's position at any of our competitors, a description of other potential conflicts of interests, and other requirements as further set forth in our Bylaws. Any such submission must be accompanied by the written consent of the proposed nominee to be named as a nominee and to serve as a director if elected.

As provided in our Certificate of Incorporation, subject to the rights of the holders of any series of preferred stock, any vacancy occurring in the Board can generally be filled only by the affirmative vote of a majority of the directors then in office. The director appointed to fill the vacancy will hold office for a term expiring at the annual meeting of stockholders at which the term of office of the class to which the director has been assigned expires and until such director's successor shall have been duly elected and qualified, or until such director's earlier death, resignation or removal.

Stockholder Communications with Directors

The Board has established a process by which stockholders may communicate with the Board or any of its members, including the Board Chair, or to the independent directors generally. Stockholders and other interested parties who wish to communicate with the Board or any of the directors may do so by sending written communications addressed to the Secretary of Amyris at 5885 Hollis Street, Suite 100, Emeryville, California 94608. The Board has directed that the Secretary will review all communications to determine whether they should be presented to the Board. Following such review, the Secretary will determine which communications will be compiled and submitted to the Board, or a selected group of directors or individual directors, on a periodic basis. The purpose of this screening is to allow the Board to avoid having to consider irrelevant or inappropriate communications (such as advertisements and solicitations). The screening procedure has been approved by a majority of the non-management directors of the Board. Directors may at any time request that the Secretary

forward to them immediately all communications received for the Board. All communications directed to the Audit Committee in accordance with the procedures described above that relate to accounting, internal accounting controls or auditing matters involving Amyris will be promptly and directly forwarded to the Chair of the Audit Committee who will direct distribution to the Audit Committee members as required.

Director Commitments

Our board of directors believes that all members of the board should have sufficient time and attention to devote to board duties and to otherwise fulfill the responsibilities required of directors. In assessing whether directors and nominees for director have sufficient time and attention to devote to board duties, the nominating and corporate governance committee and our board of directors consider, among other things, whether directors may be “overboarded,” which refers to the situation where a director serves on an excessive number of boards. Our Corporate Governance Principles also require that directors seek approval from the Chairman, the Lead Independent Director and the chairperson of the nominating and corporate governance committee prior to accepting an invitation to serve on any additional corporate boards.

Our board of directors believes that each of our directors, including each of our director nominees, has demonstrated the ability to devote sufficient time and attention to board duties and to otherwise fulfill the responsibilities required of directors. However, we understand that certain institutional investors and proxy advisory firms may deem Mr. McCann overboarded based on the number of public company boards on which he serves. Nevertheless, we have determined that none of our directors are currently overboarded. Our board does not believe that Mr. McCann’s outside boards or other commitments limit his ability to devote sufficient time and attention to Amyris, and in 2022, he attended every meeting of the Board and each committee that he serves on. Our board also believes that Mr. McCann’s extensive experience in business leadership, entrepreneurship and innovation, enables him to assist our CEO in the growth and development of our business in a way that provides unique value to the company.

Proposal 2

Ratification of Appointment of Independent Registered Public Accounting Firm

General

The Audit Committee appointed Macias Gini & O’Connell LLP (“MGO”) as our independent registered public accounting firm for the fiscal year ending December 31, 2023, and the Board has directed that management submit the appointment of such independent registered public accounting firm for ratification by our stockholders at the Annual Meeting. MGO has been engaged as our independent registered public accounting firm since July 2019. We expect representatives of MGO to be present at the Annual Meeting. They will have an opportunity to make a statement if they so desire and will be available to respond to appropriate questions.

Neither our Bylaws nor other governing documents or applicable law require stockholder ratification of the appointment of our independent registered public accounting firm. However, we are submitting the appointment of MGO to our stockholders for ratification as a matter of good corporate practice. If our stockholders fail to ratify the appointment, the Audit Committee will reconsider whether or not to retain MGO. Even if the appointment is ratified, the Audit Committee in its discretion may direct the appointment of a different independent registered public accounting firm at any time during the year if they determine that such a change would be in the best interests of Amyris and our stockholders.

During our two most recent fiscal years, which ended December 31, 2022 and 2021, neither we nor any person on our behalf consulted with MGO with respect to either (i) the application of accounting principles to a specified transaction, either completed or proposed, or the type of audit opinion that might be rendered on our consolidated financial statements, and neither a written report was provided to us nor oral advice was provided that MGO concluded was an important factor in reaching a decision as to any accounting, auditing or financial reporting issue; or (ii) any matter that was either the subject of a “disagreement” or a “reportable event,” as such terms are described in Items 304(a)(1)(iv) and 304(a)(1)(v) of Regulation S-K.

Vote Required and Board Recommendation

Ratification of the appointment of MGO requires the affirmative vote of the holders of a majority of the shares of common stock properly casting votes for or against this proposal at the Annual Meeting in person or by proxy. Abstentions will not count toward the vote total for this proposal and therefore will not affect the outcome of this proposal. Shares represented by executed proxies that do not indicate a vote “For,” “Against” or “Abstain” will be voted by the proxy holders “For” this proposal.

The Board recommends a vote “FOR” this Proposal 2

Independent Registered Public Accounting Firm Fee Information

MGO has served as our independent registered public accounting firm for the fiscal years ended December 31, 2022 and 2021. The following tables set forth the aggregate fees billed to us by MGO for services performed in or for those fiscal years then ended (in thousands):

Fee Category	Fiscal Year ended December 31,	
	2022	2021
Audit Fees	\$2,192.0	\$1,763.4
Audit-Related Fees	—	—
Tax Fees	—	—
All Other Fees	13.1	124.3
Total Fees	\$2,205.1	\$1,887.7

The “Audit Fees” category includes aggregate fees billed for the relevant fiscal year for professional services rendered for the audit of our annual financial statements and review of our unaudited financial statements included in our Quarterly Reports on Form 10-Q, and for services that are normally provided in connection with statutory and regulatory filings or engagements for those fiscal years.

The “Audit-Related Fees” category includes aggregate fees billed in the relevant fiscal years for assurance and related services that are reasonably related to the performance of the audit or review of our consolidated financial statements and that are not reported under the “Audit Fees” category. We did not incur any fees in this category with respect to MGO for the fiscal years ended December 31, 2022 and 2021.

The “Tax Fees” category includes aggregate fees billed in the relevant fiscal year for professional services rendered with respect to tax compliance, tax advice and tax planning. We did not incur any fees in this category with respect to MGO for the fiscal years ended December 31, 2022 and 2021.

The “All Other Fees” category includes aggregate fees billed in the relevant fiscal year for products and services other than those reported under the other categories described above. In the fiscal years ended December 31, 2022 and 2021, we incurred fees in this category related to our private placement transaction and the filing of registration statements on Forms S-1, S-3ASR and S-8.

Audit Committee Pre-Approval of Services Performed by our Independent Registered Public Accounting Firm

The Audit Committee’s charter requires it to approve all fees and other compensation paid to, and pre-approve all audit and non-audit related services provided by, the Company’s independent registered public accounting firm. The Audit Committee charter permits the Audit Committee to delegate pre-approval authority to one or more members of the Audit Committee, provided that any pre-approval decision is reported to the Audit Committee at its next scheduled meeting. The Audit Committee has delegated such pre-approval authority, for fees of up to \$100,000 in the aggregate, to the Chair of the Audit Committee.

In determining whether to approve audit and non-audit services to be performed by our independent registered public accounting firm, the Audit Committee takes into consideration the fees to be paid for such services and whether such fees would affect the independence of the accounting firm in performing its audit function. In addition, when determining whether to approve non-audit services to be performed by our independent registered public accounting firm, the Audit Committee considers whether the performance of such services is compatible

with maintaining the independence of the accounting firm in performing its audit function, and confirms that the non-audit services will not include the prohibited activities set forth in Section 201 of the Sarbanes-Oxley Act of 2002. Except for the services described above under “Audit-Related Fees,” “Tax Fees,” and “All Other Fees” (each of which was pre-approved by the Audit Committee in accordance with its policy), no non-audit services were provided by our independent registered public accounting firm in 2022 or 2021.

All fees paid to, and all services provided by, our independent registered public accounting firm during fiscal years 2022 and 2021 were pre-approved by the Audit Committee in accordance with the pre-approval procedures described above.

Report of the Audit Committee¹

The Audit Committee has reviewed and discussed with management our audited consolidated financial statements for the fiscal year ended December 31, 2022. The Audit Committee has also discussed with MGO, our independent registered public accounting firm, the matters required to be discussed by Public Company Accounting Oversight Board Auditing Standard No. 1301 (Communications with Audit Committees), as amended.

The Audit Committee has received and reviewed the written disclosures and the letter from MGO required by applicable requirements of the Public Company Accounting Oversight Board regarding MGO’s communications with the Audit Committee concerning independence, and has discussed with MGO its independence.

Based on the review and discussions referred to above, the Audit Committee recommended to the Board that the audited consolidated financial statements be included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2022 for filing with the SEC.

Amyris, Inc. Audit Committee of the Board

Steven Mills (Chair)

Geoffrey Duyk

Ryan Panchadsaram²

¹ *The material in this report is not “soliciting material,” is not deemed “filed” with the SEC and is not to be incorporated by reference into any filing of Amyris under the Securities Act or the Securities Exchange Act of 1934 (the “Exchange Act”), whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.*

² *In March 2023, Mr. Panchadsaram stepped down from the Audit Committee after the review of this report.*

Proposal 3

Approval of Non-Binding Advisory Vote on Compensation of Named Executive Officers

General

Pursuant to Section 14A of the Exchange Act, the stockholders of Amyris may cast an advisory and non-binding vote at the Annual Meeting in relation to the compensation of our named executive officers as disclosed in this Proxy Statement in accordance with SEC rules. Our practice, which was approved by our stockholders at the 2017 Annual Meeting, is to conduct this non-binding vote on a triennial basis. This vote is not intended to address any specific item of compensation, but rather the overall compensation of our named executive officers and the philosophy, policies and practices described in this Proxy Statement.

This proposal is set forth in the following resolution:

“RESOLVED, that the stockholders of Amyris, Inc. approve, on an advisory basis, the compensation of its named executive officers, as disclosed in this Proxy Statement pursuant to the compensation disclosure rules of the Securities and Exchange Commission, including the Executive Compensation, the compensation tables, and any related material disclosed in this Proxy Statement.”

As an advisory vote, this proposal is non-binding. Although the vote is non-binding, the Board and the LDICC value the opinions of our stockholders, and will carefully consider the outcome of the vote when making future compensation decisions for our named executive officers.

As described more fully in “Executive Compensation” below, the Board and the LDICC believe that our compensation policies, which set forth clear and simple objectives, will yield the best results.

Our objectives are to:

- Attract, retain, and motivate highly talented employees that are key to our success;
- Reinforce our core values and foster a sense of ownership, urgency and entrepreneurial spirit;
- Link compensation to individual, team, and company performance (as appropriate by employee level);
- Emphasize performance-based compensation for individuals who can most directly impact stockholder value; and
- Provide exceptional pay for delivering exceptional results.

We believe that our executive compensation program is aligned with the long-term interests of our stockholders and that our compensation policies and practices provide an appropriate blend of compensation to retain our executives, reward them for performance in the short term and induce them to contribute to the creation of value in Amyris over the long term. We view the different components of our executive compensation program as distinct, each serving particular functions in furthering our compensation philosophy and objectives, and together providing a holistic approach to achieving such philosophy and objectives.

Our executive compensation program is designed to enable us to attract and retain the top executives and employees necessary to develop our business, while being prudent in the management of our cash and equity. Based on this approach, we continue to aim to balance and reward short-term and long-term performance with a total compensation package that includes a mix of both cash and equity. Our executive compensation program is intended to align the interests of management, key employees and stockholders and to encourage the creation of stockholder value by providing long-term incentives through equity ownership. The Executive Compensation section set forth below explain our compensation philosophy in greater detail. We urge you to read the Executive Compensation section of this Proxy Statement for additional details on our executive compensation program, including our compensation philosophy and objectives and the 2022 compensation of our named executive officers.

Vote Required and Board Recommendation

This proposal must receive a “For” vote from the holders of a majority of the shares of common stock properly casting votes for or against this proposal at the Annual Meeting in person or by proxy. If you own shares through a bank, broker or other Intermediary, you must instruct your bank, broker or other Intermediary how to vote in order for them to vote your shares so that your vote can be counted on this proposal. Abstentions and broker non-votes will not be counted toward the vote total for this proposal and therefore will not affect the outcome of this proposal.

The Board recommends a vote “FOR” this Proposal 3.

Proposal 4

Approval of Non-Binding Advisory Vote on Frequency of Future Stockholder Say-on-Pay Votes

General

In accordance with SEC rules, stockholders are being provided with the opportunity to cast an advisory vote on how frequently we should seek the stockholder say-on-pay vote, as provided in Proposal 3 above, in future years. This advisory vote is referred to herein as the “frequency of stockholder say-on-pay vote.” Under this Proposal 4, stockholders may vote on whether they would prefer to have a stockholder say-on-pay vote every year, every two years or every three years.

The Board believes that a stockholder say-on-pay vote once every year is most appropriate for Amyris because such a vote would provide stockholders with the appropriate timeframe to evaluate our overall compensation philosophy, design and implementation.

Stockholders may cast their vote on their preferred voting frequency by choosing the option of one year, two years or three years, or abstain from voting, when voting in response to the resolution set forth below:

“RESOLVED, that the option of 1 year, 2 years or 3 years that receives the highest number of votes properly cast for this resolution at the annual meeting in person or by proxy will be determined to be the preferred frequency with which Amyris is to hold a stockholder vote to approve the compensation of its named executive officers, as disclosed pursuant to the compensation disclosure rules of the Securities and Exchange Commission, including the Compensation Discussion and Analysis, the compensation tables, narrative discussion and any related material.”

Stockholders are not voting to approve or disapprove the Board’s recommendation.

While this advisory vote on the frequency of the stockholder say-on-pay vote is non-binding, the Board and LDICC will give careful consideration to the choice that receives the most votes when considering the frequency of future stockholder say-on-pay votes. However, when considering the frequency of future advisory votes on executive compensation, our Board and LDICC may decide that it is in the best interests of our stockholders and the Company to hold an advisory vote on executive compensation more or less frequently than the frequency receiving the most votes cast by our stockholders.

Vote Required and Board Recommendation

The frequency choice receiving the most votes (among votes properly cast at the Annual Meeting in person or by proxy) will be approved. Abstentions will be counted toward to the vote total for the proposal but will not count as a vote for or against any of the choices. Shares represented by executed proxies that do not indicate a vote for one of the three choices or “Abstain” will be voted by the proxy holders for the “One Year” choice (resolving to hold the stockholder say-on-pay vote once every year). If you own shares through a bank, broker or other Intermediary, you must instruct your bank, broker or other Intermediary how to vote in order for them to vote your shares so that your vote can be counted on this proposal. Broker non-votes will not be counted toward the vote total for this proposal and therefore will not affect the outcome of this proposal.

The Board recommends a vote for every “ONE YEAR” for this Proposal 4.

Proposal 5

Approval of Amendment of Restated Certificate of Incorporation to increase the Total Number of Authorized Shares of Common Stock

General

We are asking stockholders to approve an amendment (the “Amendment”) to Article IV of our restated Certificate of Incorporation to increase the total number of our authorized shares from 555,000,000 to 755,000,000 and the number of authorized shares of common stock from 550,000,000 to 750,000,000 (the “Authorized Share Increase”). The Board has approved the advisability of, and has adopted, subject to stockholder approval, the Amendment and the Authorized Share Increase. The Amendment requires approval of both the Board and our stockholders. Accordingly, we are seeking stockholder approval for the Amendment at the Annual Meeting by means of this Proxy Statement. The form of the proposed Amendment is attached to this Proxy Statement as Appendix A and is incorporated herein by reference.

Article IV of our Certificate of Incorporation currently authorizes us to issue up to 555,000,000 shares of stock, with 550,000,000 designated as common stock and 5,000,000 designated as preferred stock. The additional common stock will have rights identical to our currently outstanding common stock. The number of authorized shares of our preferred stock will not be affected by this amendment; it will be maintained at 5,000,000 shares.

Our common stock consists of a single class, with equal voting, distribution, liquidation and other rights. As of March 28, 2023, of our 550,000,000 shares of authorized common stock, 366,685,543 shares were issued and outstanding and approximately 180 million shares were reserved for issuance under our current equity plans, outstanding convertible promissory notes, outstanding convertible preferred stock, and other outstanding rights to acquire common stock.

Purpose of the Authorized Share Increase

The reason for the proposed amendment is to increase our financial flexibility to pursue strategic opportunities from time to time, including potential acquisitions and other capital-intensive opportunities, and to facilitate our ability to continue implementing our employee equity programs at competitive levels. Our cash flow from operations has been, and continues to be, negative. We may need to raise additional operating capital. The Board may determine that the optimal manner for doing so is the sale of equity securities, instruments convertible into equity securities or options or rights to acquire equity securities. For example, since 2013 we have been engaging in financings involving the private placement of our common stock, convertible promissory notes or warrants.

The increase in authorized shares of common stock will give the Board the flexibility to undertake certain transactions to support our business operations, without the potential expense or delay associated with obtaining stockholder approval for any particular issuance. We do not currently have enough shares authorized to provide sufficient flexibility to pursue appropriate financing opportunities if they arise, or to take certain other actions that

the Board may determine are in our best interests and the best interests of our stockholders. For example, we could issue additional shares of common stock in the future in connection with one or more of the following (subject to laws, regulations or Nasdaq rules that might require stockholder approval of certain transactions):

- strategic investments;
- acquisitions;
- partnerships, collaborations and other similar transactions;
- financing transactions, such as public or private offerings of common stock or convertible securities;
- debt or equity restructuring or refinancing transactions;
- stock splits or stock dividends; or
- any other proper corporate purposes.

The increase will also facilitate our ability to continue implementing our employee equity programs at competitive levels. As of March 28, 2023, nearly all of our currently authorized shares of common stock has either been issued or reserved for issuance under our equity incentive plans or upon exercise of outstanding warrants or conversion of outstanding convertible promissory notes, or needs to be reserved for issuance upon exercise of outstanding rights (as described below), after taking into consideration the full potential of interest that accrues and can convert to, or be payable in, shares of our common stock (including the shares of common stock to be issued subject to approval of Proposal 5).

Vote Required and Board Recommendation

This proposal must receive a “For” vote from the holders of a majority of our outstanding shares of common stock entitled to vote at the Annual Meeting, irrespective of the number of votes cast on the proposal at the meeting. Abstentions will have the same effect as an “Against” vote for this proposal. Shares represented by executed proxies that do not indicate a vote “For,” “Against” or “Abstain” will be voted by the proxy holders “For” this proposal.

The Board recommends a vote “FOR” this Proposal 5.

The Board believes it is desirable for us to have the flexibility to issue, without further stockholder action, additional shares of common stock in excess of the amount that is currently authorized. As is the case with the current authorized, unreserved, and unissued shares of common stock, the additional shares of common stock authorized by this proposed amendment could be issued upon approval by the Board or the LDICC, as applicable, without further vote of our stockholders except as may be required in particular cases by applicable law, regulatory agencies or Nasdaq rules. Such shares would be available for issuance from time to time as determined by the Board or the LDICC, as applicable, for any proper corporate purpose. Such purposes might include, without limitation, issuance in public or private sales for cash as a means of obtaining additional capital for use in our business and operations, issuance in repayment of indebtedness and/or issuance pursuant to stock plans relating to options, restricted stock, restricted stock units and other equity grants.

Potential Adverse Effects

If this proposal is adopted, the additional authorized shares of common stock can be issued or reserved with approval of the Board or the LDICC, as applicable, at times, in amounts, and upon terms that the Board, or the LDICC, may determine, without additional stockholder approval. Stockholder approval of this proposal will not, by

itself, cause any change in our capital accounts. However, any future issuance of additional shares of authorized common stock, or securities convertible into common stock, would ultimately result in dilution of existing stockholders who do not participate in such transactions, and could also have a dilutive effect on book value per share and any future earnings per share. Dilution of equity interests could also cause prevailing market prices for our common stock to decline. Current stockholders (other than those who are party to specific rights agreements with us, as described below) will not have preemptive rights to purchase additional shares.

In addition to dilution, the availability of additional shares of common stock for issuance could, under certain circumstances, discourage or make more difficult any efforts to obtain control of Amyris. For example, significant stock and convertible security issuances in connection with a series of private-placement financing and public equity capital raise efforts since 2012 have resulted in further concentration of ownership of Amyris by related parties. Such concentration of ownership could make it more difficult for an unrelated third party to undertake an acquisition of us. The Board is not aware of any actual or contemplated attempt to acquire control of Amyris and this proposal is not being presented with the intent that it be used to prevent or discourage any acquisition attempt. However, nothing would prevent the Board from taking any actions that it deems consistent with its fiduciary duties.

Risks to Stockholders of Non-Approval

Because our cash flow from operations has been negative, if the stockholders do not approve this proposal, the Board may be precluded from pursuing a wide range of potential corporate opportunities that might raise necessary cash or otherwise be in the best interests of Amyris and the best interests of our stockholders, or from fulfilling certain equity obligations under our equity plans. This could have a material adverse effect on our business and prospects. We would also face substantial challenges in hiring and retaining employees at all levels, including our executive leadership team, in the near term.

Interests of Certain Persons

Our executive officers and directors have an interest in this proposal by virtue of their being eligible to receive equity awards under our 2020 EIP, and any future equity incentive plan we adopt.

Some of our directors are affiliated with, or were appointed as directors by, entities that own convertible securities, rights and/or warrants that are convertible into or exercisable for shares of our common stock. Further, some of our directors are affiliated with, or were appointed as directors by, entities that may participate in future equity financings that will require issuance or reservation of shares authorized by the proposed amendment to our Certificate of Incorporation. The beneficial ownership of our directors and its affiliates is set forth in section “Security Ownership of Certain Beneficial Owners and Management” of this Proxy Statement.

DSM International B.V. and Vivo Capital LLC, each of which has or recently had relationships to our directors, hold a right of first investment that allows them to participate in specified future securities offerings (pro rata based on their percentage ownership of then-outstanding common stock).

Text of Proposed Amendment

The text of the proposed amendment to our Certificate of Incorporation to effect the Authorized Share Increase is attached to this Proxy Statement as Appendix A. However, such text is subject to amendment to include such changes as may be required by the office of the Secretary of State of the State of Delaware or as the Board of Directors deems necessary and advisable to effect the Authorized Share Increase under this proposal.

Security Ownership of Certain Beneficial Owners and Management

The following table sets forth information with respect to the beneficial ownership of our common stock, as of March 1, 2023, by:

- each person, or group of affiliated persons, who is known by us to beneficially own more than 5% of our voting securities;
- each of our directors;
- each of our named executive officers; and
- all of our directors and executive officers as a group.

Beneficial ownership is determined in accordance with the rules of the SEC and generally includes any shares over which the individual or entity has sole or shared voting power or investment power. These rules also treat as outstanding all shares of capital stock that a person would receive upon the exercise of any option, warrant or right or through the conversion of a security held by that person that are immediately exercisable or convertible or exercisable or convertible within 60 days of the date as of which beneficial ownership is determined. These shares are deemed to be outstanding and beneficially owned by the person holding those options, warrants or rights or convertible securities for the purpose of computing the number of shares beneficially owned and the percentage ownership of that person, but they are not treated as outstanding for the purpose of computing the percentage ownership of any other person. The information does not necessarily indicate beneficial ownership for any other purpose. Except as indicated in the footnotes to the below table and pursuant to applicable community property laws, to our knowledge the persons named in the table below have sole voting and investment power with respect to all shares of common stock attributed to them in the table.

Information with respect to beneficial ownership has been furnished to us by each director and named executive officer and certain stockholders, and derived from publicly-available SEC beneficial ownership reports on Forms 3 and 4 and Schedules 13D and 13G filed by covered beneficial owners of our common stock. Percentage ownership of our common stock in the table is based on 365,584,798 shares of our common stock outstanding on March 1, 2023 (as reflected in the records of our stock transfer agent). Except as otherwise set forth below, the address of the beneficial owner is c/o Amyris, Inc., 5885 Hollis Street, Suite 100, Emeryville, California 94608.

Name and Address of Beneficial Owner	Number of Shares Beneficially Owned (#)	Percent of Class (%)
Foris Ventures, LLC ⁽¹⁾	119,849,364	32.8
Heights Capital Management, Inc. ⁽²⁾	33,163,117	9.1
The Vanguard Group ⁽³⁾	21,211,189	5.8
DSM International B.V. ⁽⁴⁾	16,701,210	4.6
Directors and Named Executive Officers:		
John Melo ⁽⁵⁾	640,749	*
John Doerr ⁽¹⁾⁽⁶⁾	123,486,966	33.7
Ana Dutra ⁽⁷⁾	10,950	*
Geoffrey Duyk ⁽⁸⁾	50,417	*
Philip Eykerman ⁽⁴⁾⁽⁹⁾	32,471	*
Frank Kung ⁽¹⁰⁾	7,844,226	2.1
James McCann ⁽¹¹⁾	31,553	*
Steven Mills ⁽¹²⁾	47,802	*
Ryan Panchadsaram	18,171	*
Lisa Qi ⁽¹³⁾	23,618	*
Julie Spencer Washington ⁽¹⁴⁾	22,632	*
Eduardo Alvarez ⁽¹⁵⁾	342,453	*
Han Kieftenbeld ⁽¹⁶⁾	157,147	*
All Directors and Executive Officers as a Group (13 Persons) ⁽¹⁷⁾	132,709,155	36.3

* Less than 1%.

- (1) Consists of (i) 87,268,358 shares of common stock currently outstanding and held by Foris Ventures, LLC ("Foris"), (ii) 20,534,970 shares of common stock issuable to Foris upon conversion of the total amount of indebtedness outstanding (the "2019 Convertible Note"), including accrued and unpaid interest as of February 28, 2023, under that certain Amended and Restated Loan and Security Agreement, dated as of October 28, 2019 (as it may be further amended, restated or otherwise modified, the "2019 LSA"), by and among the Company, Foris, as lender, and the other parties thereto; (iii) 2,046,036 shares of common stock issuable to Foris upon exercise of a warrant issued to Foris on September 13, 2022 (the "September 2022 Warrant") in connection with that certain Loan and Security Agreement, dated as of September 13, 2022 (as it may be amended, restated or otherwise modified, the "2022 LSA"), by and among the Company, Foris, as lender, and the other parties thereto; and (iv) 10,000,000 shares of common stock issuable to Foris upon exercise of a warrant issued to Foris on December 30, 2022 (the "December 2022 Warrant" and together with the September 2022 Warrant, collectively the "2022 Warrants"). As of February 28, 2023, 16,680,334 shares of Common Stock are issuable upon conversion of the 2019 Convertible Note in respect of an outstanding principal amount of \$50.0 million and 3,854,636 shares of Common Stock are issuable upon conversion of accrued and unpaid interest of \$11.6 million, reflecting a fixed conversion price of \$3.00 per share of Common Stock. Barbara Hager, the manager of Foris, may be deemed to have sole power to vote and dispose of these securities. The 2019 Convertible Note bears interest at 6.0% per annum; interest is not payable until the maturity date of July 1, 2023. The Vallejo Ventures Trust U/T/A 2/12/96 ("VVT"), the member of Foris, may be deemed to have sole power to vote and dispose of these securities, and L. John Doerr ("John Doerr") and Ann Doerr, the trustees of VVT, and Barbara Hager, the special trustee of VVT, may be deemed to have shared power to vote and dispose of these securities. The address for Foris is 1180 San Carlos Avenue #717, San Carlos, California 94070.
- (2) Consists of 18,163,117 shares of common stock currently outstanding and held by Heights Capital Management, Inc. ("HCM") and (ii) 15,000,000 shares of common stock issuable to HCM upon exercise of a warrant issued to HCM on December 30, 2022. According to the Schedule 13G/A filed with the SEC on February 14, 2023, CVI Investments, Inc. ("CVI") had shared voting power over 18,163,117 shares and shared dispositive power over 18,163,117 shares with HCM, the investment manager of CVI. Various persons have the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of those shares and no one person's interest in such shares is more than five percent of the total outstanding common shares. The address for HCM is 101 California Street, Suite 3250, San Francisco, California 94111, and the address for CVI is P.O. Box 309GT, Uglund House, South Church Street, George Town, Grand Cayman, KY1-1104, Cayman Islands.
- (3) According to the Schedule 13G/A filed with the SEC on February 9, 2023, The Vanguard Group ("Vanguard") had shared voting power over 160,975 shares, sole dispositive power over 20,868,293 shares, and shared dispositive power over 342,896 shares. Various persons have the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of those shares and no one person's interest in such shares is more than five percent of the total outstanding common shares. The address for Vanguard is 100 Vanguard Blvd., Malvern, Pennsylvania 19355.

Security Ownership of Certain Beneficial Owners and Management

- (4) DSM International B.V. is a wholly owned subsidiary of Koninklijke DSM N.V. Accordingly, Koninklijke DSM N.V. may be deemed to share beneficial ownership of the securities held of record by DSM International B.V. Koninklijke DSM N.V. is a publicly traded company with securities listed on the Amsterdam Stock Exchange. The address for DSM International B.V. is HET Overloon 1, 6411 TE Heerlen, Netherlands.
- (5) Shares beneficially owned by Mr. Melo include 130,893 shares of common stock issuable upon exercise of stock options that were exercisable within 60 days of March 1, 2023.
- (6) Shares beneficially owned by Mr. Doerr include (i) 87,268,358 shares of common stock currently outstanding and held by Foris, (ii) 20,534,970 shares of Common Stock issuable to Foris upon conversion of the 2019 Convertible Note, including accrued and unpaid interest as of February 28, 2023, (iii) 12,046,036 shares of Common Stock issuable to Foris upon exercise of the 2022 Warrants, (iv) 567 shares of Common Stock held by VVT, (v) 9,648 shares of Common Stock held by Clarus, LLC, (vi) 248,304 shares of Common Stock held by Kleiner Perkins Caufield & Byers XII, LLC, (vii) 4,531 shares of Common Stock held by KPCB XII Founders Fund, LLC, (viii) 3,333,333 shares of Common Stock held by Perrara Ventures, LLC, (ix) 26,155 shares of Common Stock held by John Doerr, and (x) 15,064 shares of Common Stock issuable to Mr. Doerr upon exercise of options within 60 days of January 9, 2023. Mr. Doerr is a trustee of VVT, which is the member of Foris and Clarus, LLC. Mr. Doerr may be deemed to have shared power to vote and dispose of shares beneficially owned by Foris, VVT and Clarus, LLC. The Managing Member of Kleiner Perkins Caufield & Byers XII, LLC is KPCB XII Associates, LLC, of which Mr. Doerr is the managing member. The Managing Member of KPCB XII Founders Fund, LLC is KPCB XII Associates, LLC, of which Mr. Doerr is the managing member. Mr. Doerr indirectly holds all of the membership interests in Perrara Ventures, LLC. Mr. Doerr disclaims beneficial ownership of all securities held by entities affiliated with him except to the extent of his pecuniary interest therein.
- (7) Shares beneficially owned by Ms. Dutra include 6,667 restricted stock units vesting within 60 days of March 1, 2023.
- (8) Shares beneficially owned by Dr. Duyk include (i) 40,552 shares held by the Duyk Wolter Family Trust, whereby Dr. Duyk and his wife are trustees and beneficiaries, and (ii) 9,865 shares of common stock issuable upon exercise of stock options that were exercisable within 60 days of March 1, 2023.
- (9) Shares beneficially owned by Mr. Eykerman include 15,131 shares of common stock issuable upon exercise of stock options that were exercisable within 60 days of March 1, 2023. Mr. Eykerman was appointed to the Board on May 18, 2017 as the designee of DSM. Mr. Eykerman disclaims beneficial ownership of all shares of Amyris common stock that are or may be beneficially owned by DSM or any of its affiliates.
- (10) Shares beneficially owned by Dr. Kung include (i) 7,830,828 shares of common stock beneficially owned by Vivo Capital LLC (together with its affiliates, "Vivo"), over which Dr. Kung may be deemed to share voting and dispositive power and (ii) 13,398 shares of common stock issuable upon exercise of stock options that were exercisable within 60 days of March 1, 2023. Dr. Kung was appointed to the Board on November 2, 2017 as the designee of Vivo. Dr. Kung disclaims beneficial ownership over shares of Amyris common stock that are or may be beneficially owned by Vivo except to the extent of his pecuniary interest therein.
- (11) Shares beneficially owned by Mr. McCann include 7,682 shares of common stock issuable upon exercise of stock options that were exercisable within 60 days of March 1, 2023.
- (12) Shares beneficially owned by Mr. Mills include (i) 10,316 shares held by The Steven Mills R. Trust, whereby Mr. Mills is the trustee, and (ii) 10,398 shares of common stock issuable upon exercise of stock options that were exercisable within 60 days of March 1, 2023.
- (13) Shares beneficially owned by Ms. Qi include 4,216 shares of common stock issuable upon exercise of stock options that were exercisable within 60 days of March 1, 2023.
- (14) Shares beneficially owned by Ms. Washington include 3,466 shares of common stock issuable upon exercise of stock options that were exercisable within 60 days of March 1, 2023.
- (15) Shares beneficially owned by Mr. Alvarez include 61,250 shares of common stock issuable upon exercise of stock options that were exercisable within 60 days of March 1, 2023.
- (16) Shares beneficially owned by Mr. Kieftenbeld include 53,046 shares of common stock issuable upon exercise of stock options that were exercisable within 60 days of March 1, 2023.
- (17) Shares beneficially owned by all of our executive officers and directors as a group include the shares of common stock described in footnotes 5 through 16 above.

Delinquent Section 16(A) Reports

Section 16(a) of the Exchange Act requires our directors, executive officers, and persons who beneficially own more than ten percent of our common stock to file with the SEC initial reports of beneficial ownership and reports of changes in beneficial ownership of common stock. Directors, executive officers, and ten percent stockholders are required by SEC regulations to furnish us with copies of all Section 16(a) forms they file.

Based solely on our review of these reports filed by the Company's officers, directors and stockholders, and written representations from our executive officers and directors that they filed such reports, we believe that our officers, directors, and stockholders complied with all filing requirements under Section 16(a) of the Exchange Act on a timely basis during the year ended December 31, 2022, except that (i) a Form 4 with respect to an amendment to the Amended and Restated Loan and Security Agreement, or LSA, between the Company and Foris to provide Foris with the right to convert the outstanding indebtedness under the LSA into shares of common stock, and stockholder approval thereof, as obtained on August 14, 2020 was filed on January 4, 2023 and (ii) a Form 5 with respect to certain transfers by Geoffrey Duyk to the Duyk Wolter Family Trust in 2020 was filed on February 11, 2022.

Executive Officers

The following table provides the names, ages, and offices of each of our current executive officers as of March 1, 2023:

Name	Age	Position
John Melo	57	Director, President and Chief Executive Officer
Han Kieftenbeld	57	Chief Financial Officer and Administration Officer
Eduardo Alvarez	59	Chief Operating Officer

John Melo

See above under “Proposal 1—Director Biographies”

Han Kieftenbeld

Han Kieftenbeld has served as our Chief Financial Officer since March 2020 and our Chief Administration Officer since July 2020. Mr. Kieftenbeld has over 30 years of international business leadership, finance and operations experience in food, health and nutrition end-markets. Previously, from April 2016 to April 2019, Mr. Kieftenbeld served as Senior Vice President and Chief Financial Officer of Innophos Holdings, Inc., a leading international science-based producer of essential ingredients for health and nutrition, food and beverage and industrial brands. From June 2014 to July 2015, Mr. Kieftenbeld served as the Global Chief Financial Officer at AB Mauri, a worldwide leader in bakery ingredients. Prior to that, Mr. Kieftenbeld held finance and operations roles of increasing reach and impact, including serving as Global Chief Procurement Officer of Ingredion Incorporated, and Global Chief Financial Officer of National Starch. Mr. Kieftenbeld started his career at Unilever in the Netherlands. Mr. Kieftenbeld earned a joint Master of Business Administration degree from New York University Stern School of Business, London School of Economics and Political Science, and the HEC School of Management, Paris. He holds a Bachelor of Science degree in Business Economics and Accounting from Windesheim University in the Netherlands.

Eduardo Alvarez

Eduardo Alvarez has served as our Chief Operating Officer since October 2017. Mr. Alvarez has over 35 years of global operations experience both running and advising growth companies. Previously, he served as Global Operations Strategy Leader for PricewaterhouseCoopers LLP (PwC). During his tenure, Mr. Alvarez co-led the integration of his prior company, Booz & Company, following its acquisition by PwC. In that role, he grew operations into a global practice with \$1.5 billion in revenue and 4,000 employees. Mr. Alvarez’s assignments focused on delivering structural cost improvements while also driving sustained revenue growth. His experience also includes roles at Booz Allen Hamilton, General Electric and AT&T. Mr. Alvarez holds a Master of Business Administration degree from Harvard Business School, a Master’s of Science in Mechanical Engineering in Computer Control and Manufacturing from the University of California, Berkeley, and a Bachelor of Science degree in Mechanical Engineering from the University of Michigan. Mr. Alvarez is a board member of The Chicago Council of Global Affairs.

Executive Compensation

Compensation Discussion and Analysis

The following discussion describes and analyzes the compensation policies, arrangements, and decisions for our named executive officers (or “NEOs”) in 2022 and should be read in conjunction with the compensation tables contained later in this Proxy Statement. We believe our existing compensation policies, arrangements and decisions are consistent with our compensation philosophy and objectives discussed below and align the interests of our NEOs with our short-term and long-term business objectives. During 2022, our four NEOs were:

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John Melo
President and Chief Executive Officer (our “CEO”)



Han Kieftenbeld
Chief Financial Officer and Chief Administration Officer (our “CFO”)



Eduardo Alvarez
Chief Operating Officer (our “COO”)

Nicole Kelsey
Former Chief Legal Officer (our “Former CLO”)⁽¹⁾

(1) Ms. Kelsey ceased serving as our Chief Legal Officer as of December 16, 2022.

2022 Business Highlights

We are a biotechnology company delivering sustainable science-based ingredients and consumer products that are better for people and the planet. To accelerate the world's transition to sustainable consumption, we create, manufacture, and commercialize consumer products and ingredients that reach more than 300 million consumers. The largest proportion of revenue is the marketing and selling of Clean Beauty, Personal Care, and Health & Wellness consumer products through our direct-to-consumer e-commerce platforms and a growing network of retail partners. Our proprietary sustainable ingredients are sold in bulk to industrial leaders who serve Flavor & Fragrance ("F&F"), Nutrition, Food & Beverage, and Clean Beauty & Personal Care end markets.

Our ingredients and consumer products are powered by our Lab-to-Market™ technology platform. This technology platform creates a portfolio connection between our proprietary science and formulation expertise, manufacturing capability at industrial scale, and expertise in commercializing high performance, sustainable products that give consumers the power to choose products that benefit the planet. Our technology platform offers advantages to traditional methods of sourcing similar ingredients (such as petrochemistry, unsustainable agricultural practices, and extraction from organisms). These advantages include, but are not limited to, renewable and ethical sourcing of raw materials, less resource-intensive production, minimal impact on sensitive ecosystems, enhanced purity and safety profiles, less vulnerability to climate disruption, and improved supply chain resilience. We combine molecular biology and genetic engineering to produce sustainable materials that are scarce or endangered resources in nature. We leverage state-of-the-art machine learning, robotics, and artificial intelligence, which enable our technology platform to rapidly bring new innovation to market.

We began 2022 with eight consumer brands, Biossance® clean beauty skincare, JVN™ haircare, Rose Inc.® clean color cosmetics, Pipette® clean baby skincare, Costa Brazil® luxury skincare, OLIKA® clean wellness, Purecane® zero-calorie sweetener, and Terasana® clean skincare. During 2022, we added MenoLabs®, a brand focused on healthy living and menopause wellness, EcoFabulous™ clean beauty for Gen-Z consumers, and Stripes™ (peri)menopausal wellness; and prepared to discontinue the Terasana business. In the first quarter of 2023, we launched 4U by Tia™, a new clean haircare line exclusively available in Walmart.

In 2022, we delivered record Consumer revenue of \$176.9 million, representing a 92% increase over the prior year, driven by strong performance and growth of our portfolio of consumer brands in clean skin care, hair care, color cosmetics, baby care and healthy aging. We completed the construction of, and commissioned, our new precision fermentation facility in Barra Bonita, Brazil. We also completed a strategic acquisition of a consumer production manufacturing facility in Sao Paulo, Brazil to support our supply chain needs and reduce dependence on third-party manufacturing.

2022 Executive Transitions

On December 16, 2022, Nicole Kelsey ceased serving as Chief Legal Officer and Secretary of the Company, and her employment terminated on December 31, 2022. Ms. Kelsey's departure was not related to any legal, compliance or other matters of the Company. Upon executing a release of claims in the Company's favor, Ms. Kelsey received a severance payment (including base salary and health benefits) as described in her offer letter, which is filed as Exhibit 10.75 to the Company's Annual Report on Form 10-K for the year ended December 31, 2017, and which descriptions are incorporated herein by reference.

Key Features of our Executive Compensation Program

✓ What We Do

- ✓ **Design executive compensation** to align with performance
- ✓ **Balance short-term and long-term incentive compensation**, with the majority of target total direct compensation being “at-risk” and in the form of performance-based compensation
- ✓ **Establish threshold and maximum levels of achievement for payouts** under our annual cash bonus plan
- ✓ **100% independent directors** on our LDICC
- ✓ **Engage independent compensation consultant** which reports directly to LDICC
- ✓ **LDICC meets regularly** in executive session

✗ What We Don't Do

- ✗ **No excessive** change in control or severance payments and benefits
- ✗ **No “single-trigger”** equity vesting acceleration
- ✗ **No repricing** of underwater stock options without stockholder approval
- ✗ **No excessive perquisites**
- ✗ **No tax gross ups** on severance change in control payments and benefits
- ✗ **No retirement, pension or defined benefit plans** that are not available to employees generally
- ✗ **No guaranteed bonuses or base salary increases**

Compensation Philosophy and Objectives

The primary objectives of our employee compensation program (including for our NEOs) in 2022 were to:

- Attract, retain, and motivate highly talented individuals that are key to our success;
- Support business strategy and motivate individuals to achieve outstanding business goals; and
- Support long-term company growth and enhance stockholder value.

Our compensation philosophy is to be:

- Competitive – be a market leader on compensation and an employer of choice;
- Equitable – have consistent pay practices across the organization; and
- Sustainable – link rewards to business performance, allowing the organization to align business cost to financial performance.

Our success depends on, among other things, attracting and retaining executive officers with experience and skills in a number of different areas as we continue to drive improvements in our technology platform and production process, pursue and develop key commercial relationships, create and commercialize products, and establish a reliable supply chain and manufacturing organization.

Our consumer business continues to be in an early stage of product development, with cash management being one key consideration for our strategy and operations. For 2022, we intended to provide a competitive compensation program that would enable us to attract and retain the top executive officers and employees necessary to develop our business, while being prudent in the management of our cash and equity. Based on this approach, we continued to aim to reward short-term and long-term performance with a total compensation package that included a mix of both cash and equity. Our compensation program was intended to align the interests of our executive officers, key employees and stockholders and to drive the creation of sustainable stockholder value by providing long-term incentive compensation in the form of equity awards, including performance-based equity awards with challenging price-based milestones.

Our intent and philosophy in designing compensation packages at the time of hiring new executive officers is based on providing compensation that we believe is sufficient to enable us to attract the necessary talent to grow our business, within prudent limits discussed above. The compensation of our executive officers following their initial hire is influenced by the amounts of compensation that we initially agreed to pay them, as well as by our evaluation of their subsequent performance, changes in their levels of responsibility, retention considerations, prevailing market conditions, our financial condition and prospects, and our attempt to maintain an appropriate level of internal pay parity in the compensation of existing executive officers relative to the compensation paid to more recently hired executive officers.

Elements of Executive Compensation

We compensate our executive officers with fixed compensation (base salary) and variable compensation (cash bonuses and equity awards). We believe this combination of cash and equity compensation, subject to strategic allocation between these components, is largely consistent with the forms of compensation provided by other companies with which we compete for executive talent, and, as such, matches the expectations of our executive officers and the market for executive talent. We also believe that this combination provides appropriate incentive levels to retain our executive officers, reward them for performance in the short term and induce them to contribute to the creation of value in the Company over the long term. We view the different components of our executive compensation program as distinct, each serving particular functions in furthering our compensation philosophy and objectives, and together, providing a holistic approach to achieving such philosophy and objectives.

A significant portion of the target total direct compensation for our CEO and our other NEOs is structured as variable or “at-risk” compensation, with payouts and equity award values and vesting dependent upon the Company’s performance. This aligns our NEOs’ interests with those of our stockholders for near- and long-term performance.



Fixed

Short-Term Base Salary Cash

We believe that we must maintain base salary levels at or above the competitive market level to attract and retain our executive officers and that it is important for our executive officers to perceive that over time they will continue to have the opportunity to earn a base salary that they regard as competitive. The LDICC reviews and adjusts, as appropriate, the base salaries of our executive officers on an annual basis, and makes decisions with respect to the base salaries of new executive officers at the time of hire. In making such decisions, the LDICC considers several factors, including the overall financial performance of the Company, the individual performance of the executive officer (including, for executive officers other than our CEO, the recommendation of our CEO based on a performance evaluation of the executive officer), the executive officer’s potential to contribute to our short-term and longer-term strategic goals, the executive officer’s scope of responsibilities, qualifications and experience, competitive market practices for base salary, prevailing market conditions and internal pay parity.



Variable

Mid-Term Cash Bonuses Cash

We believe the ability to earn cash bonuses should provide incentives to our executive officers to effectively pursue goals established by our Board and should be regarded by our executive officers as appropriately rewarding effective performance against these goals. For 2022, the LDICC adopted a cash bonus plan for our executive officers, the details of

which are described below under “2022 Compensation.” The 2022 bonus plan included both Company performance goals and individual performance goals and was structured to motivate our executive officers to achieve our short-term financial, operational, and strategic goals and to reward exceptional Company and individual performance. In particular, our 2022 bonus plan was designed to provide incentives to our executive officers to achieve both 2022 Company financial and operational objectives as well as individual performance objectives on a first half and annual basis. In general, target cash bonus opportunities for our executive officers are initially set in their employment offer letters based on similar factors to those described above with respect to the determination of base salary. For subsequent years, target cash bonus opportunities for our executive officers may be adjusted by the LDICC based on various factors, including any adjustment to base salary, competitive market practices, and the other factors described above with respect to determination of base salary.

**Long-Term
Equity**

**Time-Vesting
Equity Awards**

Our equity awards are designed to be sufficiently competitive to allow us to attract and retain talented and experienced executive officers. In 2022, we granted restricted stock unit (“RSU”) awards or a combination of RSUs and stock option awards to two of our named executive officers. Stock options are granted with an exercise price equal to the fair market value of our common stock on the date of grant; accordingly, such stock options will have value to our executive officers only if the market price of our common stock increases after the date of grant. RSU awards represent the right to receive full-value shares of our common stock without payment of any exercise or purchase price. The relative weighting between the stock options and RSU awards granted to our executive officers is based on the LDICC’s review of competitive market practices.

Typically, we grant stock options with four-year vesting schedules, with 25% of the shares of our common stock subject to the options vesting after one year and monthly thereafter, subject to continued service through each vesting date. Generally, RSU awards have three-year vesting schedules, with one-third of the units subject to the awards vesting annually over three years, subject to continued service through each vesting date. We believe such vesting schedules are generally consistent with the stock option and RSU award granting practices of our peer group companies.

**Performance-
Vesting Equity
Awards**

In 2021, the LDICC approved equity awards to our CEO, CFO and COO consisting of RSUs subject to performance-based vesting conditions as described in more detail below under “2021 Compensation—Equity Awards—2021 Performance Equity Awards.” These performance-based awards remained outstanding and largely unvested in 2022 and consequently impacted the LDICC’s decision-making regarding additional equity grants to the CEO, CFO and COO in 2022.

**Other Equity
Awards**

In addition to annual equity awards, we grant equity awards to our executive officers in connection with their hire, or, as applicable, their promotion from other roles at the Company or in connection with significant changes in responsibilities, in response to retention needs or to recognize outstanding performance or incentivize specific performance. The size of the initial new hire equity awards is based on the executive officer’s position with us and takes into consideration the executive officer’s base salary and other compensation as well as an analysis of the equity award grant and compensation practices of our peer group companies. Generally, the initial equity awards are intended to provide the executive officer with an incentive to build value in the Company over an extended period of time, which is consistent with our overall compensation philosophy. While we have incurred operating losses and dedicated substantial amounts of cash to critical capital expenditures and operations, and as a result, set base salaries and target cash bonus opportunities that were, in certain cases, lower than those offered by competing employers, we have sought to attract executive officers to join us by granting equity awards that would have the potential to provide significant value if we are successful.

Stockholder Say-on-Pay Votes

At the Annual Meeting, we will be conducting a non-binding stockholder advisory vote on the compensation of our named executive officers (commonly known as a “Say-on-Pay” vote). For additional information about the Say-on-Pay vote, see Proposal 3 in this Proxy Statement.

In anticipation of this year’s Say-on-Pay vote, we reached out to investors representing approximately 17% of our outstanding shares. Partly in response to stockholder feedback, our Board decided to recommend an annual Say-on-Pay vote frequency at this year’s Annual Meeting, instead of maintaining a triennial Say-on-Frequency. There were no changes made to our compensation programs based on the feedback received during our meeting.

At our 2020 Annual Meeting of Stockholders, our stockholders last voted, on an advisory basis, on the compensation of our NEOs (commonly referred to as a “stockholder say-on-pay vote”). In 2020, 98% of the votes cast on the stockholder Say-on-Pay proposal approved, on a non-binding advisory basis, the compensation of our NEOs as summarized in our 2020 Proxy Statement. The LDICC believes that this affirms our stockholders’ support of our approach to executive compensation. Accordingly, our executive compensation approach remained generally consistent since 2020 except for the addition of new performance-based equity awards to our CEO, CFO and COO, as described in more detail below under “2021 Compensation—Equity Awards—2021 Performance Equity Awards.” Our stockholders voted to approve the CEO’s performance-based equity award at our special meeting of stockholders in July 2021, which we believe affirmed their support for this grant.

Compensation Decision-Making Process

Under the charter of the LDICC, our Board has delegated to the LDICC the authority and responsibility to discharge the responsibilities of our Board relating to the compensation of our executive officers. This includes, among other things, the review and approval of the compensation of our executive officers and of the terms of any compensation agreements with our executive officers. For more information regarding the functions and composition of the LDICC, please refer to “Proposal 1—Election of Directors—Board Committees and Meetings” above.

In general, the LDICC is responsible for the design, implementation, and oversight of our executive compensation program. In accordance with its charter, the LDICC determines the annual compensation of our CEO and other executive officers and reports its compensation decisions to our Board. The LDICC also administers our equity compensation plans, including our 2020 Equity Incentive Plan (the “2020 EIP”) and 2010 Employee Stock Purchase Plan. Generally, our Human Resources, Finance and Legal departments work with our CEO to design and develop new compensation programs applicable to our executive officers and non-employee directors, to recommend changes to existing compensation programs, to recommend financial and other performance targets to be achieved under those programs, to prepare analyses of financial data, to prepare peer compensation comparisons and other LDICC briefing materials, and to implement the decisions of the LDICC. Our Chief People Officer also meets separately with the LDICC’s compensation consultant, Compensia (as defined below), to convey information on proposals that management may make to the LDICC, as well as to allow Compensia to collect information about the Company to develop its recommendations. In addition, our CEO conducts reviews of the performance and compensation of our other executive officers, and based on these reviews and input from Compensia and our Human Resources department, makes recommendations regarding the annual total direct compensation for such executive officers directly to the LDICC. In the case of our CEO’s compensation, Compensia reviews and analyzes relevant competitive market data with the LDICC and makes a recommendation regarding our CEO’s compensation to the LDICC.

Our Board has established a Management Committee for Employee Equity Awards (the “MCEA”), consisting of our Chief People Officer and our CFO. The MCEA may grant equity awards to employees or consultants who are

not executive officers (as that term is defined in Section 16 of the Exchange Act and Rule 16a-1 promulgated under the Exchange Act) of the Company, provided that the MCEA is only authorized to grant equity awards that meet grant guidelines approved by our Board or the LDICC. These guidelines set forth, among other things, any limit imposed by our Board or the LDICC on the total number of shares of our common stock that may be subject to equity awards granted to employees or consultants by the MCEA, and any other requirements imposed by our Board or the LDICC.

Role of Compensation Consultant

Under its charter, the LDICC has the authority, at the Company's expense, to retain legal and other consultants, accountants, experts and compensation or other advisors of its choice to assist the LDICC in connection with its functions. Since 2012, the LDICC has retained Compensia, Inc. ("Compensia"), a national compensation consulting firm, to provide advice and guidance on our executive compensation policies and practices and relevant information about the executive compensation practices of similarly situated companies.

In connection with an annual review of our executive compensation program for 2022, Compensia provided the following services:

- reviewed and provided recommendations on the composition of our compensation peer group, and provided compensation data relating to certain executives at the selected peer group companies;
- conducted a review of the target total direct compensation arrangements for our executive officers;
- provided advice on executive officers' compensation, including the composition of base salary, our short-term incentive (cash bonus) plan and long-term incentive (equity) plans;
- conducted a review of the annual cash retainers and equity incentive compensation opportunities for our non-employee directors under our non-employee director compensation program;
- updated the LDICC on emerging trends/best practices and regulatory requirements in the area of executive officer and non-employee director compensation, including cash and equity compensation;
- provided advice and recommendations regarding non-executive employee compensation equity awards;
- assisted in the preparation of materials for executive compensation proposals in advance of LDICC meetings, including 2022 compensation levels for certain of our executive officers and the design of our cash bonus, equity award, severance, and change in control programs and other executive benefit programs; and
- reviewed and advised the LDICC on materials relating to executive compensation prepared by management for LDICC consideration.

Compensia, under the direction of the LDICC, may continue to periodically conduct a review of the competitiveness of our executive officer compensation program, including base salaries, cash bonus opportunities, equity awards and other executive officer benefits, by analyzing the compensation practices of companies in our compensation peer group, as well as data from third-party compensation surveys. Generally, the LDICC uses the results of such analyses to assess the competitiveness of our executive officers' target total direct compensation, and to determine whether each component of such target total direct compensation is properly aligned with reasonable practices among our peer companies.

The LDICC has also retained Compensia for assistance in reviewing and making recommendations to our Board regarding the compensation program for our non-employee directors and to provide competitive market data and materials with respect to non-employee director compensation to the LDICC.

In May 2022, the LDICC reviewed the independence of Compensia under applicable compensation consultant independence rules and standards and determined that Compensia did not have any relationships with the Company or any of its executive officers or directors or any conflicts of interest that would impair Compensia's independence.

Use of Competitive Data

To monitor the competitiveness of our executive officers' compensation, in November 2021, the LDICC approved a compensation peer group (the "Peer Group") to be used in connection with its 2022 compensation deliberations that analyzed the compensation of executive officers in comparable positions at similarly-situated companies. The data gathered from the Peer Group was used as one factor in setting executive officer pay levels (including cash and equity compensation), incentive plan practices, severance and change-in-control practices, equity utilization pay/performance alignment and non-employee director compensation.

In addition to reviewing the compensation practices of the Peer Group, the LDICC looks to the collective experience and judgment of its members and advisors, as well as relevant industry survey data, in determining the target total direct compensation and the various compensation components provided to our executive officers.

2022 Peer Group

The Peer Group for setting 2022 compensation included a cross-section of publicly traded, U.S.-based companies of similar size to us based primarily on revenue (generally less than \$700 million) and market capitalization (between \$1 billion and \$16 billion), with additional refinement criteria based on number of employees, and the related industries of the companies (biotechnology, life sciences, chemicals, food and personal products) and input from the LDICC and management. Based on these criteria, the following companies were included in the Peer Group approved in November 2021 by the LDICC for use in assessing the market position of our executive compensation for 2022 (which 2022 Peer Group reflects the removal of American Vanguard, Hawkins, and Phibro Animal Health from our 2021 Peer Group and the addition of Ginkgo Bioworks, Olaplex Holdings, Pacific Bioscience of CA, the Beauty Health Company, The Honest Company, and Zymergen to our 2021 Peer Group):

2022 Peer Group

Balchem	Ginkgo Bioworks	Pacific Biosciences of CA
Berkeley Lights	Green Thumb Industries	The Beauty Health Company
Beyond Meat	Hims & Hers Health	The Honest Company
Codexis	Livent	Twist Bioscience
e.l.f. Beauty	Medifast	USANA Health Sciences
Freshpet	Olaplex Holdings	Zymergen

While the LDICC does not believe that the Peer Group data is appropriate as a stand-alone tool for setting executive compensation due to the unique nature of our business, it believes that this information is a valuable resource during its decision-making process.

The LDICC references peer data as data points in its overall determination of our executive compensation program, but does not benchmark its compensation decisions to any particular level or against any specific member of the Peer Group. The LDICC believes the current total target compensation of our NEOs is reasonable and appropriate because we operate in a highly competitive and rapidly evolving market, and we expect competition among companies in our market to continue to increase. Our ability to compete and succeed in this environment is directly correlated to our ability to recruit, incentivize and retain talented individuals in the areas of product development, sales, marketing, services and general and administrative functions. The market for skilled personnel in these areas is very competitive and our LDICC believes that our current target level for total direct compensation is necessary to both retain our critical executive officers and attract top talent to contribute to the Company's growth and success.

Equity awards have been a significant component in our overall compensation package, and we believe that they will remain an important tool for attracting, retaining and motivating our key talent by providing an opportunity for ownership, participation and wealth creation as a result of our long-term success. To this end, in May 2022, the LDICC approved annual time-based equity awards for our CFO and Former CLO.

In determining the size of the annual equity awards, the LDICC considered the retention value of existing awards held by our NEOs (taking into account option exercise prices and the prevailing market value of our common stock), the executive officers' overall compensation packages, practices at the companies in the Peer Group and the responsibilities, performance, anticipated future contributions and retention risk of our NEOs. In consideration of the size and retention value of the 2021 Performance Equity Awards granted to our CEO and COO, the LDICC determined not to award any new equity awards to them in 2022.

Compensation Risk Management

In November 2021 and November 2022, the LDICC determined, through discussions with management and Compensia, that our policies and practices of compensating our employees, including our executive officers, are not reasonably likely to have a material risk to us. The assessments conducted by the LDICC focused on the key terms of our bonus plans and equity compensation programs in 2021 and 2022, and our plans for such programs in 2023, evaluating the risk factors in our compensation programs in four key areas—financial, operational, reputational, and talent. The LDICC focused on whether our compensation programs created incentives for risk-taking behavior and whether existing risk mitigation features and policies were sufficient in light of the overall structure and composition of our compensation programs. Among other things, the LDICC considered the following aspects of our overall compensation programs:

- Our cash bonus plan applies only to our executive officers and certain employees involved in sales activities and provides for a maximum total bonus funding available for payout of 120% of target funding, with payouts ranging from 0% to 200% of an individual's target annual cash bonus opportunity, emphasizing Company performance over individual performance objectives.

Long-term equity compensation programs are designed to reward executives and other participants for driving sustainable and profitable growth for stockholders;

- Equity incentive awards for our executive officers have included different types of equity instruments, which helps to diversify the executive officers' interests and limit excessive risk taking;
- The vesting periods for our time-based equity awards are designed to encourage executives and other participants to focus on sustained stock price appreciation;
- Our system of internal controls over financial reporting, standards of business conduct, and compliance programs reduce the likelihood of manipulation of our financial performance to enhance payments under our bonus and sales compensation plans;
- We have a clawback or recoupment policy for certain performance-based incentive compensation of our executive officers; and
- Our Insider Trading Policy prohibits all employees from pledging stock (unless approved by our Compliance Officer), engaging in short sales, or hedging transactions involving our stock.

Based on these considerations, the LDICC determined that our compensation programs, including our executive and non-executive compensation programs, provide an appropriate balance of incentives and do not encourage our executive officers or other employees to take excessive risks or otherwise create risks that are likely to have a material adverse effect on us.

2022 Compensation

Background

In designing the compensation program and making decisions for our executive officers for 2022, the LDICC sought to balance achievement of critical operational goals with retention of key personnel, including our executive officers. Accordingly, the LDICC focused in particular on implementing a robust equity compensation program in order to provide strong retention incentives in a challenging and highly competitive environment for top talent. It also focused on cash management in setting target total cash compensation (including base salary and target annual cash bonus opportunity levels) for our executive officers. Another key theme for 2022 was establishing strong incentives to drive our performance, including continued emphasis on Company performance goals over individual goals in the 2022 cash bonus plan and on equity compensation for longer-term upside potential and sharing in Company growth.

Base Salaries

During 2022, the LDICC reviewed the base salaries, target annual cash bonus opportunities and target total cash compensation of our executive officers against our Peer Group and industry survey data, and as a result of such analysis, as well as consideration of the factors described above under “Compensation Philosophy and Objectives and Elements of Compensation—Base Salary,” approved (a) an increase to the base salary of Mr. Kieftenbeld from \$460,000 to \$520,000 effective May 16, 2022, to remain market competitive for the complexity of the business and in recognition of the criticality of the role, and (b) an increase to the base salary of Mr. Alvarez from \$500,000 to \$560,000, effective May 16, 2022, to remain in line with our targeted competitive market for total cash compensation and in recognition of the criticality of the role. Each of Mr. Melo’s and Ms. Kelsey’s base salary remained unchanged in 2022.

Cash Bonuses

In November 2021, the LDICC approved the 2022 cash bonus plan architecture for our executive officers consistent with the cash bonus plan for 2021, pending the approval of quarterly and annual target levels for each performance metric upon finalization of the Company’s business plan for 2022. In May 2022, the target levels for the performance metrics were approved and the weighting of certain performance metrics selected for use in the 2022 cash bonus plan was amended from quarterly and annual targets and payouts to first half and annual targets and payouts, as further detailed below.

Under the 2022 cash bonus plan, our executive officers were eligible for cash bonuses based on the achievement of Company performance metrics for the first half and full year 2022. The 2022 cash bonus plan provided for funding and payout of cash bonus awards if the Company achieved target levels set for GAAP revenue, operating expense, and core gross margin. For purposes of the 2022 bonus plan, “GAAP revenue” means total Company revenue as reported, “operating expense” means operating expenses (net of non-GAAP adjustments and excluding depreciation, amortization and stock-based compensation), and “core gross margin” means margin generated net of non-GAAP adjustments relative to “core revenue” (consistent with core revenue reported in the Company’s quarterly earnings releases). Payouts under the 2022 cash bonus plan were made following a review of our results and performance for the first half of the year, after the end of the second quarter, and, for the full year, following a review that occurred in March 2023. The 2022 cash bonus plan provided for a 30% weighting for the first half of the year and 70% for the full year. The 2022 cash bonus plan and the selection of these performance metrics intended to provide a balanced focus on both our long-term strategic goals and shorter-term operational goals.

The total funding possible under the 2022 cash bonus plan was based on a cash value determined by the executive officers’ target annual cash bonus opportunities. The target annual cash bonus opportunities for our executive officers in 2022 varied by individual, but were generally set between 50% and 100% of their annual

base salary. In May 2022, in connection with the Board’s review of the annual 2022 Company business plan and budget, the LDICC reviewed our executive officers’ target annual cash bonus opportunities as part of its review of target total cash compensation for similar roles among executive officers at companies in the Peer Group, as supplemented by relevant industry survey data, and, as a result of such analysis, as well as consideration of the factors described above under “Compensation Philosophy and Objectives and Elements of Compensation—Cash Bonuses,” approved no changes to the target annual cash bonus opportunities for our executive officers except for an increase in Ms. Kelsey’s target bonus from 50% to 70% of her annual base salary, approved on May 16, 2022 and effective for 2022.

Funding of the 2022 cash bonus plan was based on achievement of the following company performance metrics for the first half and full year 2022: GAAP revenue (weighted 50% for each period), operating expenses (weighted 20% for each period), and core gross margin (weighted 30% for each period). For each period under the 2022 cash bonus plan (first half and full year 2022), “threshold,” “target,” and “superior” performance levels were set for each applicable performance metric, which performance levels were intended to capture the relative difficulty of achievement of that metric. The 2022 cash bonus plan remained challenging and difficult to achieve without meaningful effort.

As shown below, if the Company were to achieve the “minimum” level for any performance metric, 50% funding for that metric would be received. If the collective funding of all performance metrics was below 50%, no funding would be received. If the Company were to achieve between the “minimum and “target” levels for any performance metric, pro rata funding between 50% and 100% for that metric would be received. If the Company were to achieve between the “target” and “maximum” levels for any performance metric, pro rata funding between 100% and 200% for that metric would be received. Funding was capped at 200% of target for each performance metric regardless of performance exceeding the “maximum” level.

Performance Metrics	Weight	Performance Range			Payout Range		
		Min	Target	Max	Min	Target	Max
GAAP Revenue (\$m)	50%	80%	100%	120%	50%	100%	200%
Operating Expenses (\$m)*	20%	90%	100%	110%	50%	100%	200%
Core Gross Margin %	30%	90%	100%	110%	50%	100%	200%

* Non-GAAP measure as described above under “2022 Compensation—Cash Bonuses.”

Any payouts for the first half and full year 2022 periods would be the same as the funded level (provided the recipient meets eligibility requirements), subject to the final approval of the LDICC. Payouts for the annual bonus period would be made from the aggregate funded amount based on Company and individual performance, and could range from 0% to 200% of an individual’s funded amount for the annual bonus period.

The LDICC chose to emphasize Company performance goals for the bonus plan periods given the critical importance of our short-term strategic goals, but also to retain reasonable incentives and rewards for exceptional individual performance, recognizing the value of such incentives and rewards to our operational performance and to individual retention.

Based on the foregoing bonus plan structure, individual bonuses were awarded each period based on the LDICC’s assessment of Company achievement. While the first half 2022 payout was based on the financial metrics, the full year 2022 payout was intended to be calibrated for each executive officer’s contributions to the achievement of the Company’s financial objectives, his or her progress toward achieving individual performance goals, and his or her demonstrating our core values. Actual payment of any bonuses with respect to 2022 remained subject to the final approval of the LDICC.

Company Performance Metrics. The weighting and actual achievement level for each Company performance metric are described below.

The applicable target levels were discussed and evaluated based on first half and full year 2022 performance. In March 2023, the LDICC discussed and evaluated financial results for the full year 2022. Achievement levels were approved by the LDICC under the 2022 annual cash bonus plan. Revenue targets were approved by the LDICC in August 2022.

Degree of Difficulty in Achieving Performance Goals. The LDICC considered the likelihood of achievement, (in light of the prior year's financial growth and the Company's 2022 financial outlook), when recommending and approving, respectively, the Company and individual performance goals and bonus plan structures for each of the 2022 cash bonus plan periods, but it did not undertake a detailed statistical analysis of the difficulty of achievement of each measure. For 2022, the LDICC considered the 70% weighted average achievement level to be attainable with normal effort, 100% to be challenging but achievable with significant effort, requiring circumstances to align as predicted, and any amounts in excess of 100% to be difficult to achieve, requiring additional sources of revenue, breakthroughs in technology, manufacturing operations and process development, business development, and exceptional levels of effort on the part of the executive leadership team, as well as favorable external conditions.

2022 Bonus Plan Funding and Award Decisions. In August 2022 and March 2023, the LDICC determined that our performance goals were achieved as follows:

Company Performance Goal	Weight	Achievement Level	Funding Level
First Half 2022			
GAAP Revenue	50%	97.9%	47.4%
Operating Expenses*	20%	99.7%	19.7%
Core Gross Margin*	30%	94.3%	21.5%
Total First Half 2022			88.5%
Full Year 2022			
GAAP Revenue	50%	0%	0%
Operating Expenses*	20%	0%	0%
Core Gross Margin*	30%	0%	0%
Total Full Year 2022			0%

* Non-GAAP measure as described above under "2022 Compensation—Cash Bonuses."

Individual Performance Goals. For the full year portion of the 2022 cash bonus plan which was tied to individual performance, the LDICC considered several factors, including the following:

- Our CEO's performance reflects his overall leadership of the Company. Under his leadership, the Company delivered strong year-over-year sales revenue growth, oversaw strategic partnerships and new brand launches, enhanced customer impact, and improved overall Company operations. He also led on advancing strategic initiatives and transactions for the Company.
- Our CFO's performance reflects his leadership of the Company's finance, human resources, IT, corporate communications, investor relations, and ESG functions. Under his leadership, the Company made significant improvements in our financial processes, internal controls, cash management, and investor relations activities. He implemented important talent upgrades and led the planning and execution of complex strategic and financing transactions. He also assumed responsibility for the company's legal function.

- Our COO's performance reflects his leadership of the Company's manufacturing, engineering, environmental health & safety, and supply chain functions. Under his leadership, the Company executed on its insourcing strategy from the construction of the new Brazil specialty fermentation and consumer production facilities. The Company continued to demonstrate a strong safety track record and scale new molecules into production.

Notwithstanding the achievement of the forgoing individual performance goals, the LDICC determined that because the financial performance goals were not achieved, the funding metrics were not achieved and no individual bonus payouts would be made with respect to the second bonus payout for the full year 2022.

The LDICC considered individual and company performance in approving the following cash bonus awards under the 2022 cash bonus plan:

Name	First Half 2022 Bonus Payout (\$)	Full Year 2022 Bonus Payout (\$)	2022 Aggregate Bonus Payouts (\$)	Annual Bonus Target (\$)	2022 Actual Bonus Earned as a % of Target Bonus
John Melo	199,125	—	199,125	\$750,000	27%
Han Kieftenbeld	138,060	—	138,060	\$520,000	27%
Eduardo Alvarez	148,680	—	148,680	\$560,000	27%
Nicole Kelsey ⁽¹⁾	78,986	—	78,986	\$297,500	27%

(1) Our Former CLO's employment was terminated in December 2022, and she was therefore ineligible for a bonus payout for the full year 2022 period.

We believe that the payment of these awards was appropriate because the 2022 cash bonus plan appropriately held our NEOs accountable for achievement of Company goals, and the payouts for first half 2022 (and lack of payouts for full year 2022) were reasonable and appropriate in light of our progress towards our business objectives.

Equity Awards

The LDICC approved equity awards for two executive officers, Mr. Kieftenbeld and Ms. Kelsey, consisting of time-based focal awards for 2022. The LDICC did not grant performance-based equity awards in 2022 given that Messrs. Melo, Alvarez and Kieftenbeld each received significant performance grants in 2021 that remain unvested and unearned for Messrs. Melo and Kieftenbeld.

2022 Focal Equity Awards. With respect to the focal awards, the LDICC determined the allocation of equity awards between stock options and RSU awards after consultation with Compensia, in evaluating the practices of our Peer Group and survey data and in consultation with management, taking into consideration, among other things, the appropriate balance between rewarding previous performance, retention objectives, upside value potential tied to our and the executive officer's future performance and the mix of the executive officer's current vested and unvested equity holdings. The size of the focal awards varied among the applicable NEOs based on the value of unvested equity awards already held by him or her, his or her relative contributions during 2021, and anticipated levels of responsibility among the NEOs for key corporate objectives in 2022. The LDICC also considered that Messrs. Melo and Alvarez did not receive focal awards in 2021 and instead received the performance-based equity awards described below. The performance-based awards for Messrs. Melo and Kieftenbeld remain unearned and unvested and require significant additional performance to achieve, which may be difficult over the short to medium term. In May 2022, the LDICC approved (i) a focal award to Mr. Kieftenbeld including an RSU award covering 20,000 units and an option to purchase 200,000 shares of our common stock, subject to the terms described below and (ii) a focal award to Ms. Kelsey of an RSU award covering 10,000 units subject to the terms described below.

In accordance with our policy regarding equity award grant dates, the focal awards to Mr. Kieftenbeld and Ms. Kelsey were granted on May 23, 2022, the first business day of the week following the week in which such awards were approved, with the exercise price of the stock option granted to Mr. Kieftenbeld set at \$2.32 per share, the closing price of our common stock on Nasdaq on such date, in accordance with the terms of the 2020 EIP. This stock option vests over four years, with 25% of the shares subject to the option vesting one year from the vesting commencement date on May 23, 2022, and the remainder vesting over the following three years in equal monthly installments. The RSU awards to Mr. Kieftenbeld and Ms. Kelsey vest in three equal annual installments on June 1 of each of 2023, 2024 and 2025. Each unit granted pursuant to the focal awards represents a contingent right to receive one share of our common stock for each unit that vests.

2021 Performance Equity Awards. We believe that granting performance-based RSU awards incentivizes our executive officers in a manner that aligns their interests with our long-term strategic direction and the interests of our stockholders in support of long-term value creation. As such, in May 2021, the LDICC and our Board approved the following performance-based equity awards, which equity awards remain outstanding, unvested and unearned for our CEO and CFO and continue to provide meaningful incentives to achieve the performance goals noted below and to align their interests with our stockholders over a long-term horizon (the “2021 Performance Equity Awards”):

- CEO PSU Award: a grant to Mr. Melo of a performance-vesting restricted stock unit award representing the right to receive up to 6,000,000 shares of our common stock under our 2020 EIP based on the achievement of four specified stock price performance metrics (as detailed below) over a four-year period, contingent upon approval by our stockholders of the CEO PSU Award, which approval was obtained at our 2021 special meeting of stockholders held on July 26, 2021.
- CFO PSU Award: a grant to Mr. Kieftenbeld of a performance-vesting restricted stock unit award (the “CFO PSU Award”) representing the right to receive up to 300,000 shares of our common stock under our 2020 EIP on substantially the same terms as the CEO PSU Award.
- COO PSU Award: a grant to Mr. Alvarez of a performance-vesting restricted stock unit award (the “COO PSU Award”) representing the right to receive up to 600,000 shares of our common stock under our 2020 EIP subject to the achievement of certain highly strategic operational goals (as detailed below) prior to December 31, 2022.

Our Board and the LDICC believe that the performance metric requiring the sustained achievement of increasing share prices over a four-year performance period continues to incentivize Messrs. Melo and Kieftenbeld over a longer-term horizon and align their respective success with that of our stockholders. In addition, our Board and LDICC determined that the performance metrics under the COO PSU continued to incentivize and retain Mr. Alvarez during 2022 pending the full commissioning and operation of the Company’s manufacturing plant in Barra Bonita, Brazil.

Our Board and the LDICC believe the selected structure and terms of the 2021 Performance Equity Awards (as described in detail below) will continue to motivate our CEO and CFO to perform against challenging and aggressive targets in alignment with our stockholders and will reward each of them for taking actions today that will create sustainable value for our stockholders for years to come.

CEO PSU Award and CFO PSU Award

The CEO PSU Award and CFO PSU Award are performance-based RSU awards with a direct relationship between the value of the equity awards and the fair market value of our common stock; thus Messrs. Melo and Kieftenbeld will receive compensation from their respective awards only to the extent that the Company achieves the

applicable stock price-based performance milestones. As of March 1, 2023, none of the performance metrics under the CEO PSU Award or CFO PSU Award had been achieved and thus, both the CEO PSU Award and CFO PSU Award remain completely unvested.

Performance Metrics & Vesting. The CEO PSU Award and the CFO PSU Award will be eligible to vest if the Company achieves four separate stock price-based performance metrics (each, a “Stock Price Metric”) from the date of grant through July 1, 2025 (the “Performance Period”) and any portion of the CEO PSU Award or the CFO PSU Award, as applicable, for which performance is achieved will vest subject to Messrs. Melo or Kieftenbeld’s continued service as our CEO and CFO, respectively (“CEO/CFO Service”), with certain limited exceptions, as discussed below.

Stock Price Performance Metrics. Each of the CEO PSU Award and CFO PSU Award is divided into four equal tranches as described in the Performance Metrics Table below (each a “Tranche”). If the Target Volume Weighted Average Price, or “Target VWAP,” as described below, applicable to a Tranche is achieved during the Performance Period, that Tranche’s shares will become eligible to vest subject to the applicable CEO/CFO Service on the applicable vesting dates, as discussed below. The units underlying any Tranche for which performance has been achieved and that are eligible to vest over time are referred to as “Eligible RSUs.” Each unit granted pursuant to the CEO PSU Award and the CFO PSU Award represents a contingent right to receive one share of our common stock for each unit that vests.

Performance Metrics Table				
Tranche	Target VWAP	CEO PSU Total Tranche RSUs	CFO PSU Total Tranche RSUs	Earliest Vesting Commencement Date
“Tranche 1”	\$22.00	1,500,000 RSUs	75,000 RSUs	Not Applicable
“Tranche 2”	\$27.00	1,500,000 RSUs	75,000 RSUs	July 1, 2023
“Tranche 3”	\$32.00	1,500,000 RSUs	75,000 RSUs	July 1, 2024
“Tranche 4”	\$37.00	1,500,000 RSUs	75,000 RSUs	July 1, 2025
Total:		6,000,000 RSUs	300,000 RSUs	

The Stock Price Metric for a Tranche is achieved if the VWAP of our common stock for both a 120-trading day period and the 30-trading day period ending on the final day of the 120-trading day period equal or exceed the Target VWAP set forth in the Performance Metrics Table for such Tranche during the Performance Period. The Tranches will be measured separately and multiple Tranches may be achieved simultaneously.

Our Board or the LDICC will certify whether the Stock Price Metric for any Tranche has been met.

The Target VWAP will be adjusted to reflect events such as a stock split or recapitalization in order to prevent diminution or enlargement of the benefits or potential benefits intended to be made available under the CEO PSU Award and the CFO PSU Award, as applicable.

As further discussed above, our Board and the LDICC consider the Stock Price Metrics to be a challenging hurdle. Our Board and the LDICC set the Stock Price Metrics to drive enhanced stockholder returns, and to further align Messrs. Melo and Kieftenbeld’s compensation opportunities to long-term stockholder interests.

Time-Based Vesting Following Achievement of the Stock Price Metric. Upon our Board’s or the LDICC’s certification of achievement of a Tranche’s Stock Price Metric, 25% of the shares in such Tranche will vest with the remaining 75% vesting over the three subsequent quarters. For all but the first of the four Tranches, vesting will commence no earlier than “Earliest Vesting Commencement Date” for such Tranche set forth in the *Performance Metrics Table* above. If the Stock Price Metric is achieved after the Earliest Vesting Commencement

Date, the vesting schedule will commence on the next occurring July 1, October 1, January 1 or April 1. For the first Tranche only, upon achievement of the Stock Price Metric, the vesting schedule will commence on the next occurring July 1, October 1, January 1 or April 1.

Employment Requirement for Continued Vesting. Messrs. Melo or Kieftenbeld, as applicable, must be providing CEO/CFO Services at the time of the achievement of a Tranche's Stock Price Metric to be eligible to vest in the resulting Eligible RSUs. Mr. Melo must be employed by the Company, as its CEO, and Mr. Kieftenbeld must be employed by the Company, as its CFO, or, in both cases, in another employment position, on each applicable time-based vesting date following the achievement of the applicable Stock Price Metric.

Termination of Employment. Except in the context of a change of control of the Company, there will be no acceleration of vesting of the CEO PSU Award or the CFO PSU Award if the employment of Mr. Melo or Mr. Kieftenbeld, respectively, is terminated, or if they die or become disabled. In other words, termination of Mr. Melo or Mr. Kieftenbeld's employment with the Company will preclude their respective ability to earn any then-unvested portion of the CEO PSU Award or CFO PSU Award, as applicable, following the date of his termination.

Change of Control. If the Company experiences a change of control, such as a merger with or purchase by another company, vesting under the CEO PSU Award and CFO PSU Award will not automatically accelerate.

In the event of a change of control of the Company, the performance under the CEO PSU Award and the CFO PSU Award will be determined as of the change of control. For this change of control determination, a Stock Price Metric relating to any Tranche that has not yet been achieved prior to the change of control will be deemed achieved if the per share price (plus the per share fair market value of any other consideration) received by our stockholders in the change of control equals or exceeds the applicable Stock Price Metric. To the extent a Stock Price Metric for a Tranche is achieved upon a change of control, the shares specified for such Tranche will be subject to time-based vesting (the "COC Time-Based RSUs"), and such COC Time-Based RSUs will vest in four equal installments, with the first installment vesting upon the later of the date of the change of control and the Earliest Vesting Commencement Date applicable to such Tranche as set forth in the *Performance Metrics Table* above and quarterly thereafter (except that the first Tranche will commence vesting on the date of the change of control and quarterly thereafter), subject to the CEO/CFO Service on each such vesting date.

Notwithstanding the foregoing, if the employment of either of Mr. Melo or Mr. Kieftenbeld is terminated without cause or he resigns for good reason in connection with the change of control, any then-unvested Eligible RSUs and then-unvested COC Time-Based RSUs will accelerate, subject to his satisfaction of certain terms and conditions, including, but not limited to delivery of a release of claims, pursuant to the terms of the Severance Plan (as described below) and his related participation agreement thereunder.

To the extent a Stock Price Milestone for a Tranche is not achieved as a result of the change of control of the Company, such Tranche will be forfeited automatically immediately prior to closing of the change of control and will never become vested.

The 2020 EIP provides that any or all outstanding awards issued thereunder, including the CEO PSU Award and CFO PSU Award, may be continued, assumed or substituted (including, but not limited, with payment in cash) by the successor or acquiring corporation (if any) in a change of control of the Company. If the successor or acquiring corporation (if any) of the Company refuses to assume, convert, replace or substitute the CEO PSU Award and CFO PSU Award in connection with a change of control, 100% of Messrs. Melo and Kieftenbeld's respective then-unvested Eligible RSUs and then-unvested COC Time-Based RSU will accelerate and become vested effective immediately prior to the closing of the change of control.

The treatment of the CEO PSU Award and CFO PSU Award upon a change of control of the Company is intended to align Messrs. Melo and Kieftenbeld's interests with the Company's other stockholders with respect to evaluating potential change of control offers.

Clawback. In the event of a restatement of the Company's financial statements previously filed with the SEC as a result of material noncompliance with financial reporting requirements ("restated financial results") that results in a decline of the trading prices of our common stock below the Stock Price Metrics and it is determined to be necessary to complete such a restatement prior to December 31, 2028, the Company may require forfeiture (or repayment, as applicable) of the portion of the CEO PSU Award and/or CFO PSU Award in excess of what would have been earned or paid based on the restated financial results (whether or not the CEO and/or CFO remains an employee of the Company at such time).

COO PSU Award

The COO PSU Award is a performance-vesting RSU award with a direct relationship between the value of the equity awards and the achievement of certain highly strategic operational goals to the Company prior to December 31, 2022. Thus, Mr. Alvarez could receive compensation from his award only to the extent that the Company timely achieved six separate operational performance metrics related to product production, brand launch, and manufacturing facility development (each, a "COO Performance Metric") from January 1, 2021 through December 31, 2022 (the "COO Performance Period"). Each unit granted pursuant to the COO PSU Award represented a contingent right to receive one share of our common stock for each unit that vested.

Performance Metrics & Vesting. The COO PSU Award, which was up to 600,000 shares of our common stock, was divided into six tranches as described below (each a "COO Tranche"). If the COO Performance Metric applicable to a COO Tranche was achieved during the COO Performance Period, that Tranche's shares would vest. The units underlying any Tranche for which performance is achieved are referred to as "Eligible RSUs."

Two of the COO Tranches related to our Reno plant. 90,000 shares under the COO PSU Award would vest upon achievement of certain production goals by December 31, 2021. Another 90,000 shares would vest upon the achievement of certain production transitions by December 31, 2021 and certain plant commission and scale goals by December 31, 2022. In March 2023, the LDICC determined that the COO Tranche relating to certain plant commission and scale goals by December 31, 2021 was 100% achieved (resulting in the vesting of 90,000 shares), and the COO Tranche relating to certain production transitions by December 31, 2021 was 50% achieved (resulting in the vesting of 45,000 shares).

Four of the COO Tranches related to our Barra Bonita plant. 144,000 shares under the COO PSU Award would vest upon achievement of certain construction goals by January 31, 2022. 96,000 shares under the COO PSU Award would vest upon certain plant commission goals by March 31, 2022. 90,000 shares under the COO PSU Award would vest upon achievement of each of the following: (i) certain contract transfer and production plan goals by December 31, 2022, and (ii) certain production goals by December 31, 2022. In March 2023, the LDICC determined that the COO Tranches related to achievement of certain construction goals by January 31, 2022 and certain plant commission goals by March 31, 2022 were 100% achieved (resulting in the vesting of 144,000 shares); the COO Tranches related to certain contract transfer and production plan goals by December 31, 2022 and certain production goals by December 31, 2022 were determined to be 80% achieved (resulting in the vesting of 72,000 shares) and 50% achieved (resulting in the vesting of 45,000 shares) respectively.

The details of the COO PSU Award goals pertain to confidential company development and business plans, the disclosure of which in any additional granularity would result in competitive harm to the Company. Our Board and the LDICC believed that each of these goals would be significantly challenging and would require a high level of performance in order to be achieved.

As described above, in March 2023, the LDICC certified that certain of the COO Performance Metrics had been met and an aggregate of 492,000 Eligible RSUs were determined to have been achieved. Such Eligible RSUs vested two weeks following the certification date.

Clawback. The COO PSU Award is subject to clawback or recoupment pursuant to any compensation clawback or recoupment policy adopted by our Board or as required by law during the term of Mr. Alvarez's service or other service that is applicable to him. In addition to any other remedies available under such policy, applicable law may require the cancellation of the COO PSU Award (whether vested or unvested) and the recoupment of any gains realized with respect to such award.

Other Compensation Elements

Severance Plan

In November 2013, the LDICC adopted the Amyris, Inc. Executive Severance Plan (or the "Severance Plan"). The Severance Plan had an initial term of 36 months and thereafter will be automatically extended for successive additional one-year periods unless we provide six months' notice of non-renewal prior to the end of the applicable term. In May 2022, the LDICC reviewed the terms of the Severance Plan and approved certain administrative amendments, with no change to the underlying benefits. The LDICC adopted the Severance Plan to provide a consistent severance framework for our executive officers that aligns with peer practices. The terms of the Severance Plan, including the potential amounts payable under the Severance Plan and related defined terms, are described in detail below under "Potential Payments upon Termination and upon Termination Following a Change in Control." All of our NEOs, and all senior level employees of the Company that are eligible to participate in the Severance Plan (or, collectively, the "participants"), have entered into participation agreements to participate in the Severance Plan. Generally, the payments and benefits under the Severance Plan supersede and replace any rights the participants had in connection with any change of control or severance benefits contained in such participants' employment offer letters, equity award agreements or any other agreement that specifically relates to accelerated vesting of equity awards; provided, that (i) our CEO, CFO and COO are entitled to the rights and benefits provided for in their respective 2021 Performance Equity Awards in connection with a change of control of the Company, as described above and (ii) in the event of any conflict between the terms of the respective 2021 Performance Equity Awards and the Severance Plan relating to accelerated vesting of equity awards, the terms of each respective 2021 Performance Equity Award will govern and control.

We believe that the Severance Plan appropriately balances our need to offer a competitive level of severance protection to our executive officers and to induce them to remain at the Company through the potentially disruptive conditions that may exist around the time of a change of control of the Company, while not unduly rewarding executive officers for a termination of their employment.

The Severance Plan does not provide for the gross-up of any excise taxes imposed by section 4999 of the Internal Revenue Code (the "Code"). If any of the severance benefits payable under the change in control plan would constitute a "parachute payment" within the meaning of section 280G of the Code, subject to the excise tax imposed by section 4999 of the Code, the change in control plan provides for a best after-tax analysis with respect to such payments, under which the executive will receive whichever of the following two alternative forms of payment would result in the executive's receipt, on an after-tax basis, of the greater amount of the transaction payment notwithstanding that all or some portion of the transaction payment may be subject to the excise tax: (i) payment in full of the entire amount of the transaction payment, or (ii) payment of only a part of the transaction payment so that the executive receives the largest payment possible without the imposition of the excise tax.

Other Executive Benefits and Perquisites

We provide the following benefits to our executive officers on the same basis as other eligible employees:

- health insurance;
- time off and sick days;
- life insurance and supplemental life insurance;
- short-term and long-term disability; and
- a Section 401(k) plan with an employer matching contribution (50% match of up to the first 6% of eligible compensation).

We believe that these benefits are generally consistent with those offered by other companies with which we compete for executive talent.

In hiring new executive officers who agree to relocate to Northern California, we have agreed in certain instances to pay relocation and travel expenses, including housing and rental car expenses. Given the high cost of living in the San Francisco Bay Area relative to most other metropolitan areas in the United States, we believe that for us not to be limited to hiring executive officers located near our headquarters in Emeryville, California, we must be willing to offer to pay an agreed upon amount of relocation costs, as necessary.

Additional Compensation Information

Other Compensation Practices and Policies

The following additional compensation practices and policies applied to our executive officers in 2022:

Timing of Equity Awards. The timing of equity awards has been determined by our Board or the LDICC based on our Board's or the LDICC's view at the time regarding the adequacy of executive equity interests for purposes of retention and motivation.

As in prior years, in November 2022, our Board and the LDICC, respectively, ratified our existing policy regarding equity award grant dates in an effort to ensure the integrity of the equity award granting process. The original policy was adopted in March 2011. Under the policy, equity awards are generally granted on the following schedule:

- For equity awards to ongoing executive officers, the grant date is the first business day of the week following the week in which the award is approved; and
- For equity awards to newly hired executive officers, the grant date is the first business day of the week following the later of the week in which the award is approved or the week in which the new hire commences his or her employment.

Compensation Recovery Policy. Other than with respect to the CEO PSU Award, CFO PSU Award, and COO PSU Award, as described above, we do not have a formal policy regarding adjustment or recovery of awards or payments if the relevant performance measures upon which they are based are restated or otherwise adjusted in a manner that would reduce the size of the award or payment. Under those circumstances, our Board or the LDICC would evaluate whether adjustments or recoveries of awards or payments were appropriate based upon the facts and circumstances surrounding the restatement or other adjustment. Our Board intends to adopt a policy regarding restatements in compliance with the new SEC and related Nasdaq regulations requiring listed companies to have a policy that requires repayment of incentive compensation that was paid to current or former executive officers in the three fiscal years preceding any restatement due to material noncompliance with financial reporting requirements.

Stock Ownership Policy. We have not established stock ownership or similar guidelines with regard to our executive officers. All of our executive officers currently have a direct or indirect, through their stock option holdings, equity interest in the Company and we believe that they regard the potential returns from these interests as a significant element of their potential compensation for services to us.

Insider Trading Policy and Hedging/Pledging Prohibition. We have adopted an Insider Trading Policy that, among other things, prohibits our employees, officers and the non-employee members of our Board from trading in our securities while in possession of material, non-public information. In addition, under our Insider Trading Policy, our employees, officers and the non-employee members of our Board may not (1) engage in transactions involving options or other derivative securities on the Company's securities, such as puts and calls, whether on an exchange or in any other market (however, they may accept and exercise compensatory equity grants issued by the Company); (2) engage in hedging or monetization transactions involving the Company's securities; (3) use or pledge Company securities as collateral in a margin account or as collateral for a loan (unless approved by our Compliance Officer); or (4) engage in short sales of the Company's securities, including short sales "against the box."

Accounting and Tax Considerations

Under ASC 718, the Company is required to estimate the fair value of each equity award (including stock options and RSUs) and record the compensation expense over the underlying vesting period each award. We record

share-based compensation expense on an ongoing basis according to ASC 718. The LDICC has considered, and may in the future consider, the grant of performance-based or other types of stock awards to executive officers in lieu of or in addition to stock option and time-based RSU grants in light of the accounting impact of ASC 718 and other considerations.

Generally, Section 162(m) of the Code disallows a federal income tax deduction for public corporations of remuneration in excess of \$1 million paid for any fiscal year to their chief executive officer, chief financial officer and up to three other executive officers whose compensation is required to be disclosed to their stockholders under the Exchange Act because they are our most highly-compensated executive officers. While the LDICC has not adopted a formal policy regarding tax deductibility of the compensation paid to our executive officers, tax deductibility under Section 162(m) is one factor that is considered in its compensation deliberations.

The LDICC seeks to balance the cost and benefit of tax deductibility with our executive compensation goals that are designed to promote long-term stockholder interest. Therefore, the LDICC may, in its discretion, authorize compensation payments that do not consider the deductibility limit imposed by Section 162(m) when it believes that such payments are appropriate to attract and retain executive talent and are in the best interests of the Company and our stockholders. Accordingly, we expect that a portion of our future cash compensation and equity awards to our executive officers will not be deductible under Section 162(m).

Leadership, Development, Inclusion, and Compensation Committee Report*

The LDICC has reviewed and discussed with management the “Compensation Discussion and Analysis” contained in this Proxy Statement. Based on this review and discussion, the LDICC recommended to the Board that the Compensation Discussion and Analysis be included in this Proxy Statement.

Amyris, Inc. Leadership, Development, Inclusion, and Compensation Committee of the Board

Ana Dutra

James McCann (Chair)

Steven Mills

Julie Spencer Washington

** The material in this report is not “soliciting material,” is not deemed “filed” with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of Amyris, Inc. under the Securities Act or the Exchange Act, whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.*

Summary Compensation Table

Name and Principal Position	Year	Salary (\$)	Bonus (\$)	Stock Award (\$) ⁽¹⁾	Option Award (\$) ⁽¹⁾	Non-Equity Incentive Plan Compensation (\$) ⁽²⁾	All Other Compensation (\$)	Total (\$)
John Melo, CEO	2022	750,000	—	—	—	199,125	18,552 ⁽³⁾	967,677
	2021	712,500 ⁽⁴⁾	532,650 ⁽⁵⁾	70,564,997	—	696,480	—	72,506,627
	2020	646,667 ⁽⁶⁾	—	—	—	698,246	—	1,344,913
Han Kieftenbeld, CFO	2022	497,500 ⁽⁷⁾	—	46,400	384,820	138,060	9,150 ⁽⁸⁾	1,075,930
	2021	450,000 ⁽⁹⁾	182,248 ⁽¹⁰⁾	5,767,250	—	434,060	8,880 ⁽¹¹⁾	6,842,438
	2020	332,500 ⁽¹²⁾	125,000 ⁽¹³⁾	745,050	187,104	359,666	675 ⁽¹⁴⁾	1,749,995
Eduardo Alvarez, COO	2022	537,500 ⁽¹⁵⁾	—	—	—	148,680	1,440 ⁽¹⁶⁾	687,620
	2021	500,000	164,400 ⁽¹⁷⁾	8,034,000	—	577,950	1,440 ⁽¹⁶⁾	9,277,790
	2020	500,000	—	579,000	145,555	458,235	1,440 ⁽¹⁶⁾	1,684,320
Nicole Kelsey, Former CLO	2022	425,000	—	23,200	—	78,986 ⁽¹⁸⁾	9,150 ⁽⁸⁾	536,336
	2021	413,750 ⁽¹⁹⁾	42,778 ⁽²⁰⁾	669,500	268,075	158,187	8,700 ⁽²¹⁾	1,560,990
	2020	395,000	—	115,800	72,778	139,405	7,125 ⁽²²⁾	730,108

- (1) The amounts in the “Stock Awards” and “Option Awards” columns reflect the aggregate grant date fair value of such awards computed in accordance with FASB ASC Topic 718, excluding the effect of estimated forfeitures. A Monte Carlo simulation is used to calculate the fair value of PSUs with service and market-based vesting conditions, as applicable. The assumptions made in the valuation of the awards are discussed in Note 13, “Stock-based Compensation” of “Notes to Consolidated Financial Statements” in our Annual Report on Form 10-K for the fiscal year ended December 31, 2022. These amounts do not correspond with the actual value that may be recognized by our named executive officers.
- (2) Payments under our 2022 cash bonus plan are included in the column entitled “Non-Equity Incentive Plan Compensation,” as they were based upon satisfaction of pre-established performance targets, the outcome of which was substantially uncertain.
- (3) Includes \$18,522 for travel expenses.
- (4) Mr. Melo’s base salary was increased from \$650,000 to \$750,000, effective May 16, 2021.
- (5) Consists of (a) a \$400,000 cash bonus, which was approved by the LDICC in May 2021 to be granted to Mr. Melo in recognition of his extraordinary efforts in negotiating, structuring and consummating certain transformative transactions for the Company in the first quarter of 2021, including the sale of exclusive rights to the Company’s flavor and fragrance product portfolio DSM Nutritional Products Ltd. and (b) the amount approved by the LDICC, in its discretion, which exceeded the applicable funded level for each of the CEO’s quarterly bonus payments in the second, third and fourth quarters of 2021.
- (6) Mr. Melo’s base salary was increased from \$630,000 to \$650,000, effective March 1, 2020.
- (7) Mr. Kieftenbeld’s base salary was increased from \$460,000 to \$520,000, effective May 16, 2022.
- (8) Includes 401(k) plan employer matching contributions in 2022.
- (9) Mr. Kieftenbeld’s base salary was increased from \$420,000 to \$460,000, effective April 1, 2021.
- (10) Consists of (a) a \$100,000 cash bonus, which was approved by the LDICC in May 2021 to be granted to Mr. Kieftenbeld in recognition of his extraordinary efforts in procuring and negotiating a licensing transaction with Ingredion Incorporated and (b) the amount approved by the LDICC, in its discretion, which exceeded the applicable funded level for each of the CFO’s quarterly bonus payments in the second, third and fourth quarters of 2021.
- (11) Includes 401(k) plan employer matching contributions in 2021.
- (12) Mr. Kieftenbeld’s base salary for 2020 was \$420,000, effective upon March 1, 2020, his date of hire.
- (13) In 2020 Mr. Kieftenbeld received a sign-on bonus paid in connection with his appointment as CFO.
- (14) Includes 401(k) plan employer matching contributions in 2020.
- (15) Mr. Alvarez’ base salary was increased from \$500,000 to \$520,000, effective May 16, 2022.
- (16) Includes \$1,440 as a stipend for waiving medical benefits.
- (17) Consists of (a) a cash bonus of \$75,000 which was approved by the LDICC in May 2021 to be granted to Mr. Alvarez in recognition of his extraordinary efforts in assisting in the negotiation and closing of the transaction with Ingredion Incorporated and (b) the amount approved by the LDICC, in its discretion, which exceeded the applicable funded level for each of the COO’s quarterly bonus payments in the second, third and fourth quarters of 2021.
- (18) Ms. Kelsey’s employment was terminated in December 2022, and she was therefore ineligible for a bonus payout for the full year 2022 period.
- (19) Ms. Kelsey’s base salary was increased from \$395,000 to \$425,000, effective May 16, 2021.

(20) Consists of (a) a cash bonus of \$5,000 which was approved by the LDICC in December 2021 to be granted to Ms. Kelsey in recognition of her efforts in resolving a government investigation and (b) the amount approved by the LDICC, in its discretion, which exceeded the applicable funded level for each of the CLO's quarterly bonus payments in the second, third and fourth quarters of 2021.

(21) Includes 401(k) plan employer matching contributions in 2021.

(22) Includes 401(k) plan employer matching contributions in 2020.

Narrative Disclosure to Summary Compensation Table

The material terms of our named executive officers' annual compensation, including base salaries, cash bonuses, our equity award granting practices and severance benefits and explanations of decisions for cash and equity compensation during 2022 are described above under "Executive Compensation—Compensation Discussion and Analysis." As noted below under "Agreements with Executive Officers," except for certain terms contained in their employment offer letters, equity award agreements and participation agreements entered into in connection with our Executive Severance Plan, none of our named executive officers has entered into a written employment agreement with us.

Grants of Plan-Based Awards in 2022

The following table sets forth information regarding grants of compensation in the form of plan-based awards made during 2022 to our named executive officers.

Name	Grant Date ⁽¹⁾	Approval Date of Grant ⁽¹⁾	Estimated Possible Payouts Under Non-Equity Incentive Plan Awards			All Other Stock Awards: Number of Shares of Stock or Units (#) ⁽³⁾	All Other Option Awards: Number of Securities Underlying Options (#) ⁽⁴⁾	Exercise or Base Price of Option Awards (\$/Sh) ⁽⁵⁾	Grant Date Fair Value of Stock and Option Awards (\$) ⁽⁶⁾
			Threshold (\$) ⁽²⁾	Target (\$) ⁽²⁾	Maximum (\$) ⁽²⁾				
John Melo	—	—	375,000	750,000	1,500,000	—	—	—	—
Han Kieftenbeld	5/23/2022	5/17/2022	260,000	520,000	1,040,000	20,000 ⁽⁷⁾	200,000 ⁽⁸⁾	2.32	431,220
Eduardo Alvarez	—	—	280,000	560,000	1,120,000	—	—	—	—
Nicole Kelsey ⁽⁹⁾	5/23/2022	5/17/2022	148,750	297,500	595,000	10,000 ⁽⁷⁾	—	—	23,200

(1) Our Board has adopted a policy regarding the grant date of equity awards under which the grant date of equity awards generally would be, for awards to ongoing employees, the first business day of the week following the week in which the award was approved by the LDICC or, for new hire awards, the first business day of the week following the later of the week in which the award is approved by the LDICC or the week in which the new hire commences his or her employment.

(2) In November 2021, the LDICC approved our 2022 cash bonus plan, a non-equity incentive plan, under which the eligible amounts reported under "Estimated Possible Payouts Under Non-Equity Incentive Plan Awards" were based. The terms of the plan and actual amounts paid out under the plan are discussed above in this Proxy Statement under "Executive Compensation—2022 Compensation—Cash Bonuses" and the amounts paid out under the plan are included in the "Non-Equity Incentive Plan Compensation" column of the "Summary Compensation Table" above. The estimated possible payouts as of December 31, 2022 shown in this table reflect the potential incentive awards that could have been paid for the first half and annual periods of 2022 at the threshold, target and maximum levels for each individual.

(3) Amounts in this column represent RSU awards granted under the 2020 EIP.

(4) Amounts in this column represent stock option awards granted under the 2020 EIP.

(5) The exercise price per share of the stock options listed in the table above is the closing price of our common stock on Nasdaq on the Grant Date, which represents the fair value of our common stock on the same date. RSU awards do not have any exercise price.

(6) Reflects the grant date fair value of each award computed in accordance with FASB ASC Topic 718, excluding the effect of estimated forfeitures. The assumptions made in the valuation of the awards are discussed in Note 13, "Stock-based Compensation" of "Notes to Consolidated Financial Statements" in our Annual Report on Form 10-K for the fiscal year ended December 31, 2022.

(7) These RSUs vest in three equal annual installments, with the first one-third of the units vesting on June 1, 2023, subject to continued service through each vesting date. Such restricted stock units are subject to acceleration of vesting upon termination of employment, as further described below under "Potential Payments upon Termination Following a Change in Control."

- (8) These stock options have four year vesting schedule, with 25% of the shares subject to the stock options vesting on May 23, 2023 with the remainder vesting over the following three years in equal monthly installments, subject to continued service through each vesting date. Such stock options are subject to acceleration of vesting upon termination of employment following a change of control, as further described below under "Potential Payments upon Termination Following a Change in Control."
- (9) Ms. Kelsey's employment was terminated in December 2022. She was therefore ineligible for a bonus payout for the full year 2022 period and her 2022 equity grants were canceled upon her termination.

Outstanding Equity Awards

The following table sets forth information regarding outstanding equity awards held by our named executive officers as of December 31, 2022.

Name	Option Awards				Stock Awards	
	Number of Securities Underlying Unexercised Options (#) Exercisable	Securities Underlying Unexercised Options (#) ⁽¹⁾ Unexercisable	Option Exercise Price (\$/Sh)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested (\$) ⁽²⁾
John Melo	24,066	—	43.05	6/3/2023	—	—
	20,000	—	52.65	5/5/2024	—	—
	28,333	—	29.40	6/8/2025	—	—
	6,000	—	24.45	11/9/2025	—	—
	28,333	—	8.85	5/16/2026	—	—
	20,000	—	3.16	6/12/2027	—	—
	4,161	—	3.74	1/14/2029	—	—
Han Kieftenbeld	—	—	—	—	6,000,000 ⁽³⁾	9,180,000
	20,390	2,110 ⁽⁴⁾	2.46	3/30/2030	—	—
	28,125	21,875 ⁽⁵⁾	3.86	8/10/2030	—	—
	—	200,000 ⁽⁶⁾	2.32	5/23/2032	—	—
	—	—	—	—	50,000 ⁽⁷⁾	76,500
	—	—	—	—	66,666 ⁽⁸⁾	101,999
	—	—	—	—	300,000 ⁽³⁾	459,000
Eduardo Alvarez	—	—	—	—	20,000 ⁽⁹⁾	30,600
	30,000	—	2.89	10/23/2027	—	—
	28,125	21,875 ⁽⁵⁾	3.86	8/10/2030	—	—
	—	—	—	—	50,000 ⁽⁷⁾	76,500
Nicole Kelsey	—	—	—	—	600,000 ⁽³⁾	918,000
	9,000	—	2.49	3/30/2023 ⁽¹⁰⁾	—	—
	50,000	—	5.08	3/30/2023 ⁽¹⁰⁾	—	—
	14,062	—	3.86	3/30/2023 ⁽¹⁰⁾	—	—
	9,895	—	13.39	3/30/2023 ⁽¹⁰⁾	—	—

- (1) In addition to the specific vesting schedule for each award, each unvested award is subject to the general terms of the 2010 EIP or 2020 EIP Plan, as applicable, including the potential for future vesting acceleration of vesting upon termination of employment in connection with a change of control, as further described below under "Potential Payments upon Termination and upon Termination Following a Change of Control."
- (2) The market values of the RSU awards that have not yet vested are calculated by multiplying the number of shares underlying the RSU or PSU awards shown in the table by \$1.53, the closing price of our ordinary shares on December 30, 2022 (last market day of year before December 31, 2022).
- (3) These RSUs are subject to performance-based vesting conditions subject to continued service through each vesting date. Such RSUs are also subject to acceleration of vesting upon termination of employment in connection with a change of control, as further described below under "Potential Payments upon Termination and upon Termination Following a Change in Control."

- (4) The unexercisable shares subject to this stock option award as of December 31, 2022 will vest monthly from January 1, 2023 to March 16, 2023.
- (5) The unexercisable shares subject to this stock option award as of December 31, 2022 will vest monthly from January 1, 2023 to September 1, 2024.
- (6) The unexercisable shares subject to this stock option award as of December 31, 2022 will vest as to 25% of the shares on May 23, 2023, with the remainder vesting in equal monthly installments over the following three years.
- (7) RSUs awarded on August 10, 2020 vest in equal annual installments over three years with the first installment vesting on September 1, 2021.
- (8) RSUs awarded on May 24, 2021 vest in equal annual installments over three years with the first installment vesting on June 1, 2022.
- (9) RSUs awarded on May 23, 2022 vest in equal annual installments over three years with the first installment vesting on June 1, 2023.
- (10) Expiration date reflects a 3-month exercisability period after the termination of Ms. Kelsey’s employment in December 2022.

Option Exercises and Stock Vested During 2022

The following table sets forth information regarding the exercise of options and vesting of RSUs held by our named executive officers during 2022.

Name	Option Awards		Stock Awards	
	Number of Shares Acquired on Exercise (#)	Value Realized on Exercise (\$)	Number of Shares Acquired on Vesting (#)	Value Realized on Vesting (\$) ⁽¹⁾
John Melo	—	—	175,000	337,750
Han Kieftenbeld	—	—	117,084	298,818
Eduardo Alvarez	—	—	50,000	140,500
Nicole Kelsey	—	—	26,667	67,434

(1) Value realized on vesting is calculated by multiplying the number of units vesting by the closing price of our common stock on Nasdaq on the date of vesting (or most recent closing price in the event the date of vesting falls on a non-trading day).

Pension Benefits

None of our named executive officers participates in, or has an account balance in, a qualified or non-qualified defined benefit plan sponsored by us.

Non-Qualified Deferred Compensation

None of our named executive officers participates in, or has account balances in, a traditional non-qualified deferred compensation plan or any other deferred compensation plan maintained by us.

Potential Payments upon Termination and upon Termination Following a Change in Control

In November 2013, the LDICC adopted the Amyris, Inc. Executive Severance Plan (or the “Severance Plan”). The Severance Plan had an initial term of 36 months and thereafter will be automatically extended for successive additional one-year periods unless we provide six months’ notice of non-renewal prior to the end of the applicable term. In May 2022, the LDICC reviewed the terms of the Severance Plan and elected to allow it to automatically renew. The LDICC adopted the Severance Plan to provide a consistent and updated severance framework for our executive officers that aligns with peer practices. All of our named executive officers, and all senior level employees of Amyris that are eligible to participate in the Severance Plan (or, collectively, the “participants”), have entered into participation agreements under the Severance Plan. Generally, the payments and benefits under the Severance Plan supersede and replace any rights the participants have in connection with any change of control or severance benefits contained in such participants’ employment offer letters, equity award agreements or any

other agreement that specifically relates to accelerated vesting of equity awards; provided, that (i) our CEO, CFO and COO are entitled to the rights and benefits provided for in their respective 2022 Performance Equity Awards in connection with a change of control of Amyris, as described above and (ii) in the event of any conflict between the terms of the respective 2021 Performance Equity Awards and the Severance Plan relating to accelerated vesting of equity awards, the terms of each respective 2021 Performance Equity Award would govern and control.

Upon the execution of a participation agreement, the participants are eligible for the following payments and benefits under the Severance Plan.

Upon termination by us of a participant's employment other than for "cause" (as defined below) or the death or disability of the participant, or upon resignation by the participant of such participant's employment for "good reason" (as defined below) (collectively referred to as an "Involuntary Termination"), the participant becomes eligible for the following severance benefits:

- 12 months of base salary continuation (18 months for our CEO)
- 12 months of health benefits continuation (18 months for our CEO)

Upon an Involuntary Termination of a participant at any time within the period beginning three months before and ending 12 months after a change of control (as defined below) of the Company, the participant becomes eligible for the following severance payments and benefits:

- 18 months of base salary continuation (24 months for our CEO)
- 18 months of health benefits continuation (including for our CEO)
- Automatic acceleration of vesting and exercisability of all outstanding equity awards then held by the participant

In each case, the payments and benefits are contingent upon the participant complying with various requirements, including non-solicitation and confidentiality obligations to us, and on execution, delivery and non-revocation by the participant of a standard release of claims in favor of the Company within 60 days of the participant's separation from service (as defined in Section 409A of the Code). The payments and benefits are subject to forfeiture if, among other things, the participant breaches any of his or her obligations under the Severance Plan and related agreements. The payments and benefits are also subject to adjustment and deferral based on applicable tax rules relating to change-in-control payments and deferred compensation.

Under the Severance Plan, "cause" generally encompasses the participant's: (i) gross negligence or intentional misconduct; (ii) failure or inability to satisfactorily perform any assigned duties; (iii) commission of any act of fraud or misappropriation of property or material dishonesty; (iv) conviction of a felony or a crime involving moral turpitude; (v) unauthorized use or disclosure of the confidential information or trade secrets of Amyris or any of our affiliates that use causes material harm to Amyris; (vi) material breach of contractual obligations or policies; (vii) failure to cooperate in good faith with investigations; or (viii) failure to comply with confidentiality or intellectual property agreements. Prior to any determination that "cause" under the Severance Plan has occurred, we are generally required to provide notice to the participant specifying the event or actions giving rise to such determination and a 10-day cure period (30 days in the case of failure or inability to satisfactorily perform any assigned duties).

Under the Severance Plan, "good reason" generally means: (i) a material reduction of the participant's role at Amyris; (ii) certain reductions of base salary; (iii) a workplace relocation of more than 50 miles; or (iv) our failure to obtain the assumption of the Severance Plan by a successor. In order for a participant to assert good reason for his or her resignation, he or she must provide us written notice within 90 days of the occurrence of the condition and allow us 30 days to cure the condition. Additionally, if we fail to cure the condition within the cure period, the participant must terminate employment with us within 30 days of the end of the cure period.

Under the Severance Plan, a “change of control” will generally be deemed to occur if (i) Amyris completes a merger or consolidation after which Amyris’s stockholders before the merger or consolidation do not own at least a majority of the outstanding voting securities of the acquiring or surviving entity after such merger or consolidation, (ii) Amyris sells all or substantially all of its assets, (iii) any person or entity acquires more than 50% of Amyris’s outstanding voting securities or (iv) a majority of Amyris’s directors cease to be directors over any one-year period.

To the extent any severance benefits to a named executive officer constitute deferred compensation subject to Section 409A of the Code and such officer is deemed a “specified employee” under Section 409A, we will defer payment of such benefits to the extent necessary to avoid adverse tax treatment.

For a description of the treatment of the CEO PSU Award, CFO PSU Award and COO PSU Award upon change of control and/or subsequent protected termination, please see “Executive Compensation—Compensation Discussion and Analysis—2022 Compensation—Equity Awards.”

The following table summarizes the potential amounts payable to each of our named executive officers under the Severance Plan upon an Involuntary Termination (i) other than in connection with a change of control of the company and (ii) in connection with a change of control of the company, assuming in each case, that such Involuntary Termination occurred on December 31, 2022.

Name	Involuntary Termination Not in Connection with a Change of Control			Involuntary Termination in Connection with a Change of Control		
	Base Salary	Continuing Health Benefits	Value of Accelerated Options or Shares ⁽¹⁾	Base Salary	Continuing Health Benefits	Value of Accelerated Options or Shares ⁽²⁾
John Melo	1,125,000	55,790	—	1,500,000	55,790	9,180,000
Han Kieftenbeld	497,500	26,431	—	746,250	39,646	668,099
Eduardo Alvarez ⁽³⁾	537,500	—	—	806,250	—	994,500
Nicole Kelsey	425,000	21,667	—	637,500	32,500	81,599

(1) Accelerated vesting is only applicable in the event of an Involuntary Termination in connection with a change of control.

(2) With respect to outstanding options as of December 31, 2022, calculated by multiplying the number of shares underlying unvested stock options that would vest as a result of an Involuntary Termination following a change of control by the excess of \$1.53, the closing price of our common stock on Nasdaq on December 30, 2022, over the exercise price of the stock options. Unvested stock options with exercise prices higher than \$1.53 are excluded from the calculation. With respect to outstanding restricted stock units as of December 31, 2022, calculated by multiplying the number of outstanding unvested restricted stock units that would vest as a result of an Involuntary Termination following a change of control by \$1.53, the closing price of our common stock on Nasdaq on December 30, 2022. Assumes that the per share price common stock price received by the shareholders in the change of control is measured to be below all Stock Price Milestones of the CEO PSU Award and the CFO PSU Award. For a complete discussion on how the CEO PSU Award and the CFO PSU Award are treated upon a change of control, see “Executive Compensation—Compensation Discussion and Analysis—2022 Compensation—Equity Awards—2021 Performance Equity Awards—CEO PSU Award and CFO PSU Award.”

(3) Mr. Alvarez’s COO PSU Award agreement provides that if the Company experiences a change of control during the COO Performance Period, the COO Performance Metric for any COO Tranche that has not yet been achieved will be deemed achieved effective as of immediately prior to the closing of the change of control. The resulting “achieved” PSUs (the “COO COC RSUs”) will be invested on the closing date and will vest on December 31, 2022, subject to Mr. Alvarez’s continuous Service on the closing date and on such vesting date, with such COO COC RSUs accelerating in full upon a termination without cause or resignation of good reason, as provided in the Severance Plan. For a complete discussion on how the COO PSU Award is treated upon a change of control, see “Executive Compensation—Compensation Discussion and Analysis—2022 Compensation—Equity Awards—2021 Performance Equity Awards—COO PSU Award.”

Pay versus Performance Disclosure

As required by Item 402(v) of Regulation S-K, we are providing the following information about the relationship between the compensation actually paid to our named executive officers and certain aspects of our financial performance.

Pay Versus Performance

Year (a)	Summary Compensation Table Total for PEO ¹ (b)	Compensation Actually Paid for PEO ² (c)	Average Summary Compensation Table Total for Non-PEO NEOs ³ (d)	Average Compensation Actually Paid for Non-PEO NEOs ⁴ (e)	Value of Initial Fixed \$100 Investment Based On:			
					Total Shareholder Return ⁵ (f)	Peer Group Total Shareholder Return ⁶ (g)	Net Income (h)	Company- Selected Measure: Revenue ⁷ (i)
2022	\$ 967,677	-\$17,926,323	\$ 766,629	-\$ 978,600	\$ 50	\$117	-\$528,510,000	\$269,847,000
2021	\$72,506,627	\$ 24,624,317	\$5,893,739	\$ 3,301,256	\$175	\$174	-\$270,969,000	\$341,817,000
2020	\$ 1,344,913	\$ 3,842,102	\$1,388,141	\$ 1,892,254	\$200	\$144	-\$331,039,000	\$173,137,000

- (1) Amounts reported in column (b) represent the amount of total compensation reported for John Melo (our "PEO") for each corresponding covered year in the "Total" column of the Summary Compensation Table for each applicable year.
- (2) Amounts reported in column (c) represent the compensation actually paid to our PEO, based on their respective total compensation reported in the Summary Compensation Table for the indicated fiscal years and adjusted as shown in the table below:

	PEO		
	2020	2021	2022
Summary Compensation Table-Total Compensation	(a) \$1,344,913	\$ 72,506,627	\$ 967,677
- Grant Date Fair Value of Stock Awards and Option Awards Granted in Fiscal Year	(b) —	\$ 70,564,997	—
+ Fair Value at Fiscal Year End of Outstanding and Unvested Stock Awards and Option Awards Granted in Fiscal Year	(c) —	\$ 20,865,000	—
+ Change in Fair Value of Outstanding and Unvested Stock Awards and Option Awards Granted in Prior Fiscal Years	(d) \$2,265,160	-\$ 133,875	-\$18,285,000
+ Fair Value at Vesting of Stock Awards and Option Awards Granted in Fiscal Year That Vested During Fiscal Year	(e) —	\$ 2,125,464	—
+ Change in Fair Value as of Vesting Date of Stock Awards and Option Awards Granted in Prior Fiscal Years For Which Applicable Vesting Conditions Were Satisfied During Fiscal Year	(f) \$ 232,030	\$ 1,911,098	-\$ 609,000
- Fair Value as of Prior Fiscal Year End of Stock Awards and Option Awards Granted in Prior Fiscal Years That Failed to Meet Applicable Vesting Conditions During Fiscal Year	(g) —	\$ 2,085,000	—
= Compensation Actually Paid	\$3,842,102	\$ 24,624,317	-\$17,926,323

- (a) Represents Total Compensation as reported in the Summary Compensation Table for the indicated fiscal year.
- (b) Represents the aggregate grant date fair value of the stock awards and option awards granted to the PEO during the indicated fiscal year, computed in accordance with FASB ASC 718.
- (c) Represents the aggregate fair value as of the indicated fiscal year-end of the PEO's outstanding and unvested stock awards and option awards granted during such fiscal year, computed in accordance with FASB ASC 718.
- (d) Represents the aggregate change in fair value during the indicated fiscal year of the outstanding and unvested stock awards and option awards held by the PEO as of the last day of the indicated fiscal year, computed in accordance with FASB ASC 718 and, for awards subject to performance-based vesting conditions, based on the probable outcome of such performance-based vesting conditions as of the last day of the fiscal year.
- (e) Represents the aggregate fair value at vesting of the stock awards and option awards that were granted to the PEO and vested during the indicated fiscal year, computed in accordance with FASB ASC 718.

PROXY

- (f) Represents the aggregate change in fair value, measured from the prior fiscal year-end to the vesting date, of each stock award and option award held by the PEO that was granted in a prior fiscal year and which vested during the indicated fiscal year, computed in accordance with FASB ASC 718.
 - (g) Represents the aggregate fair value as of the last day of the prior fiscal year of the PEO's stock awards and option awards that were granted in a prior fiscal year and which failed to meet the applicable vesting conditions in the indicated fiscal year, computed in accordance with FASB ASC 718.
3. Amounts reported in column (d) represent the average of the amounts of total compensation reported for our non-PEO named executive officers (our "Non-PEO NEOs") as a group for each covered year in the "Total" column of the Summary Compensation Table for each applicable year. For 2020, 2021, and 2022, the Non-PEO NEOs were Han Kieftenbeld, Eduardo Alvarez and Nicole Kelsey.
4. Amounts reported in column (e) represent the compensation actually paid to the Non-PEO NEOs in the indicated fiscal year, based on the average total compensation for such Non-PEO NEOs reported in the Summary Compensation Table for the indicated fiscal years and adjusted as shown in the table below:

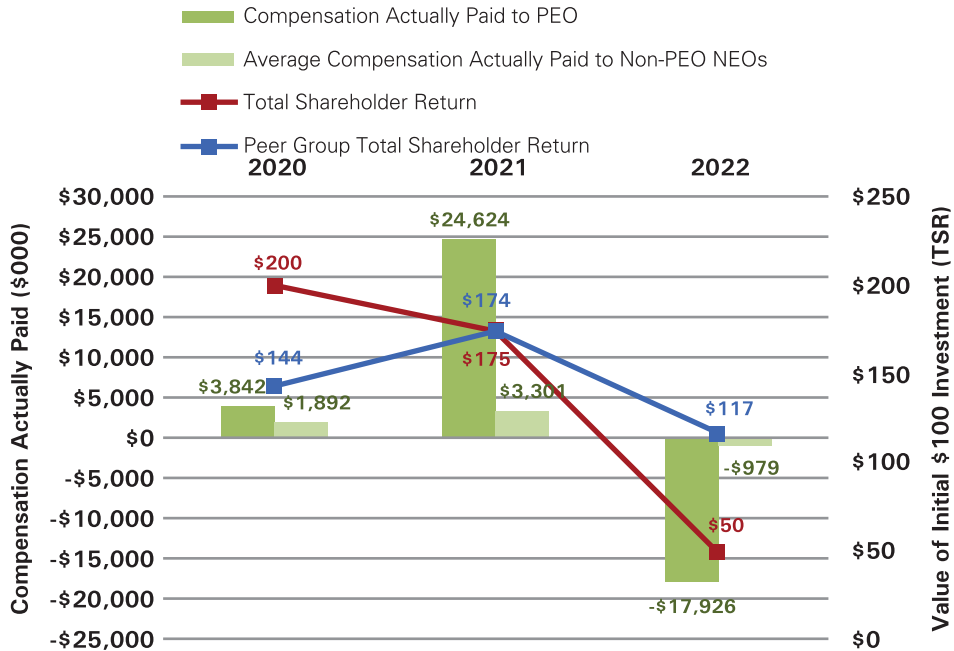
Non-PEO NEO Average				
		2020	2021	2022
Summary Compensation Table - Total Compensation	(a)	\$ 1,388,141	\$ 5,893,739	\$ 766,629
- Grant Date Fair Value of Stock Awards and Option Awards Granted in Fiscal Year	(b)	\$ 615,096	\$ 4,912,942	\$ 151,473
+ Fair Value at Fiscal Year End of Outstanding and Unvested Stock Awards and Option Awards Granted in Fiscal Year	(c)	\$ 1,070,743	\$ 1,731,569	\$ 83,381
+ Change in Fair Value of Outstanding and Unvested Stock Awards and Option Awards Granted in Prior Fiscal Years	(d)	\$ 51,376	-\$ 87,487	-\$1,349,103
+ Fair Value at Vesting of Stock Awards and Option Awards Granted in Fiscal Year That Vested During Fiscal Year	(e)	—	—	—
+ Change in Fair Value as of Vesting Date of Stock Awards and Option Awards Granted in Prior Fiscal Years For Which Applicable Vesting Conditions Were Satisfied During Fiscal Year	(f)	-\$ 2,909	\$ 676,376	-\$ 214,766
- Fair Value as of Prior Fiscal Year End of Stock Awards and Option Awards Granted in Prior Fiscal Years That Failed to Meet Applicable Vesting Conditions During Fiscal Year	(g)	—	—	\$ 113,268
= Compensation Actually Paid		\$ 1,892,254	\$ 3,301,256	-\$ 978,600

- (a) Represents the average Total Compensation as reported in the Summary Compensation Table for the reported Non-PEO NEOs in the indicated fiscal year.
 - (b) Represents the average aggregate grant date fair value of the stock awards and option awards granted to the reported Non-PEO NEOs during the indicated fiscal year, computed in accordance with FASB ASC 718.
 - (c) Represents the average aggregate fair value as of the indicated fiscal year-end of the reported Non-PEO NEOs' outstanding and unvested stock awards and option awards granted during such fiscal year, computed in accordance with FASB ASC 718.
 - (d) Represents the average aggregate change in fair value during the indicated fiscal year of the outstanding and unvested stock awards and option awards held by the reported Non-PEO NEOs as of the last day of the indicated fiscal year, computed in accordance with FASB ASC 718 and, for awards subject to performance-based vesting conditions, based on the probable outcome of such performance-based vesting conditions as of the last day of the fiscal year.
 - (e) Represents the average aggregate fair value at vesting of the stock awards and option awards that were granted to the reported Non-PEO NEOs and vested during the indicated fiscal year, computed in accordance with FASB ASC 718.
 - (f) Represents the average aggregate change in fair value, measured from the prior fiscal year-end to the vesting date, of each stock award and option award held by the reported Non-PEO NEOs that was granted in a prior fiscal year and which vested during the indicated fiscal year, computed in accordance with FASB ASC 718.
 - (g) Represents the average aggregate fair value as of the last day of the prior fiscal year of the reported Non-PEO NEOs' stock awards and option awards that were granted in a prior fiscal year and which failed to meet the applicable vesting conditions in the indicated fiscal year, computed in accordance with FASB ASC 718.
- (5) Pursuant to rules of the SEC, the comparison assumes \$100 was invested on December 31, 2019 in our common stock. Historic stock price performance is not necessarily indicative of future stock price performance.
- (6) The TSR Peer Group consists of the Nasdaq Composite Index, an independently prepared index.

(7) As noted in our CD&A, for 2022, the LDICC determined that revenue growth continues to be viewed as a key metric of our business performance and aligned with long term stockholder value creation. Revenue is calculated in accordance with U.S. GAAP.

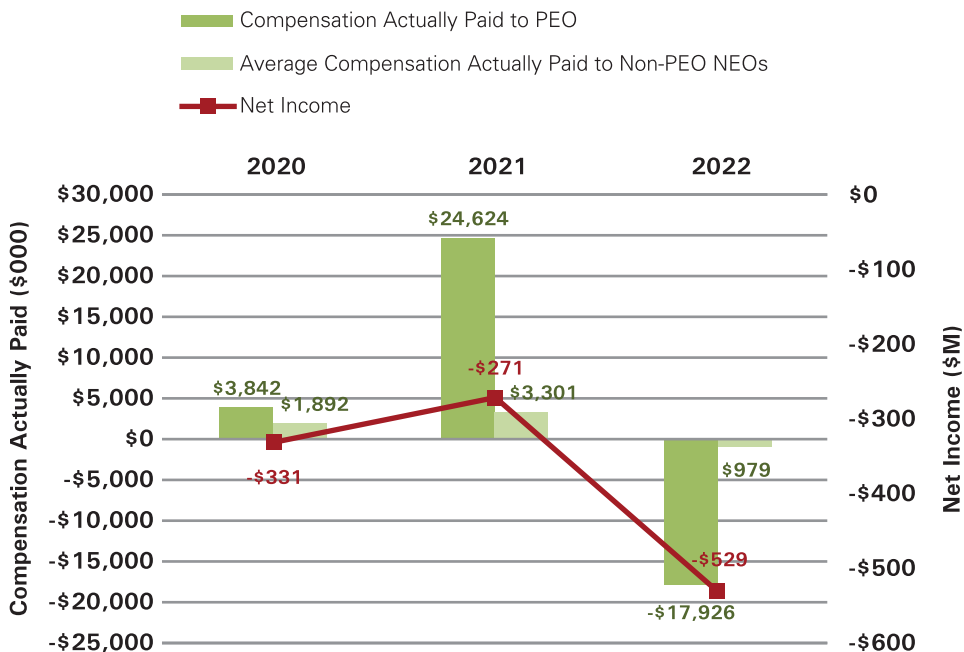
Relationship Between Pay and Performance

Compensation Actually Paid vs. TSR

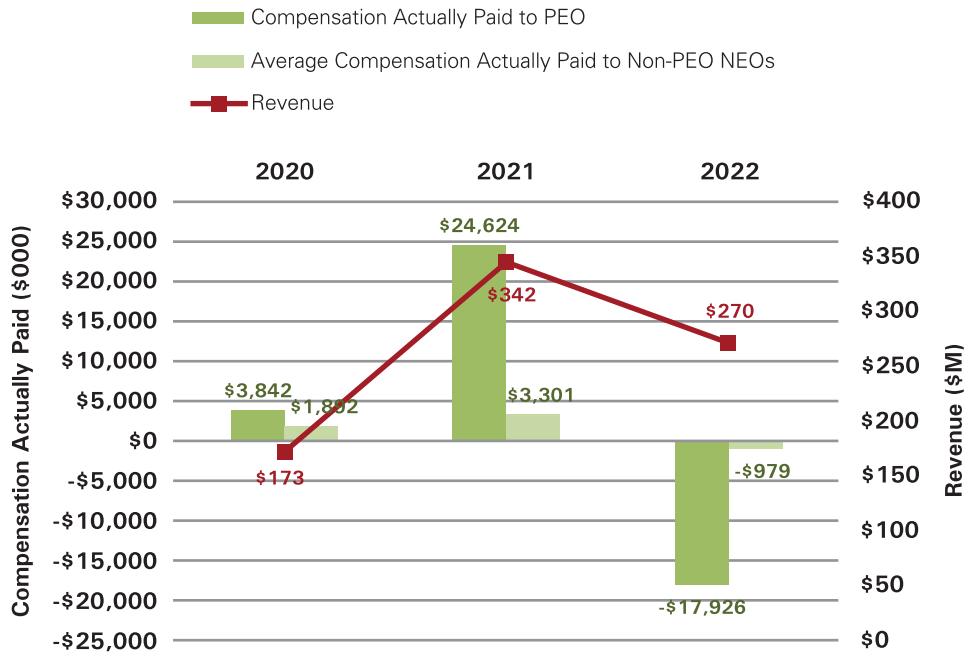


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Compensation Actually Paid vs. Net Income



Compensation Actually Paid vs. Revenue



We believe the “Compensation Actually Paid” in each of the years reported above and over the three-year cumulative period are reflective of the LDICC’s emphasis on “pay-for-performance” as the “Compensation Actually Paid” fluctuated year-over-year, primarily due to the result of our stock performance.

Tabular List of Financial Performance Measures

The following is a list of financial performance measures, which in the Company’s assessment represent the most important financial performance measures used by the Company to link compensation actually paid to the Non-PEO NEOs for 2022:

- Revenue
- Operating Expense
- Core Gross Margin

Pay Ratio Disclosure

Under SEC rules, we are required to calculate and disclose the median of the annual total compensation of all our employees (other than our CEO), the annual total compensation of our CEO and the ratio of the median of the annual total compensation of all our employees compared to the annual total compensation of our CEO, Mr. Melo (our “CEO pay ratio”).

For 2022:

- The median of the annual total compensation of all our employees (other than our CEO) was \$98,714; and
- the annual total compensation of Mr. Melo, as reported in the “2022 Summary Compensation Table” above, was \$967,677.

Thus, for 2022, the ratio of our CEO’s annual total compensation to the median of the annual total compensation of all our employees was approximately 9.8 to 1. This ratio is a reasonable estimate calculated in a manner consistent with Item 402(u) of Regulation S-K

In determining the median of the annual total compensation of all employees of the Company (other than Mr. Melo), we prepared a list of all employees as of December 31, 2022. We then calculated the annual compensation (base salary, actual and target bonus, and grant date value of equity awards) of our employees as of that date for the 12-month period from January 1, 2022 through December 31, 2022. Salaries and wages were annualized for permanent employees who were not employed for the full year of 2022. We used exchange rates in effect as of December 31, 2022 to convert the base salaries and other compensation amounts of our non-U.S. employees to U.S. dollars. We did not make any cost-of-living adjustments.

Using this approach, we selected the individual at the median of our employee population. We then calculated the annual total compensation for this individual using the same methodology we use for our NEOs as set forth in the “2022 Summary Compensation Table” above. For more information regarding the CEO compensation, please see above under “Executive Compensation—Compensation Discussion and Analysis—2022 Compensation”.

Agreements with Executive Officers

We do not have formal employment agreements with any of our named executive officers. The initial compensation of each named executive officer was set forth in an employment offer or promotion letter that we executed with such executive officer at the time his or her employment with us commenced (or at the time of her or his promotion, as the case may be). Each employment offer letter provides that the named executive officer’s employment is “at will.”

As a condition to their employment, our named executive officers entered into non-competition, non-solicitation and proprietary information and inventions assignment agreements. Under these agreements, each named executive officer has agreed (i) not to solicit our employees during her or his employment and for a period of 12 months after the termination of his or her employment, (ii) not to compete with us or assist any other person to compete with us during her or his employment, and (iii) to protect our confidential and proprietary information and to assign to us intellectual property developed during the course of his or her employment.

See above under “Executive Compensation—Potential Payments upon Termination and upon Termination Following a Change in Control” for a description of potential payments to our named executive officers upon termination of employment, including in connection with a change of control of the Company.

Director Compensation

Director Compensation for 2022

During the fiscal year ended December 31, 2022, our non-employee directors who served during 2022 earned the compensation set forth below.

Name	Fees Earned and Paid in Cash (\$) ⁽¹⁾	Stock Awards (\$) ⁽¹⁾⁽²⁾⁽⁵⁾	Option Awards(\$) ⁽²⁾⁽⁵⁾	All Other Director Compensation (\$)	Total (\$) ⁽⁵⁾
John Doerr	59,619	203,600	—	—	263,219
Ana Dutra ⁽³⁾	50,991	315,059	—	—	366,050
Geoffrey Duyk	—	248,330	—	—	248,330
Philip Eykerman	—	203,600	—	—	203,600
Frank Kung ⁽⁴⁾	50,000	203,600	—	—	253,600
James McCann	—	256,110	—	—	256,110
Steven Mills	—	262,724	—	—	262,724
Ryan Panchadsaram	—	252,998	—	—	252,998
Lisa Qi	—	245,998	—	—	245,998
Julie Spencer Washington	—	247,164	—	—	247,164

- (1) Reflects Board, Committee Chair and Committee member retainer fees earned and paid in cash during 2022. In August 2021, our Board, with recommendation from the LDICC, approved the ability for directors to elect to receive RSUs in lieu of their cash retainer fees. Mr. Doerr, Ms. Dutra, and Dr. Kung received their retainer fees in cash, while Dr. Duyk, Mr. McCann, Mr. Mills, Mr. Panchadsaram, Ms. Qi and Ms. Washington each elected to receive their retainer fees in the form of RSUs. Mr. Eykerman did not receive any retainer fees, as he has been designated to serve as a director by his employer, DSM. For more information regarding the retainer RSUs, see below "Narrative Disclosure to Director Compensation Tables."
- (2) The amounts in the "Stock Awards" and "Option Awards" columns reflect the aggregate grant date fair value of such awards computed in accordance with FASB ASC Topic 718. The assumptions made in the valuation of the awards are discussed in Note 13, "Stock-based Compensation" of "Notes to Consolidated Financial Statements" in our Annual Report on Form 10-K for the fiscal year ended December 31, 2022. These amounts do not correspond to the actual value that may be recognized by our non-employee directors. In August 2022, each of our then non-employee directors received an annual award under the 2020 EIP of 80,000 RSUs in accordance with our non-employee director compensation program described below. Additionally, certain directors elected to receive their retainer fees as RSUs, which were granted to the directors in January 2022, and vested in four equal quarterly installments starting on March 30, 2022.
- (3) Ms. Dutra was appointed to our Board in January 2022 and her stock awards in 2022 represent (i) an initial grant of 20,000 RSUs, (ii) a pro-rata annual equity grant of 4,283, and (iii) the annual award under the 2020 EIP of 80,000 RSUs in accordance with our non-employee director compensation program described below.
- (4) All cash compensation earned by Dr. Kung during 2022 was to be paid directly to Vivo, which designated Dr. Kung to serve on our Board, and Dr. Kung did not receive any cash benefit from such payments. Pursuant to an agreement between Dr. Kung and Vivo, Dr. Kung has agreed, subject to certain conditions and exceptions, to remit the equity compensation he receives under our non-employee director compensation program to Vivo if and when such equity compensation becomes vested and/or exercised.

(5) As of December 31, 2022, the non-employee directors who served during 2022 held the following outstanding equity awards:

Name	Outstanding Options (Shares)	Outstanding Stock Awards (Units)
John Doerr	15,064	80,000
Ana Dutra	—	100,000
Geoffrey Duyk	9,865	80,000
Philip Eykerman	15,131	80,000
Frank Kung	13,398	80,000
James McCann	7,682	80,000
Steven Mills	10,398	80,000
Ryan Panchadsaram	—	80,000
Lisa Qi	4,216	80,000
Julie Spencer Washington	3,466	80,000

Narrative Disclosure to Director Compensation Tables

Under our current non-employee director compensation program, as amended by the Board and effective in May 2022, and in each case subject to final approval by our Board with respect to equity awards:

- Each non-employee director receives an annual cash retainer of \$50,000 and an annual equity award of RSUs with a value of \$160,000, vesting in full after one year (in each case subject to continued service through the applicable vesting date). Any new Board members will receive a pro-rated annual equity award upon joining our Board, which award will vest in full on the one-year anniversary of the grant of the most recent annual Board equity awards.
- The Chair of the Audit Committee receives an additional annual cash retainer of \$20,000.
- The Chair of the LDICC receives an additional annual cash retainer of \$15,000.
- The Chair of the NGC receives an additional annual cash retainer of \$10,000.
- Audit Committee, LDICC and NGC members other than the Chair receive an additional annual cash retainer of \$7,500, \$6,000 and \$4,500, respectively.

In general, all the retainers described above are paid quarterly in arrears. Starting in fiscal year 2022, directors may elect to receive RSUs in lieu of their cash retainers (“retainer RSUs”). Directors must make this election annually and such election is binding on the full amount of the retainer for the applicable four-quarter period. In cases where a non-employee director serves for part of the year in a capacity entitling him or her to a retainer payment,

the retainer is prorated to reflect his or her period of service in that capacity and unvested retainer RSUs are cancelled upon a director departure. Non-employee directors are also eligible for reimbursement of their expenses incurred in attending Board and Committee meetings.

Pursuant to our 2020 Equity Incentive Plan, a non-employee director may receive compensation (including cash and equity awards) representing no more than \$500,000 total value in any calendar year.

Compensation Committee Interlocks and Insider Participation

None of the members of our LDICC was at any time our officer or employee during 2022. None of our executive officers serve, or in the past fiscal year served, as a member of the board of directors or the compensation committee of any entity that has one or more of its executive officers serving on our Board or LDICC.

Transactions with Related Persons

Certain Transactions

The following is a description of each transaction since the beginning of 2022, and each currently proposed transaction, in which:

- we have been or are to be a participant;
- the amount involved exceeds the lesser of \$120,000; and
- any of our directors, executive officers or holders of more than 5% of any class of our capital stock at the time of the transactions in issue, or any immediate family member of or person sharing the household with any of these individuals, had or will have a direct or indirect material interest.

Transactions with Foris

Amendment to 2019 Loan and Security Agreement

On June 29, 2022 the Company, certain of the Company's subsidiaries (the "Subsidiary Guarantors") and Foris Ventures, LLC ("Foris"), a current stockholder and beneficial owner of greater than five percent of our outstanding common stock and an entity affiliated with the Company's directors, John Doerr and Ryan Panchadsaram, entered into an amendment to the Amended and Restated Loan and Security Agreement ("2019 Foris LSA"), dated October 28, 2019, by and among the Company, the Subsidiary Guarantors and Foris, under which approximately \$50 million was outstanding as of December 31, 2022, pursuant to which amendment, the maturity date of the 2019 Foris LSA was extended from July 1, 2022 to July 1, 2023.

2022 Loan and Security Agreement and Amendment

On September 13, 2022, the Company, the Subsidiary Guarantors, and Foris, as lender, entered into a Loan and Security Agreement, as amended from time to time, to make available to the Company a secured term loan facility in an aggregate principal amount of up to \$80 million, consisting of two tranches: a \$30 million tranche which was drawn in full by the Company on September 13, 2022 and a \$50 million tranche which was drawn in full by the Company on September 27, 2022. In lieu of upfront, exit, administration and prepayment fees, the Company issued warrants to Foris to purchase up to 2,046,036 shares of the Company's common stock, \$0.0001 par value per share ("Common Stock") at an exercise price of \$3.91 per share.

Security Purchase Agreement

On December 29, 2022, the Company entered into a Security Purchase Agreement with Foris pursuant to which the Company (i) sold an aggregate of 13,333,334 shares of Common Stock to Foris through a private placement for an aggregate purchase price of \$20 million and (ii) issued warrants to Foris to purchase up to 10,000,000 shares of Common Stock at an exercise price of \$1.80 per share.

Loan and Security Agreement

On March 10, 2023, the Company, the Subsidiary Guarantors, and Perrara Ventures, LLC (an affiliate of Foris, "Perrara"), as lender, entered into a Loan and Security Agreement, to make available to the Company a short-term secured term loan facility in an aggregate principal amount of up to \$50 million. In lieu of upfront, exit, administration and prepayment fees, the Company amended the pricing of 2,046,036 existing warrants previously issued to Foris on September 13, 2022 from \$3.91 to \$1.30 per share.

Transactions with DSM

On October 11, 2022, the Company, the Subsidiary Guarantors and DSM Finance B.V. (“DSM”), as lender, entered into a Loan and Security Agreement (the “DSM Loan Agreement”) to make available to the Company a secured term loan facility in an aggregate principal amount of up to \$75 million (the “DSM Loan Facility”), consisting of two tranches: a \$50 million tranche which was drawn in full by the Company on October 11, 2022 and a \$25 million tranche which was drawn in full by the Company on November 7, 2022.

On December 12, 2022, the Company, the Subsidiary Guarantors, and DSM, as lender, entered into an amendment and restatement of the DSM Loan Agreement, pursuant to DSM made available to the Company a third tranche in the amount of \$25 million which was drawn in full by December 13, 2022.

Third-Party Agreements

On September 14, 2022, the Company and Watershed Technology, Inc. (“Watershed”), entered into an agreement whereby Watershed is assisting the Company with its climate goals as part of the Company’s ESG program, including, for example, measuring carbon emission, tracking climate targets, providing support for decarbonization goals, and reporting guidance. John Doerr, a current stockholder and beneficial owner of greater than five percent of our outstanding common stock, is a director on the board of Watershed, and Kleiner Perkins, an entity affiliated with directors John Doerr and Ryan Panchadsaram, is an investor of Watershed.

Compensation Arrangements

Stephanie Kung, the daughter of the Company’s director Frank Kung, is a non-executive employee of the Company and received employment compensation plus benefits in excess of \$120,000 in 2022, and she is expected to receive employment compensation plus benefits in excess of \$120,000 in 2023.

Sofia Melo, the daughter of John Melo, the Company’s President and Chief Executive Officer and a member of the Company’s Board of Directors, was a non-executive employee of the Company in 2022, until she resigned from her employment with the Company on February 28, 2022.

Indemnification Arrangements

We have entered into indemnification agreements with each of our directors and executive officers that may be broader than the specific indemnification provisions contained in the Delaware General Corporation Law. These indemnification agreements require us, among other things, to indemnify our directors and executive officers against liabilities that may arise by reason of their status or service. These indemnification agreements also require us to advance all expenses incurred by the directors and executive officers in investigating or defending against any such action, suit or proceeding. We believe that these agreements are necessary to attract and retain qualified individuals to serve as directors and executive officers. We maintain an insurance policy that covers certain liabilities of our directors and officers arising out of claims based on acts or omissions in their capacities as directors or officers. Certain of our non-employee directors may, through their relationships with their employers, be insured and/or indemnified against certain liabilities incurred in their capacity as members of the Board.

Executive Compensation and Employment Arrangements

Please see “Executive Compensation” above for information regarding our compensation arrangements with our executive officers, including equity awards and employment agreements with our executive officers.

Registration Rights Agreements

Certain of our stockholders, including certain entities affiliated with our directors and/or holders of five percent or more of our outstanding common stock hold registration rights pursuant to the following:

- Letter agreement, dated July 29, 2015, by and among us and certain investors
- Securities Purchase Agreement, dated May 8, 2017, by and among us and certain investors
- Securities Purchase Agreement, dated August 2, 2017, by and between us and DSM International B.V.
- Stockholder Agreement, dated August 3, 2017, by and between us and affiliates of Vivo Capital LLC
- Amended and Restated Stockholder Agreement, dated August 7, 2017, by and between us and DSM International B.V.
- Securities Purchase Agreements, dated January 31, 2020, by and between the Company and the investor named therein, including Foris Ventures, LLC.
- Security Purchase Agreements, dated June 1, 2020 and June 4, 2020, by and between us and the investors named therein, including Foris Ventures, LLC, and Vivo Capital LLC.
- Securities Purchase Agreement, dated May 7, 2021, with Upland1, LLC and the other parties thereto.
- Share Purchase Agreement, dated August 11, 2021, with MG Empower Ltd. and the other parties thereto.
- Agreement and Plan of Merger and Reorganization and Note Purchase Agreement, each dated August 11, 2021, by and among the Company, OLIKA Inc. and the other parties thereto.
- Share Purchase Agreement and Option Cancellation Agreements, each dated as of August 31, 2021, by and among the Company, Beauty Labs International Limited and the selling stockholders party thereto.
- Agreement and Plan of Merger dated January 26, 2022, by and among the Company, certain of its subsidiaries, No Planet B Holdings, Inc. and its stockholders.
- Asset Purchase Agreement dated March 9, 2022, by and among the Company, certain of its subsidiaries, and MenoLabs, LLC.
- Agreement and Plan of Merger and Reorganization, dated August 11, 2022, by and among the Company, Amyris-O Merger Sub, Inc., Onda Beauty Inc. and Jane Hong Fernandez.
- Series B Preference Share Purchase Agreement, dated as of September 13, 2022, by and between the Company and WeMedia Shopping Network Holdings Co. Limited.
- Marketing Side Letter, dated December 29, 2022, by and between the Company and WeMedia Shopping Network Holdings Co., Limited.
- Securities Purchase Agreement, dated December 30, 2022, by and between the Company and Heights Capital Management, Inc.
- Securities Purchase Agreements, dated December 30, 2022, by and between the Company and Foris Ventures, LLC.

Related Party Transactions Policy




Our Related Party Transactions Policy adopted by our Board of Directors requires that any transaction with a related party that must be reported under applicable SEC rules, other than certain compensation related matters, must be reviewed and approved or ratified by the Audit Committee of our Board of Directors. Our Related Party Transactions Policy contains specific procedures to be followed, and factors to be considered, in connection with the review of such transactions, but does not contain specific standards for approval of such transactions.

Annual Meeting Information

Information Regarding Solicitation and Voting

In accordance with rules and regulations adopted by the SEC, we have elected to provide our stockholders with access to our proxy materials over the Internet. Accordingly, we intend to send a Notice of Internet Availability of Proxy Materials (the "Notice") on or about April 12, 2023 to most of our stockholders who owned our common stock at the close of business on March 28, 2023. The Notice includes instructions on how you can access our Annual Report and Proxy Statement and other soliciting materials on the Internet or, if you wish, request a printed set of such materials, a list of the matters to be considered at the 2023 Annual Meeting, and instructions as to how your shares can be voted. Most stockholders will not receive a printed copy of the proxy materials unless they request one in the manner set forth in the Notice. This permits us to conserve natural resources and reduces our printing costs, while giving stockholders a convenient and efficient way to access our proxy materials and vote their shares.

We will bear the expense of soliciting proxies. In addition to these proxy materials, our directors and employees (who will receive no compensation in addition to their regular salaries) may solicit proxies in person, by telephone or by email. We will reimburse Intermediaries for reasonable charges and expenses incurred in forwarding solicitation materials to their clients.

-
-  **Voting by Internet.** You may submit your proxy over the Internet by following the instructions provided in the Notice, or, if you receive printed proxy materials, by following the instructions for Internet or telephone voting provided with your proxy materials and on your proxy card or voting instruction form.
 -  **Voting by telephone.** You may submit your proxy by telephone by following the instructions provided in the Notice, or, if you receive printed proxy materials, by following the instructions for Internet or telephone voting provided with your proxy materials and on your proxy card or voting instruction form.
 -  **Voting by mail.** If you receive printed proxy materials, you may submit your proxy by mail by completing, signing, dating and returning your proxy card or, for shares held beneficially in street name, by following the voting instructions included by your broker or other Intermediary. If you provide specific voting instructions, your shares will be voted as you have instructed.
-

Questions and Answers About the Annual Meeting and Voting

Who can vote at the meeting?

The Board set March 28, 2023, as the record date for the meeting. If you owned shares of our common stock as of the close of business on March 28, 2023, you may attend and vote your shares at the meeting. Each stockholder is entitled to one vote for each share of common stock held on all matters to be voted on. As of March 28, 2023, there were 366,685,543 shares of our common stock outstanding and entitled to vote (as reflected in the records of our stock transfer agent).

Only stockholders of record at the close of business on the record date may vote at the meeting or at any adjournment thereof. A list of stockholders eligible to vote at the meeting will be available for review for any purpose relating to the meeting during our regular business hours at our headquarters at 5885 Hollis Street, Suite 100, Emeryville, California 94608 for the ten days prior to the meeting as well as at the virtual meeting.

How can I attend and vote at the meeting?

The Annual Meeting will be held virtually; you will not be able to attend the Annual Meeting in person. If your shares of Amyris common stock are registered directly in your name with our stock transfer agent, EQ Shareowner Services, you are considered to be the stockholder of record with respect to those shares. As the stockholder of record, you have the right to vote in person at the meeting.

If your shares are held in a brokerage account or by another Intermediary, you are considered the beneficial owner of shares held in street name. As the beneficial owner, you are also invited to attend the meeting. However, since a beneficial owner is not the stockholder of record, you may not vote these shares in person at the meeting unless you obtain a "legal proxy" from the Intermediary (usually your broker) that is the record holder of the shares, giving you the right to vote the shares at the meeting. The meeting will be held virtually on Thursday, May 25, 2023 at 2:00 p.m. Pacific Time.

To attend the meeting, you must pre-register no later than May 25, 2023, 2:00 p.m. Pacific Time by visiting www.proxydocs.com/AMRS and using your unique control number provided in your Notice, proxy card or voting instruction form. Upon completing your pre-registration, you will receive instructions via email, including your unique weblink to access the meeting. Upon accessing the meeting, you will find a voting option on the landing page. If you have submitted your votes prior to the meeting and wish to change your vote, you may do so when you access the virtual meeting.

Whether or not you plan to attend the Annual Meeting, we urge you to vote and submit your proxy in advance of the meeting. For information on how to vote prior to the Annual Meeting, see *"How can I vote my shares without attending the meeting?"*

How can I ask questions during the meeting?

During the pre-registration process, you will be able to submit questions for the question and answer session that will immediately follow the adjournment of the

Annual Meeting. We will answer pre-submitted questions that comply with the meeting rules of conduct, subject to time constraints.

How can I vote my shares without attending the meeting?

Whether you hold shares directly as a registered stockholder of record or beneficially in street name, you may vote without attending the meeting. You may vote by granting a proxy or, for shares held beneficially in street name, by submitting voting instructions to

your broker, bank or other Intermediary. In most cases, you will be able to do this by using the Internet, by telephone or by mail according to the instructions above.

Why did I receive a Notice of Internet Availability of Proxy Materials in the mail instead of a full set of proxy materials?

We are pleased to take advantage of the SEC rule that allows companies to furnish their proxy materials over the Internet. Accordingly, we have sent to most of our stockholders of record and beneficial owners a Notice of Internet Availability of Proxy Materials. Instructions on how you can access our Annual Report and Proxy Statement and other soliciting materials on the Internet or, if you wish, request a printed set of such materials, a list of the matters to be considered at the 2023

Annual Meeting, and instructions as to how your shares can be voted may be found in the Notice. We are using the Internet as our primary means of furnishing proxy materials to our stockholders. As a result, most stockholders will not receive paper copies of our proxy materials. We will instead send most stockholders a Notice with instructions for accessing the proxy materials and voting over the Internet. The Notice also provides information on how stockholders

can obtain paper copies of our proxy materials if they wish to do so.

If your shares are held of record by a broker, bank or other custodian, nominee, trustee or fiduciary (an “Intermediary”) and you have not given your Intermediary specific voting instructions, your Intermediary will NOT be able to vote your shares with respect to most of the proposals, including the election of directors.

If you do not provide voting instructions over the Internet, by telephone, or by returning a completed, signed and dated proxy card or voting instruction form, your shares will not be voted with respect to those matters. Even if you have voted by proxy, you may still vote in person if you attend the meeting. Please note, however, that if your shares are held of record by an Intermediary and you wish to vote at the meeting, you must obtain a proxy issued in your name from that Intermediary.

Why did I receive a full set of proxy materials in the mail instead of a Notice of Internet Availability of Proxy Materials?

Some stockholders may have instructed our transfer agent or their Intermediary to deliver stockholder communications, such as proxy materials, in paper form. If you would prefer to receive your proxy materials over the Internet, please follow the

instructions provided on your proxy card or voting instruction form to vote using the Internet and, when prompted, indicate that you agree to receive or access stockholder communications electronically in future years.

Can I vote my shares by filling out and returning the Notice?

No. The Notice will, however, provide instructions on how to vote by Internet, by telephone, by requesting and returning a paper proxy card or voting instruction

form, or by submitting a ballot in person at the meeting.

What is a quorum?

A quorum is necessary to hold a valid meeting. The holders of a majority of our outstanding shares of common stock as of the record date must be present in person or represented by proxy at the meeting in order for there to be a quorum, which is required to hold the meeting and conduct business. If there is no quorum, the holders of a majority of the shares present at the meeting may adjourn the meeting to another date.

You will be counted as present at the meeting if you are present and entitled to vote in person at the meeting or you have properly submitted a proxy card or voting instruction form, or voted by telephone or over the Internet. Both abstentions and broker non-votes (as described below) are counted for the purpose of determining the presence of a quorum.

What proposals will be voted on at the meeting?

There are five proposals scheduled to be voted on at the meeting:

- **Proposal 1**—Election of the four Class I directors nominated by the Board and named herein to serve on the Board for a three-year term.
- **Proposal 2**—Ratification of the appointment of Macias Gini & O’Connell LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2023.
- **Proposal 3**—Approval of a non-binding advisory vote on the compensation of our named executive officers.
- **Proposal 4**—Approval of non-binding advisory vote on the frequency of future stockholder say-on-pay votes.
- **Proposal 5**—Approval of an amendment to our restated Certificate of Incorporation to effect an increase in the total number of our authorized shares from 555,000,000 to 755,000,000 and in the total number of authorized shares of common stock from 550,000,000 to 750,000,000.

No appraisal or dissenters' rights exist for any action proposed to be taken at the meeting. We will also consider any other business that properly comes before the meeting. As of the date of this Proxy Statement, we are not aware of any other matters to

be submitted for consideration at the meeting. If any other matters are properly brought before the meeting, the persons named in the enclosed proxy card or voting instruction form will vote the shares they represent using their best judgment.

How does the Board recommend I vote on the proposals?

The Board recommends that you vote:

- FOR each of the director nominees named in this Proxy Statement;
- FOR the ratification of Macias Gini & O'Connell LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2023;
- FOR the non-binding advisory vote on the compensation of our named executive officers;
- For the non-binding advisory vote on a frequency of every ONE YEAR for future stockholder say-on-pay votes; and
- FOR the amendment to our restated Certificate of Incorporation to increase the total number of authorized shares of our common stock

What happens if I do not give specific voting instructions?

If you are a stockholder of record and you either indicate when voting on the Internet or by telephone that you wish to vote as recommended by the Board, or, if you receive printed proxy materials, you sign and return a proxy card without giving specific voting instructions, then the proxy holders will vote your shares in the manner recommended by the Board on all matters presented in this Proxy Statement and as the proxy holders may determine in their discretion with respect to any other matters properly presented for a vote at the meeting.

If you are a beneficial owner of shares held in street name and do not provide the Intermediary that holds your shares with specific voting instructions, under stock market rules, the Intermediary that holds your shares may generally vote at its discretion only on

routine matters and cannot vote on non-routine matters. If the Intermediary that holds your shares does not receive specific instructions from you on how to vote your shares on a non-routine matter, the Intermediary will inform the inspector of election that it does not have the authority to vote on this matter with respect to your shares. This is generally referred to as a "broker non-vote." For purposes of voting on non-routine matters, broker non-votes will not count as votes cast on such matters and, therefore, will not affect the outcome of Proposals 1 or 4 (which require a plurality of votes properly cast in person or by proxy), or Proposal 3 (which requires a majority of votes properly cast in person or by proxy).

Which proposals are considered "routine" and which are considered "non-routine"?

The ratification of the appointment of Macias Gini & O'Connell LLP as our independent registered public accounting firm for 2023 (Proposal 2) and the approval of the amendment to our restated Certificate of Incorporation to effect an increase in the total number of authorized shares of our common stock (Proposal 5) are considered "routine" matters under applicable rules. The election of directors (Proposal 1), the non-

binding advisory stockholder say-on-pay vote (Proposal 3), and the non-binding advisory vote on the frequency of the stockholder say-on-pay vote (Proposal 4) are considered non-routine under applicable rules. An Intermediary cannot vote without instructions on non-routine matters, and therefore we expect there to be broker non-votes on Proposals 1, 3, and 4.

How are votes counted?

Votes will be counted by the inspector of election appointed for the meeting. The inspector of election will separately count “For” and “Withhold” votes and any broker non-votes in the election of directors (Proposal 1). With respect to the other proposals, the inspector of election will separately count “For” and

“Against” votes, abstentions and any broker non-votes. Abstentions and broker non-votes will not count toward the vote totals for Proposal 1 but will be counted with the same effect as an “Against” vote for Proposal 3, and 4.

What is the vote required to approve each of the Board’s proposals?

- **Proposal 1—Election of the Board’s four nominees for director.** The affirmative vote of a plurality, or the largest number, of the shares of our common stock present in person or by proxy at the Annual Meeting and entitled to vote is required for the election of the directors. This means that the four director nominees who receive the highest number of “For” votes (among votes properly cast in person or by proxy) will be elected to the Board. Broker non-votes will not count toward the vote total for this proposal and therefore will not affect the outcome of this proposal.
- **Proposal 2—Ratification of the appointment of Macias Gini & O’Connell LLP** as our independent registered public accounting firm for the fiscal year ending December 31, 2023. This proposal must receive a “For” vote from the holders of a majority of the shares of our common stock properly casting votes for or against this proposal at the Annual Meeting in person or by proxy. Abstentions will not count toward the vote total for this proposal and therefore will not affect the outcome of this proposal.
- **Proposal 3—Approval of a non-binding advisory vote on the compensation of our named executive officers.** This proposal must receive a “For” vote from the holders of a majority of the shares of common stock properly casting votes for or against this proposal at the Annual Meeting (in person or by proxy). Abstentions and broker non-votes will not be counted toward the vote total for this proposal and therefore will not affect the outcome of this proposal.
- **Proposal 4—Approval of a non-binding advisory vote on the frequency of future stockholder say-on-pay votes.** The frequency choice receiving the most votes (among votes properly cast at the Annual Meeting in person or by proxy) will be approved. Shares represented by executed proxies that do not indicate a vote for one of the three choices will be voted by the proxy holders for the “One Year” choice.
- **Proposal 5—Approval of an amendment to our restated Certificate of Incorporation to increase the total number of authorized shares of our common stock.** This proposal must receive a “For” vote from the holders of a majority of our outstanding shares of common stock entitled to vote at the Annual Meeting, irrespective of the number of votes cast on this proposal at the meeting. Abstentions will be counted and have the same effect as an “Against” vote for this proposal.

How can I revoke my proxy and change my vote after I return my proxy card?

You may revoke your proxy and change your vote at any time before the final vote at the meeting. If you are a stockholder of record, you may do this by signing and submitting a new proxy card with a later date (if you receive printed proxy materials), by using the Internet or voting by telephone, or by attending the meeting

and voting in person. Attending the meeting alone will not revoke your proxy unless you specifically request that your proxy be revoked. If you hold shares through an Intermediary, you must contact that Intermediary directly to revoke any prior voting instructions.

How can I find out the voting results of the meeting?

The preliminary voting results will be announced at the meeting. The final voting results will be reported in a Current Report on Form 8-K, which we expect to file with the SEC within four business days after the meeting. If final voting results are not available within four business days after the meeting, we intend to file

a Current Report on Form 8-K reporting the preliminary voting results within that period, and subsequently report the final voting results in an amendment to the Current Report on Form 8-K within four business days after the final voting results are known to us.

Other Matters

Householding of Proxy Materials

The SEC has adopted rules that permit companies and Intermediaries to satisfy the delivery requirements for Proxy Statements and Annual Reports, including Notices of Internet Availability of Proxy Materials, with respect to two or more stockholders sharing the same address by delivering a single Notice of Internet Availability of Proxy Materials (the “Notice”) or other proxy materials addressed to those stockholders. This process, which is commonly referred to as “householding,” potentially means extra convenience for stockholders and cost savings for companies.

A number of brokers with account holders who are Amyris stockholders may be “householding” our proxy materials. A single copy of the Notice or other proxy materials may be delivered to multiple stockholders sharing an address unless contrary instructions have been received from the affected stockholders. Once you have received notice from your broker that they will be “householding” communications to your address, “householding” will continue until you are notified otherwise or you submit contrary instructions. If, at any time, you no longer wish to participate in “householding” and would prefer to receive a separate Notice or other proxy materials, you may: (1) notify your broker; (2) direct your written request to Amyris Investor Relations at 5885 Hollis Street, Suite 100, Emeryville, California 94608 or to investor@amyris.com; or (3) contact Amyris Investor Relations at (510) 740-7481. Stockholders who currently receive multiple copies of the Notice or other proxy materials at their addresses and would like to request “householding” of their communications should contact their brokers or Amyris Investor Relations at the address or telephone number above. In addition, we will promptly deliver, upon written or oral request to the address or telephone number above, a separate copy of the Notice or other proxy materials to a stockholder at a shared address to which a single copy of such documents was delivered.

Available Information

We will provide to any stockholder entitled to vote at our 2023 Annual Meeting of Stockholders, at no charge, a copy of our Annual Report on Form 10-K for the fiscal year ended December 31, 2022 (the “Form 10-K”), including the financial statements and the financial statement schedules contained in the Form 10-K. We make our Annual Reports on Form 10-K, as well as our other SEC filings, available free of charge through the investor relations section of our website located at <https://investors.amyris.com/annual-reports> as soon as reasonably practicable after they are filed with or furnished to the SEC. Information contained on or accessible through our website or contained on other websites is not deemed to be part of this Proxy Statement. In addition, you may request a copy of the Form 10-K by sending an e-mail request to Amyris Investor Relations at investor@amyris.com, calling (510) 740-7481, or writing to Amyris Investor Relations at 5885 Hollis Street, Suite 100, Emeryville, California 94608.

Stockholder Proposals to be Presented at Next Annual Meeting

Stockholder proposals may be included in our Proxy Statement for an annual meeting so long as they are provided to us on a timely basis and satisfy the other conditions set forth in SEC regulations under Rule 14a-8 regarding the inclusion of stockholder proposals in company-sponsored proxy materials. For a stockholder proposal to be considered for inclusion in our Proxy Statement for the annual meeting to be held in 2024, we must receive the proposal at our principal executive offices, addressed to the Secretary, no later than December 15, 2023. To comply with the universal proxy rules (once effective), stockholders who intend to solicit proxies in support of director nominees other than the company’s nominees must provide notice that sets forth the information required by Rule 14a-19 under the Exchange Act no later than March 11, 2024. In addition, a stockholder proposal that is not intended for inclusion in our Proxy Statement under Rule 14a-8 may be brought before the 2024 Annual

Meeting so long as we receive information and notice of the proposal in compliance with the requirements set forth in our bylaws, addressed to the Secretary at our principal executive offices, not earlier than February 10, 2024 nor later than March 11, 2024.

The Board knows of no other matters that will be presented for consideration at the Annual Meeting. If any other matters are properly brought before the meeting, it is the intention of the persons named in the accompanying proxy to vote on such matters in accordance with their best judgment.

By Order of the Board of Directors

/s/ Doris Choi

Doris Choi

General Counsel and Secretary

April 11, 2023

Amyris, Inc.

5885 Hollis Street, Suite 100

Emeryville, California 94608

Forward-Looking Statements

This Proxy Statement contains “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. These statements may be identified by their use of such words as “expects,” “anticipates,” “intends,” “hopes,” “believes,” “could,” “may,” “will,” “projects”, “continue”, and “estimates,” and other similar expressions, but these words are not the exclusive means of identifying such statements. We caution that a variety of factors, including but not limited to the following, could cause our results to differ materially from those expressed or implied in our forward-looking statements: risks related to Amyris’ liquidity and ability to fund operating and capital expenses, risks related to its financing activities, risks related to potential delays or failures in development, regulatory approval, production, launch and commercialization of products and brands, risks related to global inflation and policy measures undertaken to address inflation, the COVID-19 pandemic and any other geopolitical events, including the Ukraine conflict, resulting in global economic, financial and supply chain disruptions that may negative impact Amyris’ business operations and financial results or cause market volatility, risks related to Amyris’ reliance on third parties particularly related to supply chain; and other risks detailed from time to time in filings we make with the Securities and Exchange Commission, including our Annual Reports on Form 10-K, our Quarterly Reports on Form 10-Q and our Current Reports on Form 8-K. Except as required by law, we assume no obligation to update any forward-looking information that is included or incorporated by reference in this Proxy Statement, whether as a result of new information, future events, or otherwise.

Appendix A – Certificate of Amendment of Restated Certificate of Incorporation

Amyris, Inc., a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware (the “**Corporation**”),

DOES HEREBY CERTIFY THE FOLLOWING:

FIRST: That the name of the Corporation is Amyris, Inc.

SECOND: That the date on which the Certificate of Incorporation of the Corporation was originally filed with the Secretary of State of Delaware is April 15, 2010 under the name Amyris Biotechnologies, Inc.

THIRD: That, at a meeting of the Board of Directors of the Corporation (the “**Board**”), the Board duly adopted resolutions setting forth the following proposed amendment of the Restated Certificate of Incorporation of the Corporation, as amended, declaring said amendment to be advisable and directing the Corporation to submit said amendment to the next annual meeting of the stockholders of said Corporation for consideration thereof, and that, thereafter, pursuant to such resolutions, the Corporation submitted the amendment to the stockholders of the Corporation at such annual meeting of the stockholders of the Corporation duly called and held upon notice in accordance with Section 222 of the Delaware General Corporation Law at which meeting the necessary number of shares as required by statute were voted in favor of said amendment:

Section 1 of Article IV of the Corporation’s Restated Certificate of Incorporation is hereby amended to read in its entirety as follows:

“1. Total Authorized. The total number of shares of all classes of stock that the corporation has authority to issue is Seven Hundred Fifty-Five Million (755,000,000) shares, consisting of two classes: Seven Hundred Fifty Million (750,000,000) shares of Common Stock, \$0.0001 par value per share, and Five Million (5,000,000) shares of Preferred Stock, \$0.0001 par value per share.”

FOURTH: That said amendment was duly adopted in accordance with the provisions of Section 242 of the Delaware General Corporation Law.

PROXY

Appendix A – Certificate of Amendment of Restated Certificate of Incorporation

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment of the Restated Certificate of Incorporation to be signed by its General Counsel and Secretary this day of May, 2023 and the foregoing facts stated herein are true and correct.

AMYRIS, INC.

By: _____
Name: Doris Choi
Title: General Counsel and Secretary

**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, 2022

OR

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

For the transition period from ____ to ____

Commission File Number: 001-34885

AMYRIS, INC.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of incorporation or organization)

55-0856151

(I.R.S. Employer Identification No.)

5885 Hollis Street, Suite 100, Emeryville, California 94608

(Address of principal executive offices and Zip Code)

(510) 450-0761

(Registrant's telephone number, including area code)

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

Title of each class	Trading symbol(s)	Name of each exchange on which registered
Common Stock, \$0.0001 par value per share	AMRS	The Nasdaq Stock Market LLC 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 an emerging growth company. See definitions of "large accelerated filer", "accelerated filer", "smaller reporting company", and "emerging growth company" in Rule 12b-2 of the Exchange Act.

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

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

Indicate by check mark whether the registrant 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 Exchange Act). Yes No

The aggregate market value of the registrant's common stock held by non-affiliates of the registrant as of June 30, 2022, the last business day of the registrant's most recently completed second fiscal quarter, was \$340.4 million based upon the closing price of the registrant's common stock reported for such date on the Nasdaq Global Select Market.

Number of shares of the registrant's common stock outstanding as of March 14, 2023: 366,251,614

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement to be filed for its 2023 Annual Meeting of Stockholders are incorporated by reference into Part III hereof. Such proxy statement will be filed with the Securities and Exchange Commission within 120 days of the end of the fiscal year covered by this Annual Report on Form 10-K.

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AMYRIS, INC.

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Forward-Looking Statements

This Annual Report on Form 10-K contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. All statements contained in this Annual Report on Form 10-K other than statements of historical fact, including any projections of financing needs, revenue, expenses, earnings or losses from operations, or other financial items; any statements of the plans, strategies and objectives of management for future operations; any statements concerning product research, development and commercialization plans and timelines; any statements regarding expected production capacities, volumes and costs; any statements regarding anticipated benefits of our products and expectations for commercial relationships; any other statements of expectation or belief; and any statements of assumptions underlying any of the foregoing, are forward-looking statements. The words “believe,” “may,” “will,” “estimate,” “continue,” “anticipate,” “predict,” “intend,” “expect,” and similar expressions are intended to identify forward-looking statements, but are not the exclusive means of identifying such statements. We have based these forward-looking statements largely on our current expectations and projections about future events and trends that we believe may affect our financial condition, results of operations, business strategy, short-term and long-term business operations and objectives, and financial needs. These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including those described in Part I, Item 1A, “Risk Factors” in this Annual Report on Form 10-K. Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. In light of these risks, uncertainties and assumptions, the future events and trends discussed in this Annual Report on Form 10-K may not occur, and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements contained herein.

We undertake no obligation to revise or publicly release the results of any revision to these forward-looking statements, except as required by law. Given these risks and uncertainties, readers are cautioned not to place undue reliance on such forward-looking statements.

Unless expressly indicated or the context requires otherwise, the terms “Amyris,” the “Company,” “we,” “us,” and “our” in this Annual Report on Form 10-K refer to Amyris, Inc., a Delaware corporation, and, where appropriate, its consolidated entities.

Part I

Item 1. Business

Overview

Amyris is a biotechnology company delivering sustainable, science-based ingredients and consumer products that are better than incumbent options for people and the planet. To accelerate the world's transition to sustainable consumption, we create, manufacture, and commercialize consumer products and ingredients that reach more than 300 million consumers. The largest component of the Company's revenue is derived from marketing and selling Clean Beauty, Personal Care, and Health & Wellness consumer products through our direct-to-consumer e-commerce platforms and a growing network of retail partners. Our proprietary sustainable ingredients are sold in bulk to industrial leaders who serve Flavor & Fragrance (F&F), Nutrition, Food & Beverage, and Clean Beauty & Personal Care end markets.

The ingredients and consumer products we produce are powered by our Lab-to-Market™ technology platform. This technology platform creates a portfolio connection between our proprietary science and formulation expertise, manufacturing capability at industrial scale, and expertise in commercializing high performance, sustainable products that give consumers the power to choose products that benefit the planet. Our technology platform offers advantages to traditional methods of sourcing similar ingredients (such as petrochemistry, unsustainable agricultural practices, and extraction from organisms). These advantages include, but are not limited to, renewable and ethical sourcing of raw materials, less resource-intensive production, minimal impact on sensitive ecosystems, enhanced purity and safety profiles, less vulnerability to climate disruption, and improved supply chain resilience. We combine molecular biology and genetic engineering to produce sustainable materials that are scarce or endangered resources in nature. We leverage state-of-the-art machine learning, robotics, and artificial intelligence, which enable our technology platform to rapidly bring new innovation to market.

Our state-of-the-art infrastructure includes industry-leading strain engineering and lab automation located in Emeryville, California; pilot-scale production facilities in Emeryville and Campinas, Brazil; a demonstration-scale facility in Campinas; a commercial scale production facility in Leland, North Carolina (which is part of our Aprinova joint venture); and a commercial scale production facility in the State of Sao Paulo, Brazil. A wide variety of feedstocks for precision fermentation exists but we source Brazilian sugarcane for our large-scale production because of its supply resilience, renewability, low cost, and relative price stability. As of December 31, 2022, we have commissioned three lines of our new purpose-built, large-scale precision fermentation facility in Brazil, which we anticipate will accommodate the manufacturing of up to five products concurrently. We expect to commission the remaining lines in 2023. Pending full commissioning of the new facility, we continue to manufacture our products at manufacturing sites, some of which are third party, in Brazil, the United States, and Europe.

Consumer Revenue

We began 2022 with eight consumer brands, Biossance® clean beauty skincare, JVN™ haircare, Rose Inc.™ clean color cosmetics, Pipette® clean baby skincare, Costa Brazil® luxury skincare, OLIKA™ clean wellness, Purecane™ zero-calorie sweetener, and Terasana® clean skincare. During 2022, we added MenoLabs™, a brand focused on healthy living and menopause wellness, EcoFabulous™ clean beauty for Gen-Z consumers, and Stripes™ (peri)menopausal wellness; and prepared to discontinue the Terasana business. In the first quarter of 2023, we launched 4U by Tia™, a new clean haircare line exclusively available in Walmart.

We have various retail partnerships associated with our consumer business including Sephora, Target, Amazon, and Walmart. We also partner with various brand ambassadors who share our vision for a sustainable future to build awareness of the chemistry that backs our consumer brands and to build brand recognition, including Reese Witherspoon for Biossance, Jonathan Van Ness for Biossance and JVN haircare, Rosie Huntington-Whiteley for Rose Inc., Naomi Watts for Stripes, and Tia Mowry for 4U by Tia. We have used equity, royalty, or consulting arrangements to remunerate these ambassadors for their engagement with our brands.

Ingredients License Revenue

We partner with leaders in the broader ingredients sector to bring our unique, sustainably-sourced ingredients to market. Through these partnerships, we realize the market potential of our ingredients by leveraging their large go-to-market footprint, commercial relationships, and formulation capability. We have active partnerships with Koninklijke DSM N.V. (DSM) for our F&F portfolio, Ingredion Incorporated (Ingredion) for Reb M, Yifan Pharmaceutical Co., Ltd. (Yifan) for vitamins, MF 92 VENTURES LLC (Minerva) for the sustainable production and distribution of products in the recombinant protein segment, and ImmunityBio (ImmunityBio) for COVID-19 vaccines.

In 2017, we monetized the use of one of our mature molecules in certain fields of use by licensing farnesene to DSM. We also sold to DSM our subsidiary, Amyris Brasil Ltda., which owned and operated a biofuel-oriented manufacturing facility in Brotas, Brazil that manufactures farnesene. On March 31, 2021, we entered into a license agreement and asset purchase agreement pursuant to which DSM acquired exclusive rights to our F&F product portfolio, which included intellectual property licenses and the assignment of related supply agreements, for upfront consideration of \$150 million, and up to \$235 million of contingent consideration if certain commercial milestones are achieved between 2022 and 2024 (for payout in 2023 through 2025). We also entered into a 15-year agreement to manufacture certain F&F ingredients for DSM for supply to third parties.

In the second quarter of 2018, we successfully demonstrated our industrial process at full-scale to produce a high-purity, zero-calorie sweetener derived from sugarcane, and in the fourth quarter of 2018, we were notified by the U.S. Food and Drug Administration (FDA) that we received its Generally Recognized As Safe (GRAS) designation concurrence and began producing commercial quantities of Reb M. Our Reb M is produced from sugarcane, making it more sustainable and cost efficient than other natural sweeteners, and we believe its profile provides advantages in taste and total process economics for blends and formulations. In June 2021, we entered into an intellectual property license agreement with PureCircle Limited (PureCircle), a subsidiary of Ingredion, whereby we (i) granted certain intellectual property licenses to PureCircle to make, have made, commercialize, and advance the development of sustainably sourced, zero-calorie, nature-based sweeteners and potentially other types of fermentation-based ingredients, as the exclusive global business-to-business commercialization partner for our sugar reduction technology, (ii) entered into a product supply and profit sharing agreement to provide manufacturing services and products to PureCircle, and (iii) assigned and transferred certain customer contracts to PureCircle related to the sale and distribution of Reb M. We continue to own and market our Purecane® consumer brand offering of tabletop and culinary sweetener products. As consideration for the license and product supply agreements, we received a \$10 million license fee at closing and may receive additional payments of up to \$35 million upon achievement of certain milestones related to Reb M sales and manufacturing cost targets. Additionally, under the product supply and profit sharing agreement, we will earn revenues from product sales to PureCircle and a profit share from future product sales, including RebM (alone or in a blended product), by PureCircle.

In the third quarter of 2018, we entered into a license and collaboration agreement with a subsidiary of Yifan, a leading Chinese pharmaceutical company. Collaboration and research and development work continue under two active licenses with a subsidiary of Yifan.

In March 2021, we entered into agreements, under which DSM acquired certain exclusive rights to our flavor and fragrance (F&F) product portfolio and an exclusive license to our F&F intellectual property, and under which we agreed to manufacture F&F ingredients for DSM for fifteen years.

Research and Development, Joint Ventures, and Collaborations Revenue

From time to time, we enter into joint ventures and collaborations with partners for the commercialization of our ingredients. For example, in 2016, we entered into a joint venture agreement with Nikko Chemicals Co., Ltd., an existing commercial partner of ours, and Nippon Surfactant Industries Co., Ltd., an affiliate of Nikko (collectively, Nikko) to focus on the worldwide commercialization of the Neossance cosmetic ingredients business. The joint venture was renamed Aprinova, LLC. In December 2022, we entered into an agreement to purchase membership units of the Aprinova joint venture from Nikko, which, upon closing will result in us owning 99% of the joint venture. See Note 16, "Subsequent Events" in Part II, Item 8 of this Annual Report on Form 10-K for developments regarding our Aprinova joint venture subsequent to December 31, 2022.

In 2020, we formed a new entity, Clean Beauty Collaborative, with Rosie Huntington-Whiteley to collaborate in the development of a new line of cosmetic products leveraging the Rose Inc. brand and content platform and our bioengineered ingredients, including Squalane and Hemisqualane. In 2021, Rose Inc. launched its first collection of clean cosmetics and skincare products.

In 2021, we entered into a joint venture agreement with ImmunityBio, a clinical-stage immunotherapy company, for the development of vaccines. In connection with entering into license and product supply agreements with PureCircle in June 2021 as described above, Ingredion purchased a minority membership interest in Amyris RealSweet LLC (RealSweet), our subsidiary, which owns the new precision fermentation facility in Brazil.

We also work with committed long-term collaboration partners who are leaders in their respective sectors. These partners provide rapid access to large-scale volumes, expertise regarding current ingredient demand, and an understanding of costs and other specifications that support market adoption. These partnerships assist us in ensuring market fit, technology need, and scale. Our partners access our Lab-to-Market technology platform and industrial fermentation expertise to reduce environmental impact, enhance performance, reduce supply and price volatility, and improve costs. Our partners include F&F companies such as Firmenich S.A. (Firmenich) and Givaudan International, SA (Givaudan), nutrition companies such as DSM and Yifan, and food ingredient companies such as Ingredion. We have also worked closely with the U.S. government, including the U.S. Department of Energy and the Defense Advanced Research Projects Agency (DARPA).

Technology

Our Lab-to-Market technology platform utilizes highly optimized and automated molecular biology, analytical, and process development tools combined with machine learning algorithms and statistical models to transform the way microbes metabolize sugars. Specifically, we engineer microbes, such as yeast, and use them as catalysts to convert sugar, through fermentation, into the chemicals used in our everyday lives. We believe that we are one of the first companies to apply microbial engineering towards the manufacturing of a wide range of molecules with commercial applications. Over the last decade, this has required significant, targeted investment in our research and development capabilities. To date, we have successfully scaled up 15 molecules with multiple molecules in development. This investment has also resulted in the development of a suite of strains capable of producing greater than 250 molecules across 15 chemical classes.

In addition to investment of our own funds, we have also been awarded multiple grants from the U.S. government. These funds have been used to develop our Lab-to-Market technology platform comprised of highly optimized strain and process development methods, sophisticated machine learning algorithms and statistical models, and proprietary robotic tools.

We built our Lab-to-Market technology platform based on commercial and technological considerations. A few of the commercial considerations that impact our molecule selection are:

- Our core activities in Clean Beauty & Personal Care and Health & Wellness;
- Industries or commercial opportunities where our technology can deliver the best performance, sustainability profile and value, in accordance with our No Compromise® commitment; and
- Economic opportunities based on either the size of the total addressable market or the ability of our formulation to disrupt the market.

Certain technological considerations impact our molecule development selection such as our ability to:

- Leverage our existing technology platform in new ways based on prior learnings relating to metabolic pathways and chemical properties;
- Amplify value by differentiating new applications;
- Match new chemical classes with new end markets; and
- Valorize fermentation process and other agricultural waste streams.

Strain Engineering

Researchers around the world are continuously learning how the complex biological processes in organisms work. We believe that the best method for development of commercially viable strains is to test as many hypotheses as accurately and quickly as possible to accelerate this learning process. Our proprietary Lab-to-Market technology platform allows us to design, build, and analyze thousands of strains in a single experiment, thereby enabling us to test thousands of hypotheses simultaneously. Extensive automation across our pipeline has resulted in significant decreases in the average time and cost to engineer a manufacturing-ready strain. In total, we have had an exponential increase in the number of molecules in our pipeline in active development with relatively minimal increases in our yearly R&D spend.

Importantly, through our lab-scale and pilot-plant fermentation operations and our proprietary analytical tools, we are now able to predict, with high reliability, the performance of candidate strains at industrial scale.

Process Development

In order to maximize the quantity and quality of products we produce, we have invested extensively in advanced capabilities (including prediction models and analytical tools), which include fermentation optimization and the development of scalable product isolation techniques which enable cost effective manufacturing. We have developed scalable manufacturing processes for a wide variety of product types, including insoluble liquids and solids, intracellular products, water soluble solids, and gaseous products. Recently developed products have required increasingly complex purification strains and stringent product purity requirements, yet the overall time to develop a scalable, cost-effective manufacturing process has decreased due to a combination of increased automation and experience.

Upscaling and Commercialization

Microbial engineering can be unpredictable, and successful commercialization depends heavily on expertise in process scale-up and manufacturing. We have successfully scaled up and commercially manufactured 15 distinct molecules included in thousands of leading global brands. Our process development and technology transfer expertise results in accelerated speed to market, lower overall product development costs, and a significantly lower risk profile for any project we undertake. Strains and fermentation processes must be efficiently optimized to enable cost-effective production; downstream recovery and purification processes must be identified and streamlined to achieve appropriate product purity and maximize facility throughput; and all unit operations must be

tested for performance in appropriate scaled-down models before they are implemented at commercial scale manufacturing facilities. Our unique infrastructure to support this scale-up process includes hundreds of lab-scale fermentors (0.25 to 2 liter) and pilot plants in our facilities in Emeryville, California and Campinas, Brazil, both of which are equipped with a wide range of downstream processing unit operations. In addition, five years of experience owning and operating the 1,200,000-liter production facility in Brotas, Brazil (sold in late 2017) enabled us to refine these scaled-down systems to mimic the commercial scale fermentation and recovery tools so that our findings may translate predictably from lab- and pilot-scale to commercial scale.

Manufacturing

We are currently manufacturing our ingredients using our newly constructed plant at Barra Bonita, Brazil and a strategic network of contract manufacturers in Brazil, the United States and Europe. Until December 2017, we owned and operated a biofuel-oriented production facility located in Brotas, Brazil, which we sold to DSM because it was no longer a strategic fit with our portfolio. We subsequently entered into a supply agreement with DSM to purchase intermediate product from the Brotas facility.

We are currently operating and finalizing commissioning of our new, multi-line specialty ingredients manufacturing facility in Barra Bonita, Brazil. The first three production lines were finalized and operational by the second half of 2022, with initial production commencing in June 2022. Once fully commissioned, this facility will enable us to manufacture up to five products concurrently. In May 2022, we acquired Interfaces, a manufacturing facility for the scale up and development of our formulas and the production of our clean beauty products in the State of Sao Paulo, Brazil.

For many of our products, we perform additional distillation or finishing steps to convert initial target molecules into other finished products. We have a manufacturing facility in Leland, North Carolina through Aprinova, our joint venture with Nikko, to convert our Biofene into Squalane and other final products. See above under “Research and Development, Joint Ventures, and Collaborations RevenSue” for more information regarding our Aprinova joint venture.

Product Distribution and Sales

We distribute and sell our sustainable consumer products to retailers and directly to consumers through online e-commerce websites. We distribute and sell our ingredients directly to distributors, formulators, collaboration partners, or through joint ventures, depending on the end market. Generally, our R&D collaboration agreements include commercial terms, and sales are contingent upon achievement of technical and/or commercial milestones.

The table below shows our revenue for the year ended December 31, 2022:

(In thousands)	Renewable Products	Licenses and Royalties	Collaborations, Grants and Other	Total Revenue
DSM (related party)	\$ 18,172	\$31,781	\$ 3,994	\$ 53,947
All other customers	204,151	653	11,096	215,900
Total revenue	\$222,323	\$32,434	\$15,090	\$269,847

Intellectual Property

Our success depends in large part upon our ability to obtain and maintain proprietary protection for our products and technologies and to operate without infringing on the proprietary rights of others. Our policy is to protect our proprietary position by, among other methods, filing for patent applications on inventions that are important to the

development and conduct of our business with the U.S. Patent and Trademark Office and its foreign counterparts. We seek to avoid infringement by monitoring patents and publications in our product areas and technologies to be aware of developments that may affect our business, and to the extent we identify such developments, evaluate and take appropriate courses of action.

As of December 31, 2022, we had 689 issued U.S. and foreign patents and 347 pending U.S. and foreign patent applications that are owned or co-owned by or licensed to us. We also use other forms of protection (such as trademark, copyright, and trade secret) to protect our intellectual property, particularly where we do not believe patent protection is appropriate or obtainable. We aim to take advantage of all of the intellectual property rights that are available to us and believe that this comprehensive approach provides us with a strong proprietary position.

Patents extend for varying periods according to the date of patent filing or grant, and the legal term of patents in various countries where patent protection is obtained. The actual protection afforded by patents, which can vary from country to country, depends on the type of patent, the scope of its coverage and the availability of legal remedies in the country.

We further protect our proprietary information by requiring our employees, consultants, contractors, and other advisers to execute nondisclosure and assignment of invention agreements upon commencement of their respective employment or engagement. Agreements with our employees also prevent them from bringing the proprietary rights of third parties to us. We also require confidentiality or material transfer agreements from third parties that receive our confidential data or materials.

Trademarks

Amyris, the Amyris logo, Biofene, Biossance, Costa Brazil, EcoFabulous, Hemisqualane, JVN, Lab-to-Market, Menolabs, No Compromise, OLIKA, Pipette, Purecane, Rose Inc., Stripes, and Terasana are trademarks or registered trademarks of Amyris, Inc. or its subsidiaries. This report also contains trademarks and trade names of other businesses that are the property of their respective holders.

Competition

We expect that our products will compete with products produced from traditional sources as well as from alternative production methods (including the intellectual property underlying such methods) that established enterprises and new companies are seeking to develop and commercialize. We view our main competition to be from products that are based on traditional chemistries or are derived from non-sustainable sources that we are working to replace with our sustainable products.

Clean Beauty & Personal Care

We develop and sell cosmetic ingredients and consumer products in the Clean Beauty & Personal Care markets, creating a competitive landscape that includes ingredient suppliers, Clean Beauty & Personal Care, and consumer goods companies. Most skincare ingredients are derived from plant and animal sources or created using chemical synthesis. Plant- and animal-sourced ingredients are often higher in cost, lower in purity, and have a greater impact on the environment versus our products. Products derived from chemical synthesis are often produced at a low cost but have ramifications on sustainability as well as non-natural sourcing. There are also companies that are working to develop products using similar technology to us.

Health & Wellness

Many active ingredients in the nutraceutical market are made via chemical synthesis by suppliers that have a deep chemistry know-how and production facilities, including ingredient suppliers. We may compete directly with these

companies with respect to specific ingredients or attempt to provide customers with a natural alternative that is more cost-effective or higher performing than those derived from chemistry. For food ingredients, we also compete with companies that produce products from plant- and animal-derived sources as well as with companies that are also developing biotechnology production solutions to produce specific molecules.

Flavor & Fragrance

The main competition in the F&F and cosmetic actives markets is from products derived from plant and animal sources as well as chemical synthesis. The products derived from plant and animal sources are typically produced at higher cost and lower purity, and create a greater impact on the environment compared to our products. Products derived from chemical synthesis are often produced at a low cost but may have ramifications on sustainability and on non-natural sourcing. There are also companies that are working to develop products using similar technology to us.

Competitive Factors

We believe the primary competitive factors in our target markets are:

- product performance and other measures of quality;
- product price;
- product cost;
- sustainability and social responsibility;
- resilience in the ingredient supply value chain;
- dependability of naturally supplied ingredients; and
- infrastructure compatibility of products.

We believe that for our products to succeed in the market, we must demonstrate that they are comparable or better alternatives to existing products and to any alternative products that are being developed for the same markets based on some combination of performance, pricing, product cost, availability, and consumer preference characteristics.

Regulatory Matters

Environmental Regulations

Our development and production processes involve the use, generation, handling, storage, transportation, and disposal of hazardous chemicals and biological materials. We are subject to a variety of federal, state, local, and international laws, regulations and permit requirements governing the use, generation, manufacture, transportation, storage, handling, and disposal of these materials in the United States, Canada, Latin America (Brazil), Europe, the United Kingdom, China, and other countries where we operate or may operate or sell our products in the future. These laws, regulations, and permits can require expensive fees, pollution control equipment, or operational changes to limit actual or potential impact of our technology on the environment and violation of these laws could result in significant fines, civil sanctions, permit revocation, or costs from environmental remediation. We believe we are currently in substantial compliance with applicable environmental regulations and permitting. However, future developments including the commencement of, or changes in, the processes relating to commercial manufacturing of one or more of our products, more stringent environmental regulation, policies and enforcement, the implementation of new laws and regulations or the discovery of unknown environmental conditions may require expenditures that could have a material adverse effect on our business, results of operations or financial condition.

Genetically Modified Regulations

The use of genetically modified microorganisms (GMMs), such as our yeast strains, is subject to laws and regulations in many countries. In the United States, the Environmental Protection Agency (EPA) regulates the commercial use of GMMs as well as potential industrial products produced from the GMMs. Various states within the United States could choose to regulate products made with GMMs as well. While the strain of genetically modified yeast that we use, *S. cerevisiae*, is eligible for exemption from EPA review because of its GRAS status, we must satisfy certain criteria to achieve this exemption, including but not limited to, use of compliant containment structures and safety procedures. In Brazil, GMMs are regulated by the National Biosafety Technical Commission (CTNBio) under its Biosafety Law No. 11.105-2005. We have obtained commercial approvals from CTNBio to use our GMMs in a contained environment in our Brazil facilities for research and development purposes, in manufacturing and at contract manufacturing facilities in Brazil. In Europe, we are subject to similar regulations. We have obtained approvals from Spain's Ministry of Environment for our production activities located in this country and may obtain additional national approvals.

Chemical Regulations

Our renewable products may be subject to government regulations in our target markets. In the United States, the EPA administers the requirements of the Toxic Substances Control Act (TSCA), which regulates the commercial registration, distribution, and use of many chemicals. Before an entity can manufacture or distribute significant volumes of a chemical, it needs to determine whether that chemical is listed in the TSCA inventory. If the substance is listed, then manufacture or distribution can commence immediately. If not, then in most cases a "Chemical Abstracts Service" number registration and Pre-Manufacture Notice must be filed with the EPA, which has 90 days to review the filing. A similar requirement exists in Europe under the Registration, Evaluation, Authorization, and Restriction of Chemical Substances (REACH) regulation. For example, in 2013, the EPA registered farnesane as a new chemical substance under the TSCA, which enabled us to manufacture and sell Hemisqualane (Farnesane) without restriction in the United States. Subsequently, in 2016, Hemisqualane was similarly registered in Europe under REACH for manufacturing and sales.

Other Regulations

Certain of our current or emerging products in the Clean Beauty & Personal Care, Health & Wellness, and F&F end markets, including alternative sweeteners, nutraceuticals, dietary supplements, F&F ingredients, skincare ingredients, cosmetic actives, and our proposed cannabinoid products, are subject to regulation by either the FDA or the Drug Enforcement Administration or both, as well as similar agencies of states and foreign jurisdictions where these products are manufactured, sold, or proposed to be sold. Pursuant to the Federal Food, Drug, and Cosmetic Act (FDCA), the FDA regulates the processing, formulation, safety, manufacture, packaging, labeling, and distribution of food ingredients, vitamins, dietary supplements, and cosmetics. Generally, in order to be marketed and sold in the United States, a relevant product must have GRAS status or be pre-market approved and not adulterated or misbranded under the FDCA and relevant regulations issued thereunder. The FDA has broad authority to enforce the provisions of the FDCA applicable to food ingredients, vitamins, dietary supplements, drugs, and cosmetics, including powers to issue a public warning letter to a company, to publicize information about non-compliant products, to request a recall of illegal products from the market, and to request the U.S. Department of Justice to initiate a seizure action, an injunction action, or a criminal prosecution in U.S. courts. Failure to obtain requisite approval from, or comply with the laws and regulations of, the FDA or similar agencies of states and applicable foreign jurisdictions could prevent us from fully commercializing certain of our products. Our proposed cannabinoid products may also be subject to regulation under various federal, state, and foreign-controlled substance laws and regulations.

In addition, certain of our direct-to-consumer products are now subject to the Modernization of Cosmetics Regulation Act of 2022. Cosmetic products are regulated by or under the FDA's oversight. Also, our direct-to-consumer products are subject to the regulations of the U.S. Federal Trade Commission (FTC) and similar agencies of states and foreign jurisdictions where these products are sold or proposed to be sold regarding the advertising of such products. In recent years, the FTC has instituted numerous enforcement actions against companies for failure to have adequate substantiation for claims made in advertising or for the use of false or misleading advertising claims. The FTC has broad authority to enforce its laws and regulations applicable to cosmetics, including the ability to institute enforcement actions which often result in consent decrees, injunctions, and the payment of civil penalties by the companies involved. Failure to comply with the laws and regulations of the FTC or similar agencies of states and applicable foreign jurisdictions could impair our ability to market our direct-to-consumer products.

Human Capital

As of December 31, 2022, we had 1,598 full-time employees, of whom 1,046 were in the United States, 352 were in Brazil, 73 were in Portugal, and 127 were in the United Kingdom. Except for labor union representation and collective bargaining agreements for Brazil-based employees based on labor code requirements in Brazil, none of our employees are represented by a labor union or covered by a collective bargaining agreement. We have never experienced any employment-related work stoppages and consider relations with our employees to be good. Our human capital resources objectives include identifying, recruiting, retaining, incentivizing, and integrating our existing and additional employees. The principal purposes of our equity incentive plans are to attract, retain, and motivate selected employees and consultants through the granting of stock-based compensation awards and, with respect to selected employees, cash-based performance bonus awards.

Diversity, Equity, Inclusion, and Belonging

We are committed to enhancing the diversity of our workforce and promoting a culture of acceptance and equality, diversity equity, inclusion, and belonging throughout the organization. Our board of directors (Board) believes that human capital management, including diversity, equity, inclusion, and belonging (DEIB) initiatives, are important to our success. We conduct an employee engagement survey on an annual basis, and the results of these surveys are discussed with the Leadership, Development, Inclusion, and Compensation Committee of the Board, our Vice President of DEIB and the executive leadership team in order to inform our global diversity strategy.

A Diverse Workforce: Our diversity makes us stronger. We believe diversity increases innovation, creativity, and strategic thinking because teams of people who come from different backgrounds can draw upon their unique experiences and a wider range of knowledge to spark new, collaborative, and innovative ideas.

Promoting Inclusion: We promote employee resource groups (ERGs), which are employee-led groups whose aim is to foster a diverse, and inclusive workplace by creating safe spaces for employees who share common interests and identities to meet and support each other in building community and a sense of belonging. ERGs increase employee engagement, professional development, and retention, which ultimately creates a more equitable and inclusive company culture.

Equal Pay for Equal Work: Equitable pay is a competitive advantage, and we believe in compensating our employees fairly and equitably, regardless of ethnicity, gender, disability, orientation, or other status, while considering individual performance, employees' prior experience, and education. We have instituted practices to ensure salary transparency, as our management is guided on the principle of pay equity, and our compensation structures by job level and geographical market are available to all employees.

Health and Safety

Safety is one of our core values, which means that maintaining a safe and healthy work environment for our people, as well as our communities, resources, and planet, is our highest priority. We have a Safety Committee that is responsible for developing, promoting, and maintaining safety policies and procedures. We provide customized environmental health and safety training, carry out regular facility audits, assist employees with risk assessments, promote responsible and sustainable waste management practices, provide recommended personal protective equipment, and offer a robust ergonomics program in compliance with the California Division of Occupational Health and Safety and the California Department of Public Health.

The global COVID-19 pandemic caused us to take both a short-term and a long-term view of environmental, social, and governance risks and opportunities. Since early 2020, we closely monitored the impact of the global COVID-19 pandemic on all aspects of our business, including the impact on our employees, partners, supply chain, and distribution network. Since the start of the pandemic, we developed a comprehensive response strategy including establishing a cross-functional COVID-19 Task Force, and have applied recommended public health strategies to manage and prevent the spread of COVID-19 among our employees and operations. The COVID-19 pandemic raised the bar on the implementation of business continuity plans to manage the impact future pandemics and any other potential emergency scenarios have on our employees and our business. We successfully managed to sustain ongoing critical production campaigns and infrastructure throughout the pandemic and additionally through several severe weather events such as Hurricane Ian.

Corporate Information

We were originally incorporated in California in 2003 under the name Amyris Biotechnologies, Inc. and then reincorporated in Delaware in 2010 under the name of Amyris, Inc. Our principal executive offices are located at 5885 Hollis Street, Suite 100, Emeryville, California 94608, and our telephone number is (510) 450-0761. Our common stock is listed on The Nasdaq Global Select Market under the symbol "AMRS."

Available Information

Our website address is www.amyris.com. Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and other reports filed pursuant to Sections 13(a) and 15(d) of the Securities Exchange Act of 1934 (the Exchange Act), as well as amendments thereto, are filed with the U.S. Securities and Exchange Commission (SEC) and are available free of charge on our website at investors.amyris.com promptly after such reports are available on the SEC's website. We may use our investors.amyris.com website as a means of disclosing material non-public information and complying with our disclosure obligations under Regulation FD.

The SEC maintains an internet site that contains reports, proxy, information statements, and other information regarding issuers that file electronically with the SEC at www.sec.gov.

The information contained in or accessible through our website or contained on other websites is not incorporated into this filing. Further, any references to URLs contained in this report are intended to be inactive textual references only.

Item 1A. Risk Factors

Risk Factors Summary

Our business faces material risks. In addition to this summary below, you should carefully review the risk factors enumerated in the “Risk Factors” section immediately following this “Risk Factors Summary” section. We may be subject to additional risks and uncertainties not presently known to us or that we currently deem immaterial. Our business, financial condition, results of operations and growth prospects could be materially adversely affected by any of these risks, and the trading price of our common stock could decline by virtue of these risks.

Business and Operational Risks

- Global economic slowdown, geopolitical and COVID-19 impacts on our business and operations;
- Our ability to ship our products on time, without cost exposure or delays;
- Our ability to scale and manage operations;
- Our reliance on contract manufacturers to meet our regulatory requirements, production and delivery goals;
- Our ability to generate revenue through existing and future customers, distributors and collaboration partners;
- Our ability to compete effectively;
- Our ability to effectively integrate acquisitions;
- Our ability to launch majority-owned consumer brands;
- Our ability to ensure the safety of our products;
- Our reliance on collaboration arrangements to fund development and commercialization of our products;
- Our ability to manage the expansion of our international operations; and
- Our ability to manage increasing impacts of climate change, severe weather events, natural disasters and pandemics.

Financial Risks

- Our ability to generate sufficient cash to fund operations and service our debt;
- Our ability to design and maintain effective internal controls;
- Our ability to achieve or sustain profitability given our history of net losses and increased inflation rates;
- Our ability to manage current, or our need to incur future, indebtedness which could impair our flexibility to pursue certain transactions and our ability to operate our business, as well as restrict access to additional capital; and
- Variability of future financial results.

Regulatory, Intellectual Property, and Legal Risks

- Regulatory risks relating to our use of genetically modified feedstocks and yeast strains to produce our products;
- New regulations or changes in regulation relating to our existing or future products or use of customer data, as well as any costs incurred to comply with applicable regulations;
- Our ability to obtain, maintain, protect, and enforce our intellectual property rights; and
- Costs and resources required to manage litigation related to the development and commercialization of our products.

Risks Related to the Ownership of Our Common Stock

- Volatility of our stock price;
- The composition of our capital stock ownership with relevant insiders; and
- Changes in government regulation relating to purchases of our common stock.

Risk Factors

Investing in our common stock involves risk. You should carefully consider the risks and uncertainties described below, together with all of the other information set forth in this Annual Report on Form 10-K, including the consolidated financial statements and related notes, which could materially affect our business, financial condition, results of operations, or growth prospects. If any of the following risks actually occurs, our business, financial condition, results of operations, and growth prospects could be materially and adversely harmed. The trading price of our common stock could decline due to any of these risks, and, as a result, you may lose all or part of your investment.

Business and Operational Risks

Our business is currently adversely affected and could be materially adversely affected in the future by the inflationary impact on key commodities (e.g., sugar prices), recent and potential future impacts of the Ukraine conflict and the COVID-19 pandemic on our supply chain, manufacturing and commercialization activities and other business operations, as well as global economic slowdown which could negatively impact consumer spending and demand.

The COVID-19 pandemic, the ongoing conflict in Ukraine, rising inflation, and global economic slowdown have had, and are expected to continue to have, a negative impact on our global supply chain, cost structure, manufacturing and commercialization activities. Although we have experienced an increase in digital commerce and online purchasing, these macroeconomic effects have, and are expected to continue to have, an adverse effect on consumer spending and overall demand. In addition, if these external pressures impact the financial position of our customers, resale channel partners or any of our collaboration partners, we may have difficulty achieving our growth targets, collecting receivables or milestone and royalty payments, and our business and results of operations could be exposed to risks associated with uncollectible accounts or defaults on contractual payment obligations by our collaboration partners. The duration and severity of any further economic or market impact of the COVID-19 pandemic, the Ukraine conflict, inflation and other geopolitical and economic trends remain uncertain, and there can be no assurance that it will not have an adverse effect on our liquidity and capital resources, including our ability to access capital markets, in the future, on terms that are favorable to us, or at all.

A limited number of customers, distributors and collaboration partners account for a material portion of our revenues. The loss of major customers, distributors or collaboration partners could harm our operating results.

Our revenues have varied materially from quarter to quarter and are dependent on sales to, and collaborations with, a limited number of customers, distributors and/or collaboration partners. We cannot be certain that customers, distributors and/or collaboration partners that have accounted for material revenues in past periods, individually or as a group, will continue to generate similar revenues in any future period. If we fail to renew with, or if we lose, a major customer, distributor or collaboration partner, our revenues could decline if we are unable to replace the lost revenues with revenues from other sources. Furthermore, if we lose one or more of our distributors and cannot replace the distributor in a timely manner or at all, our business, results of operation and financial condition may be materially adversely affected.

We face challenges producing our products at commercial scale and at commercially viable cost, especially as we ramp up operations at our new precision fermentation facility, and we may not be able to commercialize our products to the extent necessary to make a profit or sustain and grow our current business.

To commercialize our products, we must be successful in using our yeast strains to produce target molecules at commercial scale or at a commercially viable cost. If we cannot achieve commercially viable production economics

for enough products to support our business plan, including through establishing and maintaining sufficient production scale and volume, we will be unable to achieve a sustainable products business. Our production costs depend on many factors that could have a negative effect on our ability to offer our planned products at competitive prices, including, in particular, our ability to establish and maintain sufficient production scale and volume, feedstock costs, exchange rates (primarily the Brazil Real versus the U.S. Dollar) and contract manufacturing costs.

We face financial risk associated with scaling up production to reduce our production costs. To reduce per-unit production costs, we must increase production to achieve economies of scale and to be able to sell our products with positive margins. However, if we do not sell production output in a timely manner or in sufficient volumes, our investment in production will lead to higher working capital costs, which harm our cash position and could generate losses. Additionally, we may incur added storage costs and we may face issues related to the decrease in quality of our stored products as well as supply chain delays and disruptions, all of which can adversely affect the value of such products. Since achieving competitive product prices generally requires increased production volumes and our manufacturing operations and cash flows from sales are in their early stages, we have had to produce and sell products at a loss in the past, and may continue to do so as we build our business. If we are unable to achieve adequate revenues from a combination of product sales and other sources, we may not be able to invest in production and we may not be able to pursue our business plans. In addition, in order to attract potential collaboration or joint venture partners, or to meet payment milestones under existing or future collaboration agreements, we have in the past been, and may in the future be, required to guarantee or meet certain levels of production costs. If we are unable to reduce our production costs to meet such guarantees or milestones, our net cash flow will be further reduced.

If we are not able to successfully commence, scale up or sustain operations at existing and planned manufacturing facilities, our customer relationships, business and results of operations may be adversely affected.

A substantial component of our planned production capacity in the near- and long-term depends on successful operations at our existing and potential large-scale production plants. In 2022, we completed construction of our new precision fermentation facility in Brazil, which we expect will allow us to manufacture up to five products concurrently, including our specialty ingredients portfolio and our zero calorie sweetener ingredient. We commenced operations of this factory in the first half of 2022 and had three (of five) production lines operational in the second half of 2022. However, there can be no assurances that we will be able to complete the commissioning of last two remaining production lines on our expected timeline, if at all. Delays or problems in the start-up or operation of such facilities could cause delays in our ramp-up of production and hamper our ability to reduce our production and logistics costs. Delays in construction can occur due to a variety of factors, including regulatory requirements, COVID-19-related factors, and our ability to fund construction and commissioning costs.

Once each production and purification line at this new facility is complete, we must successfully commission them, and they must perform as we expect. If we encounter significant delays in financing, cost overruns, engineering issues, contamination problems, equipment or raw material supply constraints, unexpected equipment maintenance requirements, safety issues, work stoppages or other serious challenges in bringing these facilities online and operating them at commercial scale, including as a result of the impacts of the COVID-19 pandemic, we may be unable to produce our renewable products in the time frame and at the cost we have planned. It is difficult to predict the effects of scaling up production of industrial fermentation to commercial scale, as it involves various risks to the quality and consistency of our molecules. In addition, in order to produce molecules at existing and potential future plants, we have been and may in the future be required to perform thorough transition activities and modify the design of the plant. Any modifications to the production plant could cause complications in the operations of the plant, which could result in delays or failures in production. If we are

unable to create or obtain additional manufacturing capacity necessary to meet existing and potential customer demand, we may need to continue to use, or increase our use of, contract manufacturing sources, which may not be available on terms acceptable to us, if at all, and generally entail greater cost to us and would therefore reduce our anticipated gross margins. Further, if our efforts to increase (or commence, as the case may be) production at the facilities are not successful, our partners may decide not to work with us to develop additional production facilities, demand more favorable terms or delay their commitment to invest capital in our production. If we are unable to create and sustain manufacturing capacity and operations sufficient to satisfy the existing and potential demand of our customers and partners, our business and results of operations may be adversely affected.

In addition, the production of our products at our purpose-built, large-scale precision fermentation facility requires large volumes of feedstock. For this facility in Brazil, we rely primarily on Brazilian sugarcane. While in certain cases we have entered into feedstock agreements with suppliers which we expect to supply the sugarcane feedstock necessary to produce our products at our facility in Brazil that specify the pricing, quantity and product specifications, we cannot predict the future availability or price of these various feedstocks, nor can we be sure that our mill partners will be able to supply it in sufficient quantities or in a timely manner, whether due to COVID-19 impacts or otherwise. Furthermore, to the extent we are required to rely on sugar feedstock other than Brazilian sugarcane, the cost of such feedstock may be higher than we expect, increasing our anticipated production costs. Feedstock crop yields and sugar content depend on weather conditions, such as rainfall and temperature. Weather conditions have historically caused volatility in the sugar industries by causing crop failures or reduced harvests. Excessive rainfall can adversely affect the supply of sugarcane and other sugar feedstock available for the production of our products by reducing the sucrose content and limiting growers' ability to harvest. Crop disease and pestilence can also occur from time to time and can adversely affect feedstock growth, potentially rendering useless or unusable all or a substantial portion of affected harvests. With respect to sugarcane, its seasonal availability and price, the limited amount of time during which it keeps its sugar content after harvest, and the fact that sugarcane is not itself a traded commodity, increase supply risks and limit our ability to substitute supply. If production of sugarcane or any other feedstock we may use to produce our products is adversely affected by these or other conditions, our production will be impaired, increasing costs to our operations and adversely affecting our business.

Our use of contract manufacturers exposes us to risks relating to costs, supply and delivery, and logistics, and loss or termination of contract manufacturing relationships could harm our ability to meet our production goals.

In addition to our production and purification facilities, we must commercially produce, process and manufacture our products through the use of contract manufacturers, and we anticipate that we will continue to use contract manufacturers for the foreseeable future. Establishing and operating contract manufacturing facilities requires us to make significant capital expenditures, which reduces our cash and places such capital at risk. Also, contract manufacturing agreements may contain terms that commit us to pay for capital expenditures and other costs and amounts incurred or expected to be earned by the plant operators and owners, which can result in contractual liability and losses for us even if we terminate a particular contract manufacturing arrangement or decide to reduce or stop production under such an arrangement. Further, we cannot be sure that contract manufacturers will be available when we need their services, that they will be willing to dedicate a portion of their capacity to our projects, or that we will be able to reach acceptable price, delivery and other terms with them for the provision of their production services.

The locations of contract manufacturers can pose additional cost, logistics and feedstock challenges. If production capacity is available at a plant that is remote from usable chemical finishing or distribution facilities, or from customers, we will be required to incur additional expenses in shipping products to other locations. Such costs could include shipping costs, compliance with export and import controls, tariffs and additional taxes, among

others. In addition, we may be required to use feedstock from a particular region for a given production facility. The feedstock available in such region may not be the least expensive or most effective feedstock for production, which could materially raise our overall production cost or reduce our product's quality until we are able to optimize the supply chain.

Moreover, we rely on contract manufacturers to produce and/or provide downstream processing of our products, and we anticipate that we will continue to use contract manufacturers for the foreseeable future. If we are unable to secure the services of contract manufacturers when and as needed, we may lose customer opportunities and the growth of our business may be impaired. If we shift priorities and adjust anticipated production levels (or cease production altogether) at contract manufacturing facilities, such adjustments or cessations could also result in disputes or otherwise harm our business relationships with contract manufacturers. In addition, reliance on external sources for our other target molecules could create a risk for us if a single source or a limited number of sources of manufacturing runs into operational issues, creating risk of loss of sales and profitability. Reducing or stopping production at one facility while increasing or starting up production at another facility generally results in significant losses of production efficiency, which can persist for significant periods of time. Also, in order for production to commence under our contract manufacturing arrangements, we generally must provide equipment for such operations, and we cannot be assured that such equipment can be ordered or installed on a timely basis, at acceptable costs, or at all. Further, in order to establish operations at new contract manufacturing facilities, we need to transfer our yeast strains and production processes from our labs to commercial plants controlled by third parties, which may pose technical or operational challenges that delay production or increase our costs.

Our ability to establish substantial commercial sales of our products is subject to many risks, any of which could prevent or delay revenue growth and adversely impact our customer relationships, business and results of operations.

There can be no assurance that our products will be approved or accepted by customers, including customers of our branded products, or that we will be able to sell our products profitably at prices and with features sufficient to establish demand. The potential customers for our products generally have well-developed manufacturing processes and arrangements with suppliers of the chemical components of their products and may have a resistance to changing these processes and components. These potential customers frequently impose lengthy and complex product qualification procedures on their suppliers, influenced by consumer preference, manufacturing considerations such as process changes and capital and other costs associated with transitioning to alternative components, supplier operating history, established business relationships and agreements, regulatory issues, product liability and other factors, many of which are unknown to, or not well understood by, us. Satisfying these processes may take many months. Similarly, customers of our branded products may have a resistance to accept our alternative compositions for such products. Additionally, we may be subject to product safety testing and may be required to meet certain regulatory and/or product safety standards. Meeting these standards can be a time-consuming and expensive process, and we may invest substantial time and resources into such qualification efforts without ultimately securing approval. If we are unable to convince these potential customers, the consumers who purchase end-products containing our products and the customers of our direct-to-consumer products, that our products are comparable to the chemicals that they currently use or that the use of our products is otherwise to their benefit, we will not be successful in entering these markets and our business will be adversely affected.

Moreover, in order to successfully market our direct-to-consumer products, we must continue to build our formulation, production, logistics, quality, sales, marketing, digital, managerial, compliance, and related capabilities or make arrangements with third parties to perform these services. If we are unable to establish adequate marketing, sales and distribution capabilities, whether independently or with third parties, we may not be able to appropriately commercialize such products. Additionally, the internet and other new technologies facilitate

competitive entry and comparison shopping for our consumer products, and our digital channels compete against numerous websites, mobile applications and catalogs, which may have a greater volume of circulation and web traffic or more effective marketing through online media and social networking sites. There is no assurance that we will be able to continue to successfully maintain or expand our digital sales channels and respond to shifting consumer traffic patterns and digital buying trends. Our inability to adequately respond to these risks and uncertainties or successfully maintain and expand our digital business could have an adverse impact on our results of operations.

The price and availability of sugarcane and other feedstocks can be volatile as a result of changes in industry policy and may increase the cost of production of our products.

In Brazil, Conselho dos Produtores de Cana-de-Açúcar, Açúcar e Etanol do Estado de São Paulo (Council of Sugarcane, Sugar and Ethanol Producers in the State of São Paulo (Consecana), an industry association of producers of sugarcane, sugar and ethanol, sets market terms and prices for general supply, lease and partnership agreements for sugarcane. If Consecana makes changes to such terms and prices, it could result in higher sugarcane prices and/or a significant decrease in the volume of sugarcane available for the production of our products. In addition, if the availability of sugarcane juice or syrup or other feedstocks is restricted or limited due to the impacts of the COVID-19 global pandemic, weather conditions, land conditions or any other reason, we may not be able to manufacture our products in a timely or cost-effective manner, or at all, which would have a material adverse effect on our business.

We expect to face competition for our products from existing suppliers, and if we cannot compete effectively against these companies, products or prices, we may not be successful in bringing our products to market, demand for some of our renewable products may decline, or we may be unable to further grow our business.

We expect that our renewable products will compete with both the traditional products that are currently being used in our target markets and with the alternatives to these existing products that established enterprises and new companies are seeking to produce. In the markets that we have entered, and in other markets that we may seek to enter in the future, we will compete primarily with the established providers of ingredients currently used in products in these markets. Producers of these incumbent products include global health and nutrition companies, large international chemical companies and companies specializing in specific products, such as flavor or fragrance ingredients, squalene or essential oils. We may also compete in one or more of these markets with products that are offered as alternatives to the traditional products being offered in these markets.

With the emergence of many new companies seeking to produce products from renewable sources, we may face increasing competition from such companies. As they emerge, some of these companies may be able to establish production capacity and commercial partnerships to compete with us. If we are unable to establish production and sales channels that allow us to offer comparable products at attractive prices, we may not be able to compete effectively with these companies. Similarly, if we cannot demonstrate that our products are comparable or better alternatives to existing products and to any alternative products that are being developed for the same markets based on some combination of product cost, availability, performance, and consumer preference characteristics, our renewable products may not succeed in the market, which would have a material adverse effect on our business, financial condition, results of operations and growth prospects.

We believe the primary competitive factors in our target markets are:

- product performance and other measures of quality;
- product price;
- product cost;

- sustainability and social responsibility;
- dependability of naturally sourced ingredients; and
- infrastructure compatibility of products.

Many of our competitors are much larger than us and have well-developed distribution systems and networks for their products, valuable historical relationships with the potential customers we are seeking to serve and much more extensive marketing and sales programs in place to promote their products. In order to be successful, we must convince customers that our products are at least as effective as the traditional products they are seeking to replace, and we must provide our products on a cost basis that does not greatly exceed these traditional products and other available alternatives. Some of our competitors may use their influence, brands, and significant resources to impede the development and acceptance of renewable products of the type that we are seeking to produce.

We are subject to risks related to our reliance on collaboration arrangements to fund development and commercialization of our products, and our financial results may be adversely impacted if we fail to meet technical, development, or commercial milestones in such agreements.

For most product markets where we are seeking to enter and grow, we have collaboration partners to fund the research and development, commercialization, and production efforts required for the target products, and in some cases, for the ultimate sale of certain products to the customer under the agreement. Typically, we provide limited exclusive rights and revenue-sharing with respect to the production and sale of particular products in specific markets in exchange for such up-front funding. These exclusivity, revenue-sharing, and other similar terms limit our ability to commercialize our products and technology and may impact the size of our business or our profitability in ways that we do not currently envision. In addition, most of these agreements do not affirmatively obligate the other party to purchase specific quantities of any products, and most contain important conditions that must be satisfied before additional funding of research and development or product purchases would occur. These conditions include research and development programs and milestones, including technical specifications that must be achieved to the satisfaction of our collaboration partners. We may focus our efforts and resources on potential discovery efforts, product targets or candidates that require substantial technical, financial, and human resources which we cannot be certain we will achieve.

In addition, we may encounter numerous uncertainties and difficulties in developing, manufacturing, and commercializing any new products subject to these collaboration arrangements that may delay or prevent us from realizing their expected benefits or enhancing our business, including uncertainties on the feasibility of taking new molecules to commercial scale. Any failure to successfully develop, produce, and commercialize products under our existing and future collaboration arrangements could have a material adverse effect on our business, financial condition, results of operation and growth prospects.

Revenues from these types of relationships are a key part of our cash plan for 2023 and beyond. If we fail to collect expected collaboration revenues, including earnout revenues, we may be unable to fund our operations or pursue development and commercialization of our planned products. To achieve our collaboration revenue targets from year to year, we may be obliged to source new partners or enter into agreements that contain less favorable terms. Historically, the process of negotiating and finalizing collaboration arrangements with our partners has at times been lengthy and unpredictable. Furthermore, as part of our current and future collaboration arrangements, we may be required to make significant capital investments at our existing or planned production facilities in order to develop, produce, and commercialize molecules or other products. Any failure or difficulties in maintaining existing collaboration arrangements or establishing new collaboration arrangements, or building up or retooling our operations to meet the demands of our collaboration partners could have a material negative impact on our business, including our ability to achieve commercial viability for our products, lead to the inability to meet our

contractual obligations and could cause us to allocate or divert capital, personnel, and other resources from our organization, which could adversely affect our business and reputation.

Our collaboration arrangements may restrict or prevent our future business activity with respect to certain products, or in certain geographic markets or industries, which could harm our ability to grow our business.

As part of our collaboration arrangements in the ordinary course of business, we grant to our partners rights of first refusal (ROFRs) and exclusive rights with respect to the development, production, and/or commercialization of particular products or types of products in specific geographic markets or industries, in exchange for up-front funding and/or downstream royalty arrangements. These rights may inhibit potential collaboration or strategic partners or potential customers from entering into negotiations with us about further business opportunities, and we may be restricted or prevented from engaging with other partners or customers for such products or in those markets, which may limit our ability to grow our business or influence our strategic focus, and may lead to an inefficient allocation of capital resources.

In the past, we have had to grant concessions to existing partners in exchange for such partners waiving or modifying their exclusive rights with respect to a particular product, type of product or market in order to engage with a third party with respect to such product, product type, or market. Such concessions are often costly or further limit our ability to conduct future business with respect to a certain product or market. There can be no assurance that existing partners will be willing to grant waivers of or modify their exclusive rights or ROFRs in the future on favorable terms, if at all. If we are unable to engage other potential partners with respect to particular products, product types, geographic markets or industries for which we have previously granted exclusive rights or ROFRs, our ability to grow our business would be harmed, and our business, financial condition, and results of operations may be adversely affected.

Our relationship with DSM exposes us to financial and commercial risks.

In May 2017, DSM made an investment in us and, in connection therewith, we entered into a stockholder agreement with DSM (subsequently amended) which provides DSM with certain rights, including the right to designate one member of our board of directors (to the extent DSM maintains beneficial ownership of at least 4.5% of our outstanding common stock) as well as exclusive negotiating rights in connection with certain future commercial projects and arrangements. Subsequently, in July and September 2017, we entered into collaboration agreements (and related license agreements) with DSM to jointly develop several new molecules in animal and human health and nutrition field using our technology, which we would produce and DSM would commercialize. In December 2020, we entered into a Farnesene Framework Agreement with DSM, under which we assigned to DSM the supply of Farnesene to Givaudan International SA (Givaudan) for the production and sale of a single specialty ingredient. In March 2021, we entered into agreements, under which DSM acquired certain exclusive rights to our flavor and fragrance (F&F) product portfolio and an exclusive license to our F&F intellectual property, and under which we agreed to manufacture F&F ingredients for DSM for fifteen years. In October 2022, we entered into a loan and security agreement with an affiliate of DSM, as lender, for a secured term loan facility, which was amended in December 2022. For more information regarding these and other transactions and arrangements with DSM, please see Note 4, "Debt," Note 6, "Stockholders' Equity (Deficit)," Note 10, "Revenue Recognition" and Note 11, "Related Party Transactions" in Part II, Item 8 of this Annual Report on Form 10-K.

DSM, due to its presence on our board of directors, equity ownership in us, and commercial relationships with us, may be able to influence our management, operations and affairs, including the approval of significant corporate transactions, such as the disposition of our intellectual property, mergers, consolidations or the sale of all or substantially all of our assets. Due to its various relationships with us, DSM may have interests different from, and may not act in the best interests of, our other stockholders.

A significant portion of our operations is centered in Brazil, and our business could be adversely affected if we do not operate effectively in that country.

We may be subject to risks associated with the concentration of essential product sourcing and operations in Brazil. The Brazilian government has changed in the past, and may change in the future, monetary, taxation, credit, tariff, labor, export, and other policies to influence the course of Brazil's economy. For example, the government's actions to control inflation have involved interest rate adjustments. We have no control over, and cannot predict what, policies or actions the Brazilian government may take in the future. Our business, financial performance, and prospects may be adversely affected by, among others, the following factors:

- delays or failures in securing licenses, permits, or other governmental approvals necessary to build and operate facilities, use our yeast strains to produce products, and export such products for sale outside Brazil;
- rapid consolidation in the sugar and ethanol industries in Brazil, which could result in a decrease in competition;
- political, economic, diplomatic, or social instability in, or in the region surrounding, Brazil, including the recent political upheaval in the country related to the presidential election;
- effects of changes in currency exchange rates;
- changing interest rates;
- impact of the COVID-19 pandemic on the supply of raw materials, labor or services;
- tax burden and policies;
- any changes in currency exchange policy that lead to the imposition of exchange controls or restrictions on remittances abroad;
- export or import restrictions that limit our ability to move our products out of Brazil or interfere with the import of essential materials into Brazil;
- changes in, or interpretations of, foreign regulations that may adversely affect our ability to sell our products or repatriate profits to the United States;
- tariffs, trade protection measures, and other regulatory requirements;
- compliance with U.S. and foreign laws that regulate the conduct of business abroad;
- compliance with privacy, anti-corruption, and anti-bribery laws, including certain anti-corruption and privacy laws recently enacted in Brazil;
- an inability, or reduced ability, to protect our intellectual property in Brazil including any effect of compulsory licensing imposed by government action; and
- difficulties and costs of staffing and managing foreign operations.

We cannot predict whether the current or future Brazilian government will implement changes to existing policies on taxation, exchange controls, monetary strategy, labor relations, social security and the like, nor can we estimate the impact of any such changes on the Brazilian economy or our operations.

We continue to expand our international footprint and operations, and we may expand further in the future, which subjects us to a variety of risks and complexities which, if not effectively managed, could negatively affect our business.

We maintain operations in foreign jurisdictions other than Brazil, and may in the future expand, or seek to expand, our operations to additional foreign jurisdictions. For example, operating in Europe, China and the Middle East exposes us to political, legal and economic risks. In particular, the political, legal and economic climate in China, both nationally and regionally, is fluid and unpredictable. Our ability to operate in China may be adversely affected by changes in U.S. and Chinese laws and regulations such as those related to taxation, import and export tariffs, environmental regulations, genetically modified microorganisms (GMM), land use rights, product testing requirements, intellectual property, currency controls, network security, and other matters. In addition, we may not obtain or retain the requisite permits to operate in China, and costs or operational limitations may be imposed

in connection with obtaining and complying with such permits. In addition, Chinese trade regulations are in a state of flux, and we may become subject to other forms of taxation, tariffs and duties in China. Furthermore, our counterparties in China may use or disclose our confidential information or intellectual property to competitors or third parties, which could result in the illegal distribution and sale of counterfeit versions of our products. If any of these events occur, our business, financial condition and results of operations could be materially and adversely affected.

In addition, a significant percentage of the production, downstream processing and sales of our products occurs outside the United States or with vendors, suppliers or customers located outside the United States. If tariffs or other restrictions are placed by the United States on foreign imports from Brazil, European or other countries where we operate or seek to operate, or any related counter-measures are taken, our business, financial condition, results of operations and growth prospects may be harmed. Tariffs may increase our cost of goods, which could result in lower gross margin on certain of our products. If we raise prices to account for any such increase in costs of goods, the competitiveness of the affected products could potentially be reduced. In either case, increased tariffs on imports from Brazil, European or other countries where we operate or seek to operate could materially and adversely affect our business, financial condition and results of operations. Furthermore, in retaliation for any tariffs imposed by the United States, other countries may implement tariffs on a wide range of American products, which could increase the cost of our products for non-U.S. customers located in such countries. Any increase in the cost of our products for non-U.S. customers, which represent a substantial portion of our sales, could result in a decrease in demand for our products by such customers. Trade restrictions and sanctions implemented by the United States or other countries, including sanctions imposed on Russia by the United States and other countries due to Russia's invasion of Ukraine, could materially and adversely affect our business, financial condition and results of operations.

Financial Risks

We may not be able to generate sufficient cash inflows from our various revenue streams to fund our anticipated operations and to service our debt obligations.

Our planned working capital needs and operating and capital expenditures for 2023, and our ability to service our outstanding debt obligations, are dependent on significant inflows of cash from product sales, licenses, and royalties, and grants and collaborations and, as needed, additional financing arrangements, as well as cost mitigation initiatives such as our Fit-to-Win initiatives that we commenced in the third quarter of 2022. We will continue to need to fund our research and development and related activities and to provide working capital to fund production, procurement, storage, distribution, and other aspects of our business. Some of our anticipated funding sources, such as research and development collaborations, are subject to the risks that we may not be able to meet milestones, or that collaborations may end prematurely for reasons that may be outside of our control (including technical infeasibility of the project or a collaborator's right to terminate without cause). The inability to generate sufficient cash flow, as described above, could have a material effect on our ability to continue with our business plans and our status as a going concern.

If we are unsuccessful in executing our Fit-to-Win initiatives or otherwise have insufficient cash, our ability to continue as a going concern would be jeopardized, and we would take the following actions:

- Shift focus to existing products and customers with significantly reduced investment in new product and commercial development efforts;
- Reduce or delay uncommitted capital expenditures, nonessential facilities and lab equipment, and information technology projects or liquidate certain of our assets;
- Closely monitor our working capital position with contract manufacturers and other suppliers, as well as suspend operations at pilot plants and demonstration facilities; and
- Reduce expenditures for third party contractors, including consultants, professional advisors, and other vendors.

Implementing this plan could have a negative impact on our ability to continue our business as currently contemplated, including, without limitation, delays or failures in our ability to:

- Achieve planned production levels;
- Develop and commercialize products within planned timelines or at planned scales;
- Introduce new consumer brands; and
- Continue other core activities.

Furthermore, any inability to scale-back operations as necessary, and any unexpected liquidity needs, could create pressure to implement more severe measures. Such measures could materially affect our ability to meet contractual requirements and increase the severity of the consequences described above. In addition, we are subject to market conditions on our ability to access our existing cash, cash equivalents and investments. For example, although we do not hold any cash or maintain any accounts at, nor do we have any other relationships with, Silicon Valley Bank or Signature Bank, on March 10, 2023 and March 12, 2023, respectively, the Federal Deposit Insurance Corporation took control and was appointed receiver of these banks, and if other banks and financial institutions enter receivership or become insolvent in the future in response to financial conditions affecting the banking system and financial markets, 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.

We have incurred substantial debt, which could impair our flexibility and access to capital and adversely affect our financial position, and our business would be materially adversely affected if we are unable to service our debt obligations.

In November 2021, we sold \$690.0 million aggregate convertible senior notes due 2026 (2026 Convertible Senior Notes). During 2022, we issued \$181.7 million aggregate of principal amount of additional promissory notes pursuant to senior secured credit facilities with Foris and DSM. As of December 31, 2022, the principal amounts due under our debt instruments (including the 2026 Convertible Senior Notes and related party debt) totaled \$923.0 million, of which \$128.7 million is classified as current. We may incur additional indebtedness from time to time to finance working capital, research and product development efforts, strategic acquisitions, investments and partnerships, capital expenditures, including funding the completion of our new manufacturing facilities in Brazil, or other general corporate purposes, subject to the restrictions contained in our debt agreements.

Our substantial indebtedness may:

- limit our ability to use our cash flow or obtain additional financing (on satisfactory terms or at all) to fund working capital, capital expenditures, product development efforts, acquisitions, investments and strategic alliances, and for other general corporate requirements;
- require us to use a substantial portion of our cash flow from operations to make debt service payments;
- increase our vulnerability to economic downturns and adverse competitive and industry conditions and place us at a competitive disadvantage compared to those of our competitors that are less leveraged;
- limit our flexibility in planning for, or reacting to, changes in our business and our industry and limit our ability to pursue other business opportunities, borrow more money for operations or capital in the future, and implement our business strategies;
- result in dilution to our existing stockholders in the event exchanges of our 2026 Convertible Senior Notes are settled in common stock; and
- restrict our ability to grant additional liens on our assets, which may make it more difficult to secure additional financing in the future.

In addition, servicing our debt requires a significant amount of cash. Our cash balance is significantly less than the principal amount of our outstanding debt, and we may not generate sufficient cash flow from our operations to pay

our substantial debt, including any payments in connection with the 2026 Convertible Senior Notes, in which case we would be in default under our 2026 Convertible Senior Notes. We may also be required to raise additional working capital through future financings or sales of assets to enable us to repay our outstanding indebtedness as it becomes due. There can be no assurance that we will be able to generate cash or raise additional capital. If we are at any time unable to generate sufficient cash flow from operations to service our indebtedness when payment is due, we may be required to attempt to renegotiate the terms of the instruments relating to the indebtedness, seek to refinance all or a portion of the indebtedness or obtain additional financing. There can be no assurance that we would be able to successfully renegotiate such terms, that any such refinancing would be possible or that any additional financing could be obtained on terms that are favorable or acceptable to us, if at all. Any debt financing that is available could cause us to incur substantial costs and subject us to covenants that significantly restrict our ability to conduct our business. If we seek to complete additional equity financings, the interests of existing stockholders may be diluted. If we are unable to make payment on our secured debt instruments when due, the lender under such instrument may foreclose on and sell the assets securing such indebtedness to satisfy our payment obligations, which could prevent us from accessing those assets for our business and conducting our business as planned, which could materially harm our financial condition and results of operations.

Our existing secured financing arrangements provides our lenders with liens on substantially all of our assets, including our intellectual property, and contain financial covenants and other restrictions on our actions, which may restrict our ability to pursue certain transactions and operate our business.

We have granted liens on substantially all of our assets, including our intellectual property, as collateral in connection with senior secured credit facilities with Foris and liens on certain remaining assets in connection with a secured credit facility with DSM. In connection with such credit facilities, we have agreed to financial covenants and other covenants that materially limit our ability to take certain actions, including, among other things, our ability to pay dividends, make certain investments, incur additional indebtedness, undertake certain mergers and consolidations, and encumber and dispose of assets (see Note 4, "Debt" in Part II, Item 8 of this Annual Report on Form 10-K). The credit facilities contain customary events of default, including failure to pay amounts due, breaches of covenants and warranties, material adverse effect events, certain cross defaults and judgements, and insolvency. A failure to comply with the covenants and other provisions of our debt instruments, including any failure to make a payment when required, would generally result in payment penalties or events of default under such credit facilities, which could trigger acceleration of such indebtedness and result in a material adverse effect on our business. If such indebtedness were to be accelerated, it could trigger an event of default under our other outstanding indebtedness, permitting acceleration of a substantial portion of our indebtedness. We have in the past had certain of our debt instruments accelerated for failure to make a payment when due. Any required repayment of our indebtedness as a result of acceleration or otherwise would lower our current cash on hand such that we would not have those funds available for use in our business or for payment of other outstanding indebtedness.

If we fail to maintain an effective system of internal controls, we may not be able to report our financial results accurately or in a timely manner or prevent fraud; in that case, our stockholders could lose confidence in our financial reporting, which would harm our business and could negatively impact the price of our stock.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Rule 13a-15(f) under the Exchange Act. In addition, Section 404 of the Sarbanes-Oxley Act of 2002 (Section 404) and related SEC rules require management to assess the effectiveness of our internal control over financial reporting. Effective internal controls are necessary for us to provide reliable financial reports and help us to prevent fraud. The process of implementing our internal controls and complying with Section 404 is expensive

and time consuming and requires significant continuous attention of management. We cannot be certain that these measures will ensure that we maintain adequate controls over our financial processes and reporting in the future.

Control deficiencies in 2017 and 2018 resulted in the restatement of our audited consolidated financial statements for the year ended December 31, 2017 and our interim condensed consolidated financial statements for March 31, 2018, June 30, 2018 and September 30, 2018. Also, a control deficiency in 2019 identified prior to issuing our condensed consolidated financial statements as of and for the three and nine months ended September 30, 2019 resulted in us concluding this control deficiency was a material weakness and that our internal control over financial reporting was not effective as of December 31, 2019, and created a reasonable possibility that a further material misstatement of our annual or interim consolidated financial statements would not be prevented or detected on a timely basis.

Our management has remediated this material weakness. We cannot, however, guarantee that additional material weaknesses or significant deficiencies in our internal controls will not be discovered or occur in the future. We experienced significant growth in 2022 and anticipate continuing this growth trajectory to continue throughout 2023 through business acquisitions, hiring of additional employees, expanding of our facilities and operating locations, and significantly increasing our manufacturing activity and service delivery capabilities in Brazil and Europe, all of which could impact our ability to accurately and timely record transactions, and could result in internal control failures that lead to material weaknesses or significant deficiencies. If these events occur, we may be unable to report our financial results accurately or on a timely basis, which could cause our reported financial results to be materially misstated and result in the loss of investor confidence and adversely affect the market price of our common stock and our ability to access the capital markets, and we could be subject to sanctions or investigations by the Nasdaq Stock Market (Nasdaq), the SEC or other regulatory authorities. See Part II, Item 9A “Controls and Procedures” of this Annual Report on Form 10-K for additional information.

In addition, to the extent we create joint ventures or have any variable interest entities and the financial statements of such entities are not prepared by us, we will not have direct control over their financial statement preparation. As a result, we will, for our financial reporting, depend on what these entities report to us, which could result in us adding monitoring and audit processes to those operations and increase the difficulty of implementing and maintaining adequate internal control over our financial processes and reporting in the future, which could lead to delays in our external reporting. In particular, this may occur in instances where we are establishing such entities with commercial partners that do not have sophisticated financial accounting processes in place, or where we are entering into new relationships at a rapid pace, straining our integration capacity. Additionally, if we do not receive the information from the joint venture or variable interest entity on a timely basis, it could cause delays in our external reporting.

Even if we conclude in the future, and our independent registered public accounting firm concurs, that our internal control over financial reporting provides reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles, because of its inherent limitations, internal control over financial reporting may not prevent or detect fraud or misstatements. Failure to implement required new or improved controls, or difficulties encountered in their implementation, could harm our results of operations or cause us to fail to meet our reporting obligations, which could reduce the market’s confidence in our financial statements and harm our stock price. In addition, failure to comply with Section 404 could subject us to a variety of administrative sanctions, including SEC action, the suspension or delisting of our common stock by Nasdaq, and the inability of registered broker-dealers to make a market in our common stock, which could further reduce our stock price and could harm our business.

We have a history of net losses to date, anticipate continuing to incur losses in the future, and may not be able to achieve or sustain profitability.

We have incurred operating losses since our inception, and we expect to continue to incur losses and negative cash flows from operations for at least the next 12 months following the issuance of this Annual Report on Form 10-K. As of December 31, 2022, we had an accumulated deficit of \$2.9 billion.

Future revenues are difficult to predict, and our failure to predict revenue accurately may cause our results to be below our expectations or those of analysts or investors and could result in our stock price declining.

Our revenues are comprised of product revenues, licenses and royalties revenues, and collaborations and grants revenues. We generate our consumer and ingredients product revenues from sales to partners and distributors and from direct sales. Our collaboration, supply and distribution agreements do not usually include any specific purchase obligations. The sales volume of our products in any given period has been difficult to predict. A significant portion of our product sales is dependent upon the interest and ability of third-party distributors to create demand for, and generate sales of, such products to end-users. For example, if such distributors are unsuccessful in creating pull-through demand for our products with their customers, such distributors may purchase less of our products from us than we expect.

In addition, many of our new and novel ingredients products are intended to be a component of other companies' products; therefore, sales of our products may be contingent on our collaboration partners' and/or customers' timely and successful development and commercialization of end-use products that incorporate our products, and price volatility in the markets for such end-use products could adversely affect the demand for our products and the margin we receive for our product sales, which could harm our financial results. In addition, certain of our partners have the right to terminate their agreements with us if we undergo a change of control or a sale of our business, which could discourage a potential acquirer from making an offer to acquire the Company.

Further, we have in the past entered into, and expect in the future to enter into, research and development collaboration arrangements pursuant to which we receive payments from our collaboration partners. Certain collaboration arrangements include advance payments in consideration for grants of exclusivity or research and development activities to be performed by us. It has in the past been difficult for us to know with certainty when we will sign a new collaboration arrangement and receive payments thereunder. In addition, a portion of the advance payments we receive under our collaboration agreements is typically classified as contract liabilities and recognized over multiple quarters or years. As a result, achievement of our quarterly and annual financial goals has been difficult to forecast with certainty. Once a collaboration agreement has been signed, receipt of cash payments and/or recognition of related revenues may depend on our achievement of research, development, production or cost milestones, which may be difficult to predict. Our collaboration arrangements may also include future royalty payments upon commercialization of the products subject to the collaboration arrangements, which is uncertain and depends in part on the success of the counterparty in commercializing the relevant product. As a result, our receipt of royalty revenues and the timing thereof is difficult to predict with certainty.

Furthermore, in recent years, we started to market and sell our consumer products directly to end-consumers in the clean beauty and personal care market. We have a portfolio of consumer brands in various stages of their growth trajectory. It is difficult to predict how successful our efforts will be in developing brand awareness through digital marketing and selling direct to consumer, and we may not achieve the product sales we expect to achieve on the timeline we anticipate, if at all. These factors have made it difficult to predict future revenues and have resulted in our revenues being below our previously announced guidance or analysts' estimates. We continue to face these risks in the future, which may cause our stock price to decline.

We have limited experience in marketing and sales of consumer products, and if we are unable to expand our marketing and sales organization to adequately address our customers' needs, our business may be adversely affected.

We rely on distributors for the sale of our products in the United States and in certain countries outside of the United States. We exert limited control over these distributors under our agreements with them, and if their sales and marketing efforts for our products in the region are not successful, our business would be materially and adversely affected. Locating, qualifying and engaging distribution partners with local industry experience and knowledge will be necessary in at least the short to mid-term to effectively market and sell our platform in certain countries outside the United States. We may not be successful in finding, attracting and retaining distribution partners, or we may not be able to enter into such arrangements on favorable terms. Even if we are successful in identifying distributors, such distributors may engage in sales practices that violate local laws or our internal policies. Furthermore, sales practices utilized by any such distribution parties that are locally acceptable may not comply with sales practices standards required under any U.S. laws that apply to us, which could create additional compliance risk. If our sales and marketing efforts by us or our distributors are not successful, we may not achieve significant market acceptance for our products, which would materially and adversely impact our business, financial condition, results of operations and prospects.

Our financial results could vary materially from quarter to quarter and are difficult to predict.

Our revenues and results of operations could vary materially from quarter to quarter because of a variety of factors, many of which are outside of our control. As a result, comparing our results of operations on a period-to-period basis may not be meaningful. Factors that could cause our quarterly results of operations to fluctuate include:

- achievement, or failure, with respect to technology, product development or manufacturing milestones needed to allow us to enter identified markets on a cost-effective basis or obtain milestone-related payments from collaboration partners;
- delays or greater than anticipated expenses associated with the completion, commissioning, acquisition or retrofitting of new production facilities, or the time to ramp up and stabilize production at a new production facility or the transition (including ramp up) to producing new molecules at existing facilities or with new contract manufacturers;
- depreciation of technology assets or the cost of conducting research and development activities on outdated equipment;
- impairment of assets based on shifting business priorities and working capital limitations;
- ongoing impacts of the COVID-19 pandemic on our business operations and the supply of raw materials, labor or services;
- disruptions in the production process at any manufacturing facility, including disruptions due to seasonal or unexpected downtime as a result of a COVID-19 outbreak, feedstock availability, contamination, safety or other technical difficulties, or scheduled downtime as a result of transitioning equipment to the production of different molecules;
- losses of, or the inability to secure new customers, collaboration partners, contract manufacturers, suppliers or distributors;
- losses associated with producing our products as we ramp to commercial production levels;
- failure to recover value added tax (VAT) that we currently reflect as recoverable in our financial statements (e.g., due to failure to meet conditions for reimbursement of VAT under local law);
- the timing, size and mix of product sales to customers;
- increases in price or decreases in availability of feedstock;
- the unavailability of contract manufacturing capacity altogether or at reasonable cost;
- exit costs associated with terminating contract manufacturing relationships;

- fluctuations in foreign currency exchange rates;
- change in the fair value of debt and derivative instruments;
- fluctuations in the price of and demand for sugar, ethanol, petroleum-based and other products for which our products are alternatives;
- seasonal variability in production and sales of our products;
- competitive pricing pressures, including decreases in average selling prices of our products;
- unanticipated expenses or delays associated with changes in governmental regulations and environmental, health, labor and safety requirements;
- departure of executives or other key management employees resulting in transition and severance costs;
- our ability to use our net operating loss carryforwards to offset future taxable income;
- business interruptions such as pandemics or natural disasters like earthquakes and tsunamis;
- our ability to integrate businesses that we have acquired or may acquire in the future;
- our ability to successfully collaborate with joint venture partners;
- risks associated with the international aspects of our business; and
- changes in general economic, industry and market conditions, both domestically and in our foreign markets, including rising interest rates, taxes and inflation.

Due to the factors described above, among others, the results of any quarterly or annual period may not meet our expectations or the expectations of our investors and may not be meaningful indications of our future performance.

Our international operations expose us to the risk of fluctuation in currency exchange rates and rates of foreign inflation, which could adversely affect our results of operations.

We currently incur material costs and expenses in the Brazilian real and may in the future incur additional expenses in foreign currencies and derive a portion of our revenues in the local currencies of customers throughout the world. As a result, our revenues and results of operations are subject to foreign exchange fluctuations, which we may not be able to manage successfully. During the past few decades, the Brazilian currency has faced frequent and substantial exchange rate fluctuations in relation to foreign currencies mostly because of political and economic conditions. There can be no assurance that the Brazilian real will not materially appreciate or depreciate against the U.S. dollar in the future. We also bear the risk that the rate of inflation in the foreign countries where we incur costs and expenses or the decline in value of the U.S. dollar compared to those foreign currencies will increase our costs as expressed in U.S. dollars. For example, future measures by the Central Bank of Brazil to control inflation, including interest rate adjustments, intervention in the foreign exchange market and actions to fix the value of the real, may weaken the U.S. dollar in Brazil. Whether in Brazil or elsewhere, we may not be able to adjust the prices of our products to offset the effects of inflation or foreign currency appreciation on our cost structure, which could increase our costs and reduce our net operating margins. If we do not successfully manage these risks through hedging, tax optimization or other mechanisms, our revenues and results of operations could be adversely affected.

Our U.S. GAAP operating results could fluctuate substantially due to the accounting for convertible debt and derivative liabilities that we measure at fair value.

A portion of our outstanding convertible debt instruments are accounted for under Accounting Standards Codification 825-10-25, The Fair Value Option (ASC 825) and certain equity instruments are accounted for under Accounting Standards Codification 815, Derivatives and Hedging (ASC 815), as free standing derivative liabilities. ASC 825 allows companies to account for certain financial assets and financial liabilities at fair value, with the change in fair value recognized in net income each reporting period. The data used for the measurement must reflect assumptions that market participants would use in pricing the asset or liability. There is no current

observable market for this convertible debt instrument and, as such, we determine the fair value of the debt instrument using a model based on an instrument with and without the conversion option and other embedded derivative features. The valuation model uses the stock price, conversion price, maturity date, risk-free interest rate, estimated stock volatility and estimated credit spread. ASC 815 requires companies to account for freestanding derivative financial instruments as a liability at fair value according to certain criteria. If the freestanding criteria are met, the current fair value of the derivative is remeasured to fair value at each balance sheet date, with a resulting non-cash gain or loss related to the change in the fair value of the derivative being charged to earnings (loss) in the statement of operations. We have determined that we must account for certain free standing financial instruments as derivative liabilities in accordance with ASC 815. There is no current observable market for this type of derivative and, as such, we determine the fair value of the free standing derivatives using an option pricing model. The valuation model uses the period close stock price, expected term of the instrument, risk-free interest rate, estimated stock volatility and expected dividend yield. Changes in the inputs for these valuation models may have a material impact on the estimated fair value of the of the convertible debt instrument accounted for under the fair value option and the embedded derivative liabilities. For example, an increase in our stock price would result in an increase in the estimated fair value of the embedded derivative liabilities, if in this example, each of the other elements of the valuation model remained substantially unchanged from the last measurement date. The convertible debt instrument accounted for under the fair value option and the embedded derivative liabilities may have, on a U.S. GAAP basis, a substantial effect on our balance sheet and statement of operations from quarter to quarter and it is difficult to predict the effect on our future U.S. GAAP financial results, since valuation of the convertible debt instrument accounted for under the fair value option and the embedded derivative liabilities are based on factors largely outside of our control and may have a negative impact on our statement of operations and balance sheet. The effects of these embedded derivatives may cause our U.S. GAAP operating results to be below expectations, which may cause our stock price to decline. See Note 3, "Fair Value Measurement" in Part II, Item 8 of this Annual Report on Form 10-K for more information regarding the valuation of embedded derivatives in certain of our outstanding debt instruments.

The accounting method for convertible debt securities that may be settled in cash, such as the 2026 Convertible Senior Notes, may have a material effect on our reported financial results.

Under Accounting Standards Codification 470-20, Debt with Conversion and Other Options, which we refer to as ASC 470-20, issued by the Financial Accounting Standards Board, which we refer to as FASB, an entity must separately account for the liability and equity components of the convertible debt instruments (such as the 2026 Convertible Senior Notes) that may be settled entirely or partially in cash upon conversion in a manner that reflects the issuer's economic interest cost. The effect of ASC 470-20 on the accounting for the 2026 Convertible Senior Notes is that the equity component is required to be included in the additional paid-in capital section of stockholders' equity on our consolidated balance sheet at issuance, and the value of the equity component would be treated as a discount for purposes of accounting for the debt component of the 2026 Convertible Senior Notes. As a result, we will be required to record a greater amount of non-cash interest expense as a result of the amortization of the discounted carrying value of the 2026 Convertible Senior Notes to their face amount over the term of the 2026 Convertible Senior Notes. We will report larger net losses or lower net income in our financial results because ASC 470-20 will require interest to include both the amortization of the debt discount and the instrument's coupon interest rate, which could adversely affect our reported or future financial results, the trading price of our common stock and the trading price of the 2026 Convertible Senior Notes. In addition, under certain circumstances, convertible debt instruments (such as the 2026 Convertible Senior Notes) that may be settled entirely or partly in cash may be accounted for utilizing the treasury stock method for earnings per share purposes, the effect of which is that the shares issuable upon conversion of the 2026 Convertible Senior Notes are not included in the calculation of diluted earnings per share except to the extent that the conversion value of the 2026 Convertible Senior Notes exceeds their principal amount. Under the treasury stock method, for diluted earnings per share purposes, the transaction is accounted for as if the number of shares of common stock that would be necessary to settle such excess, if we elected to settle such excess in shares, are issued.

In August 2020, the Financial Accounting Standards Board published an Accounting Standards Update, which we refer to as ASU 2020-06, which amends the accounting standards for convertible debt instruments that may be settled entirely or partially in cash upon conversion. ASU 2020-06 eliminates requirements to separately account for liability and equity components of such convertible debt instruments and eliminates the ability to use the treasury stock method for calculating diluted earnings per share for convertible instruments whose principal amount may be settled using shares. Instead, ASU 2020-06 requires (i) the entire amount of the security to be presented as a liability on the balance sheet and (ii) application of the “if-converted” method for calculating diluted earnings per share. Under the “if-converted” method, diluted earnings per share will generally be calculated assuming that all the 2026 Convertible Senior Notes were converted solely into shares of common stock at the beginning of the reporting period, unless the result would be anti-dilutive, which could adversely affect our diluted earnings per share. However, if the principal amount of the convertible debt security being converted is required to be paid in cash and only the excess is permitted to be settled in shares, the if-converted method will produce a similar result as the “treasury stock” method prior to the adoption of ASU 2020-06 for such convertible debt security. ASU 2020-06 is effective for public companies for fiscal years beginning after December 15, 2021.

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 (the Code), a corporation that undergoes an “ownership change,” as defined in the Code, is subject to limitations on its ability to utilize its pre-ownership change net operating loss carryforwards (NOLs) to offset future taxable income. During the two years ended December 31, 2019, changes in our share ownership resulted in significant reductions in our NOLs pursuant to 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; if that occurs, our ability to utilize NOLs could be further limited. Furthermore, our ability to utilize NOLs of companies that we may acquire in the future may be subject to limitations under Section 382 of the Code. For these reasons, we may not be able to utilize a material portion of our reported NOLs as of December 31, 2022, even if we attain profitability, which could adversely affect our cash flows and results of operations.

Regulatory, Intellectual Property, and Legal Risks

Ethical, legal and social concerns about products using genetically modified microorganisms could limit or prevent the use of our products and technologies and could harm our business.

Our technologies and products involve the use of genetically modified microorganisms (GMMs). Public perception about the safety of, and ethical, legal or social concerns over, genetically engineered products, including GMMs, could affect public acceptance of our products. If we are not able to overcome any such concerns relating to our products, our technologies may not be accepted by our customers or end-users. In addition, the use of GMMs has in the past received negative publicity, which could lead to greater regulation or restrictions on imports of our products. If our technologies and products are not accepted by our customers or their end-users due to negative publicity or lack of public acceptance, our business could be materially harmed.

Our use of genetically modified feedstocks and yeast strains to produce our products subjects us to risks of regulatory limitations and rejection of our products.

The use of GMMs, such as our yeast strains, is subject to laws and regulations in many countries, some of which are new and some of which are still evolving. In the United States, the Environmental Protection Agency (EPA), regulates the commercial use of GMMs as well as potential products produced from GMMs. Various states or local governments within the United States could choose to regulate products made with GMMs as well. While the strain of genetically modified yeast that we currently use for the development and commercial production of

our target molecules, *S. cerevisiae*, is eligible for exemption from EPA review because it is generally recognized as safe, we must satisfy certain criteria to achieve this exemption, including but not limited to use of compliant containment structures, waste disposal and safety procedures, and we cannot be sure that we will meet such criteria in a timely manner, or at all. If exemption of *S. cerevisiae* is not obtained, our business may be substantially harmed. In addition to *S. cerevisiae*, we may seek to use different GMMs in the future that will require EPA approval. If approval of different GMMs is not secured, our ability to grow our business could be adversely affected.

In Brazil, GMMs are regulated by the National Biosafety Technical Commission (CTNBio). We have obtained approvals from CTNBio to use GMMs in a contained environment in our Brazil facilities for research and development purposes as well as at contract manufacturing facilities in Brazil for industrial-scale production of target products. As we continue to develop new yeast strains and deploy our technology at new production facilities in Brazil, we will be required to obtain further approvals from CTNBio in order to use these strains in industrial-scale commercial production in Brazil. We may not be able to obtain such approvals on a timely basis, or at all, and if we do not, our ability to produce our products in Brazil could be impaired, which would adversely affect our results of operations and financial condition.

In addition to our production operations in the United States and Brazil, we have been party to contract manufacturing agreements with parties in other production locations around the world, including Europe. The use of GMM technology is regulated in the European Union, which has established various directives for member states regarding regulation of the use of such technology, including notification processes for contained use of such technology. We expect to encounter GMM regulations in most, if not all, of the countries in which we may seek to establish production capabilities and/or conduct sales to customers or end-use consumers, and the scope and nature of these regulations will likely be different from country to country. If we cannot meet the applicable regulatory requirements in the countries in which we produce or sell, or intend to produce or sell, products using our yeast strains, or if it takes longer than anticipated to obtain the necessary regulatory approvals, our business could be materially affected. Furthermore, there are various governmental, non-governmental and quasi-governmental organizations that review and certify products with respect to the determination of whether products can be classified as “natural”, non-GMO or other similar classifications. While the certification from such governmental organizations, and verification from non-governmental and quasi-governmental organizations are generally not mandatory, some of our current or prospective customers, collaboration partners or distributors may require that we meet the standards set by such organizations as a condition precedent to purchasing or distributing our products. We cannot be certain that we will be able to satisfy the standards of such organizations, and any delay or failure to do so could harm our ability to sell or distribute some or all of our products to certain customers and prospective customers, which could have a negative impact on our business.

We may not be able to obtain or maintain regulatory approval for the sale of our renewable products.

Our renewable chemical products may be subject to government regulation in our target markets. In the United States, the EPA administers the Toxic Substances Control Act (the TSCA), which regulates the commercial registration, distribution, and use of many chemicals. Before an entity can manufacture or distribute a new chemical subject to the TSCA, it must file a Pre-Manufacture Notice to add the chemical to a product. The EPA has 90 days to review the filing but may request additional data, which could significantly extend the timeline for approval. As a result, we may not receive EPA approval to list future molecules on the TSCA registry as expeditiously as we would like, resulting in delays or significant increases in testing requirements. A similar program exists in the European Union, called REACH. Under this program, chemicals imported or manufactured in the European Union in certain quantities must be registered with the European Chemicals Agency, and this process could cause delays or entail significant costs. To the extent that other countries in which we are producing or selling (or seeking to produce or sell) our products, such as Brazil and various countries in Asia, including South Korea, rely on TSCA or REACH (or are implementing similar laws and programs) for chemical registration or

regulation in their jurisdictions, delays with the U.S. or European authorities, or any relevant authorities in such other countries, may delay entry into these markets as well. In addition, some of our Biofene-derived products are sold for the cosmetics market, and some countries may impose additional regulatory requirements or permits for such uses, which could impair, delay or prevent sales of our products in those markets. Also, certain of our current or proposed products in the Flavor & Fragrance, Clean Beauty & Personal Care and Health & Wellness markets, including Flavor & Fragrance ingredients, skincare ingredients and cosmetic actives, alternative sweeteners, dietary supplements and nutraceuticals, may be subject to the approval of and regulation by the FDA, the European Food Safety Authority, Brazil ANVISA authority, as well as similar agencies of states and foreign jurisdictions where these products are sold or proposed to be sold.

We expect to encounter regulations in most, if not all, of the countries in which we may seek to produce, import or sell our products (and our customers may encounter similar regulations in selling end-use products to consumers), and we cannot assure you that we (or our customers) will be able to obtain necessary approvals and third-party verifications in a timely manner or at all. If our products do not meet applicable regulatory requirements in a particular country, then we (or our customers) may not be able to commercialize our products in such country and our business will be adversely affected. In addition, any enforcement action taken by regulators against us or our products could cause us to suffer adverse publicity, which could harm our reputation and our relationship with our customers and vendors. Emerging biodiversity regulations in response to the global Nagoya Protocol may further complicate the regulatory product compliance process.

In addition, many of our products are intended to be a component of our collaboration partners' and/or customers' (or their customers') end-use products. Such end-use products may be subject to various regulations, including regulations promulgated by the EPA, the FDA, or the European Food Safety Authority. If we or our collaboration partners and customers (or their customers) are not successful in obtaining any required regulatory approval or third-party verifications for their end-use products that incorporate our products or fail to comply with any applicable regulations for such end-use products, whether due to our products or otherwise, demand for our products may decline and our revenues could be materially adversely affected.

Changes in government regulations, including subsidies and economic incentives, could have a material adverse effect on our business.

The markets where we sell our products are heavily influenced by foreign, federal, state and local government regulations and policies. Changes to existing or adoption of new foreign or domestic federal, state and local legislative initiatives that impact the production, distribution or sale of products may harm our business or new and existing data privacy regulations that could impact the ability of our consumer brands to leverage data to market and sell products. The uncertainty regarding future standards and policies, including developing regulation in the Clean Beauty industry and the data privacy landscape, may also affect our ability to develop our products or to license our technologies to third parties and to market and sell products to our end customers. Any inability to address these requirements and any regulatory or policy changes could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

Furthermore, the production of our products will depend on the availability of feedstock, especially sugarcane. Agricultural production and trade flows are subject to government policies and regulations. Governmental policies affecting the agricultural industry, such as taxes, tariffs, duties, subsidies, incentives and import and export restrictions on agricultural commodities and commodity products can influence the planting of certain crops, the location and size of crop production, whether unprocessed or processed commodity products are traded, the volume and types of imports and exports, and the availability and competitiveness of feedstocks as raw materials. Future government policies may adversely affect the supply of feedstocks, restrict our ability to use sugarcane or other feedstocks to produce our products, or encourage the use of feedstocks more advantageous to our competitors, which would put us at a commercial disadvantage and could negatively impact our business, financial condition, and results of operations.

Our cannabinoid and COVID-19 vaccine development initiatives are uncertain and may not yield commercial results and are subject to material regulatory risks.

Since 2019, we have been developing, producing and commercializing fermentation-derived cannabinoids, but our cannabinoid program is the subject of ongoing litigation. While we believe there are substantial business opportunities for us in this field, there can be no assurance that our activities will be successful, or that any research and development and product testing efforts will result in commercially saleable products, or that the market will accept or respond positively to our products. In addition, the market for cannabinoids is heavily regulated. Certain synthetic cannabinoids may be viewed as controlled substances under the federal Controlled Substances Act of 1970 (CSA), and may be subject to a high degree of regulation including, among other things, certain registration, licensing, manufacturing, security, record keeping, reporting, import, export, clinical and non-clinical studies, insurance and other requirements administered by the U.S. Drug Enforcement Administration (DEA) and/or the FDA.

Individual states and countries have also established controlled substance laws and regulations, which may differ from U.S. federal law. We or our partners may be required to obtain separate state or country registrations, permits or licenses in order to be able to develop produce, sell, store and transport cannabinoids. Complying with laws and regulations relating to cannabinoids is evolving, complex and expensive, and may divert management's attention and resources from other aspects of our business. Failure to maintain compliance with such laws and regulations may result in regulatory action that could have a material adverse effect on our business, financial condition, results of operations and growth prospects. The DEA, FDA or state agencies may seek civil penalties, refuse to renew necessary registrations, or initiate proceedings to revoke those registrations. In certain circumstances, violations could lead to criminal proceedings.

Since 2020, we have been working with our partners, ImmunityBio and Access to Advanced Health Institute, to develop a next-generation COVID-19 vaccine. In late 2021, we launched a joint venture with ImmunityBio to accelerate the manufacturing and commercialization of the COVID-19 vaccine on a worldwide basis. In the United States, to obtain approval from the FDA to market any of our future drug, biologic, or vaccine products, we are required to submit a new drug application (NDA) or biologics license application (BLA) to the FDA. Ordinarily, the FDA requires a company to support an NDA or BLA with substantial evidence of the product candidate's effectiveness, safety, purity and potency in treating the targeted indication based on data derived from adequate and well-controlled clinical trials, including Phase 3 trials conducted in patients with the disease or condition being targeted. Regulatory authorities in other jurisdictions around the world, such as the European Commission or the competent authorities of the European Union member states or other European countries, have similar requirements.

Our COVID-19 vaccine product candidate entered a Phase 1 human clinical trial in the first half of 2022. Upon successful completion of all required phases of clinical trials of our COVID-19 vaccine product candidate, we expect to seek regulatory approval in various jurisdictions for commercialization. If we are not successful in our clinical development, or if our clinical trials do not generate the data we expect, or if we are unable to obtain regulatory approval in a timely manner, or at all, for our COVID-19 vaccine product candidate, we may not be able to commercialize our COVID-19 vaccine according to our expected timeline, or at all, which would prevent us from receiving a return on our investments and could negatively impact our business and growth prospects.

Moreover, to obtain approval from the FDA or a similar international or national regulatory body of any product candidate, we or our suppliers for that product must obtain approval by the applicable regulatory body to manufacture and supply product, in some cases based on qualification data provided to the applicable body as part of our regulatory submission. Any delay in generating, or failure to generate, data required in connection with submission of the chemistry, manufacturing and controls portions of any regulatory submission could negatively impact our ability to meet our anticipated submission dates, and therefore our anticipated timing for obtaining FDA

or similar international or national regulatory body approval, or our ability to obtain regulatory approval at all. In addition, any failure of us or a supplier to obtain approval by the applicable regulatory body to manufacture and supply product or any delay in receiving, or failure to receive, adequate supplies of a product on a timely basis or in accordance with applicable specifications could negatively impact our ability to successfully launch and commercialize products and generate sales of products at the levels we expect.

Since 2020, given the global pandemic crisis, the COVID-19 vaccine development processes have been atypical and U.S. regulators have employed Emergency Use Authorization (EUA) procedures to enable access to COVID-19 vaccine in an accelerated manner. We cannot predict the timelines or revised regulatory processes that may be required for the authorization or approval of our COVID-19 vaccine or potential retraction of existing EUAs. In addition, our product candidates including our COVID-19 vaccine, and any other pharmaceutical products that we may develop or commercialize in the future, are subject to extensive FDA regulation and oversight, as well as oversight by other regulatory agencies in the United States and by comparable authorities in other countries. This includes, but is not limited to, laws and regulations governing product development, including testing, manufacturing, record keeping, storage and approval, as well as advertising and promotion. If we or any of our suppliers encounter manufacturing, quality or compliance difficulties with respect to any of our products, whether due to the evolving effects of the COVID-19 pandemic (including as a result of disruptions of global shipping and the transport of products) or otherwise, we may be unable to obtain or maintain regulatory approval or meet commercial demand for such products, which could adversely affect our business, financial condition, results of operations and growth prospects.

We may incur material costs to comply with environmental laws and regulations, and failure to comply with these laws and regulations could expose us to material liabilities.

We use intermediate substances, hazardous chemicals and biological materials in our business, and such materials are subject to a variety of federal, state and local laws and regulations governing the use, generation, manufacture, storage, handling and disposal of these materials in the United States, Brazil and the European Union. Although we have implemented safety procedures for handling and disposing of these materials and related waste products in an effort to comply with these laws and regulations, we cannot be sure that our safety measures and those of our contractors will prevent accidental injury or contamination from the use, storage, handling or disposal of hazardous materials. In the event of contamination or injury, we could be held liable for any resulting damages, and any liability could exceed our insurance coverage. 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, real property contamination, 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, without regard to comparative fault, and may be punitive in nature. Furthermore, 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 otherwise harm our business.

Our proprietary rights may not adequately protect our technologies and product candidates.

Our commercial success will depend substantially on our ability to obtain patents and maintain adequate legal protection for our technologies and product candidates in the United States and other countries. As of December 31, 2022, we had 689 issued U.S. and foreign patents and 347 pending U.S. and foreign patent applications that were owned or co-owned by or licensed to us. We will be able to protect our proprietary rights from unauthorized use by third parties only to the extent that our proprietary technologies and future products are covered by valid and enforceable patents or are effectively maintained as trade secrets.

We apply for patents covering both our technologies and product candidates, as we deem appropriate. However, filing, prosecuting, maintaining and defending patents on product candidates in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States are less extensive than those in the United States. We may also fail to apply for patents on important technologies or product candidates in a timely fashion, or at all. Our existing and future patents may not be sufficiently broad to prevent others from practicing our technologies or from designing products around our patents or otherwise developing competing products or technologies. In addition, the patent positions of companies like ours are highly uncertain and involve complex legal and factual questions for which important legal principles remain unresolved. No consistent policy regarding the breadth of patent claims has emerged to date in the United States. Additional uncertainty may result from legal decisions by the U.S. Federal Circuit and Supreme Court as they determine legal issues concerning the scope and construction of patent claims and inconsistent interpretation of patent laws or from legislation enacted by the U.S. Congress. The patent situation outside of the United States is also difficult to predict. As a result, the validity and enforceability of patents cannot be predicted with certainty. Moreover, we cannot be certain whether:

- we (or our licensors) were the first to make the inventions covered by each of our issued patents and pending patent applications;
- we (or our licensors) were the first to file patent applications for these inventions;
- others will independently develop similar or alternative technologies or duplicate any of our technologies;
- any of our or our licensors' patents will be valid or enforceable;
- any patents issued to us (or our licensors) will provide us with any competitive advantages, or will be challenged by third parties;
- we will be able to identify when others are infringing our (or our licensed) valid patent claims;
- others will claim we are infringing on their patent claims;
- we will develop additional proprietary products or technologies that are patentable; or
- the patents of others will have a material adverse effect on our business.

We do not know whether any of our pending patent applications or those pending patent applications that we license will result in the issuance of any patents. Even if patents are issued, they may not be sufficient to protect our technology or product candidates. Accordingly, even if issued, we cannot predict the breadth, validity and enforceability of the claims upheld in our and other companies' patents. The patents we own or license and those that may be issued in the future may be challenged, invalidated, rendered unenforceable, or circumvented, and the rights granted under any issued patents may not provide us with proprietary protection or competitive advantages. Moreover, third parties could practice our inventions in territories where we do not have patent protection or in territories where they could obtain a compulsory license to our technology where patented. Such third parties may then try to import products made using our inventions into the United States or other territories.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries do not favor the enforcement of patents or other intellectual property rights, which could hinder us from preventing the infringement of our patents or other intellectual property rights. Proceedings to enforce our patent rights in the United States or foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing and could provoke third parties to assert patent infringement or other claims against us. We may not prevail in any lawsuits that we initiate, and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license from third parties.

Moreover, we have granted certain of our lenders liens on substantially all of our assets, including our intellectual property, as collateral. If we default on our payment obligations under these secured loans, such lenders have the

right to foreclose upon and control the disposition of our assets, including our intellectual property assets, to satisfy our payment obligations under such instruments. If such default occurs, and our intellectual property assets are sold or licensed, our business could be materially adversely affected.

Unauthorized parties may attempt to copy or otherwise obtain and use our products or technology. Monitoring unauthorized use of our intellectual property is difficult, and we cannot be certain that the steps we have taken will prevent unauthorized use of our technology, particularly in certain foreign countries where the local laws may not protect our proprietary rights as fully as in the United States or may provide, today or in the future, for compulsory licenses. Moreover, in some cases our ability to determine if our intellectual property is being unlawfully used by a competitor may be limited. If competitors are able to use our technology, our ability to compete effectively could be harmed. Moreover, others may independently develop and obtain patents for technologies that are similar, or superior, to our technologies. If that happens, we may need to license these technologies, and we may not be able to obtain licenses on reasonable terms, if at all, which could cause harm to our business.

We rely in part on trade secrets to protect our technology, and our failure to obtain or maintain trade secret protection could adversely affect our competitive business position.

We rely on trade secrets to protect some of our technology, particularly where we do not believe patent protection is appropriate or obtainable. However, trade secrets are difficult to maintain and protect. Our strategy for contract manufacturing and scale-up of commercial production requires us to share confidential information with our international business partners and other parties. Our product development collaborations with third parties, including with DSM, Firmenich, Givaudan, Ingredion, Minerva and Yifan, require us to share certain confidential information. While we use reasonable efforts to protect our trade secrets, our or our business partners' employees, consultants, contractors or scientific and other advisors may unintentionally or willfully disclose our proprietary information to competitors. Enforcement of claims that a third party has illegally obtained and is using trade secrets is expensive, time consuming, and uncertain. In addition, foreign courts are sometimes less willing than U.S. courts to protect trade secrets. If our competitors lawfully obtain or independently develop equivalent knowledge, methods, and know-how, we would not be able to assert our trade secrets against them.

We require new employees and consultants to execute proprietary information and inventions agreements upon the commencement of an employment or consulting arrangement with us. We additionally require contractors, advisors, corporate collaboration partners, outside scientific collaboration partners, and other third parties that may receive trade secret information to execute such agreements or confidentiality agreements. These agreements generally require that all confidential information developed by the individual or made known to the individual by us during the course of the individual's relationship with us be kept confidential and not be disclosed to third parties. These agreements also typically provide that inventions conceived by the individual in the course of rendering services to us shall be our exclusive property. Nevertheless, our proprietary information may be disclosed, or these agreements may be unenforceable or difficult to enforce. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor, we would have no right to prevent such third party, or those to whom they communicate such technology or information, from using that technology or information to compete with us. Additionally, trade secret law in Brazil differs from that in the United States, which requires us to take a different approach to protecting our trade secrets in Brazil. Some of these approaches to trade secret protection may be novel and untested under Brazilian law, and we cannot guarantee that we would prevail if our trade secrets are contested in Brazil. If any of the above risks materializes, our failure to obtain or maintain trade secret protection could materially adversely affect our competitive business position.

Third parties and former employees may misappropriate our trade secrets including those embodied in our yeast strains.

Third parties, including collaboration partners, contract manufacturers, other contractors, and shipping agents, as well as exiting employees, often have access to our trade secrets and custody or control of our yeast strains. If our

trade secrets or yeast strains were stolen, misappropriated, or reverse engineered, they could be used by other parties who may be able to reproduce the yeast strains for their own commercial gain. If this were to occur, it would be difficult for us to challenge and prevent this type of use, especially in countries where we have limited intellectual property protection or that do not have robust intellectual property law regimes.

If we are, or one of our collaboration partners is, sued for infringing intellectual property rights or other proprietary rights of third parties, litigation could be costly and time consuming and could prevent us from developing or commercializing our future products.

Our commercial success depends on our and our collaboration partners' ability to operate without infringing the patents and proprietary rights of other parties and without breaching any agreements we have entered into with regard to our technologies and product candidates. We cannot determine with certainty whether patents or patent applications of other parties may materially affect our ability to conduct our business. Our industry spans several sectors, including biotechnology, renewable fuels, renewable specialty chemicals, and other renewable molecules, and is characterized by the existence of a significant number of patents and disputes regarding patent and other intellectual property rights. Because patent applications remain unpublished and confidential for eighteen months and can take several years to issue, there may currently be pending applications, unknown to us, that may result in issued patents that cover our technologies or product candidates. There may be a significant number of patents and patent applications relating to aspects of our technologies filed by, and issued to, third parties. The existence of third-party patent applications and patents could significantly reduce the coverage of patents owned by or licensed to us and our collaboration partners and limit our ability to obtain meaningful patent protection. If we wish to make, use, sell, offer to sell, or import the technology or compound claimed in issued and unexpired patents owned by others, we may need to obtain a license from the owner, develop or obtain alternative technologies, enter into litigation to challenge the validity of the patents, or incur the risk of litigation in the event that the owner asserts that we infringe its patents. If patents containing competitive or conflicting claims are issued to third parties and these claims are ultimately determined to be valid, we and our collaboration partners may be enjoined from pursuing research, development, or commercialization of products, or be required to obtain licenses to these patents, or to develop or obtain alternative technologies.

If a third party asserts that we infringe upon its patents or other proprietary rights, we could face a number of issues that could materially harm our competitive position, including:

- infringement and other intellectual property claims, which could be costly and time-consuming to litigate, whether or not the claims have merit, and could prevent or delay getting our products to market and divert management time and attention from our business;
- substantial damages for past infringement, which we may have to pay if a court determines that our products or technologies infringe a third party's patent or other proprietary rights;
- a court prohibiting us from selling or licensing our technologies or future products unless the holder licenses the patent or other proprietary rights to us, which it is not required to do;
- the International Trade Commission prohibiting us from importing our products into the United States; and
- the requirement from a third party to pay substantial royalties to license its patent(s), or grant cross licenses to our patents or proprietary rights.

The industries in which we operate, and the biotechnology industry in particular, are characterized by frequent and extensive litigation and patent agency procedures regarding patents and other intellectual property rights. Many biotechnology companies have employed intellectual property litigation as a way to gain a competitive advantage in our industry. If any of our competitors have filed patent applications or obtained patents that claim inventions also claimed by us, we may have to participate in interference proceedings declared by the relevant patent regulatory agency to determine priority of invention and, thus, the right to the patents for these inventions in the United States. In addition, third parties may be able to challenge the validity of one or more of our patents using

available post-grant procedures including oppositions and *inter partes* reviews. These proceedings could result in substantial cost to us even if the outcome is favorable. Even if successful, an interference or post-grant proceeding may result in loss of certain of our patent claims. Our involvement in litigation, interferences, opposition proceedings or other intellectual property proceedings inside and outside of the United States, to defend our intellectual property rights, or as a result of alleged infringement of the rights of others, may divert management time and attention from business operations and could cause us to spend significant resources, all of which could harm our business and results of operations.

Many of our employees were previously employed at universities, and at biotechnology or specialty chemical companies, including our competitors or potential competitors. We may be subject to claims that these employees have inadvertently or otherwise used or disclosed trade secrets or other proprietary information of their former employers. Litigation may be necessary to defend against these claims. If we fail in defending such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel and be enjoined from certain activities. A loss of key research personnel or their work product, especially to our competitors or potential competitors, could hamper or prevent our ability to commercialize our product candidates, which could materially harm our business. Even if we are successful in prosecuting or defending against these claims, litigation could result in substantial costs and demand on management resources.

From time to time, we may in the ordinary course of business be named as a defendant in lawsuits, indemnity claims and other legal proceedings or be the subject of a government investigation or enforcement action. In the event that such claims, proceedings, investigations or actions are ultimately resolved unfavorably to us at amounts exceeding our accrued liability, or at material amounts, the outcome could materially and adversely affect our reputation, business, financial condition, results of operations or growth prospects.

We may need to commence litigation to enforce our intellectual property rights, which would divert resources and management's time and attention with uncertain results.

Our commercial success depends in part on obtaining, maintaining, and defending intellectual property protection for our products and assets. Enforcement of our intellectual property rights may require us to bring claims against third parties that are using our proprietary rights without permission, and such process is expensive, time-consuming, and uncertain. Significant litigation would result in substantial costs, even if the eventual outcome is favorable to us, and would divert management's attention from our business objectives. In addition, an adverse outcome in litigation could result in a substantial loss of our proprietary rights, and we may lose our ability to exclude others from practicing our technology or producing our product candidates.

Patent enforcement generally must be sought on a country-by-country basis, and the laws of some foreign countries 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 defending intellectual property rights in certain foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents by foreign holders and other intellectual property protection, particularly those relating to biotechnology and/or biochemical technologies. This could make it difficult for us to stop the infringement of our patents or misappropriation of our other intellectual property rights. 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. Moreover, our efforts to protect our intellectual property rights in such countries may be inadequate.

We do not have exclusive rights to intellectual property we develop under U.S. federally funded research grants and contracts, including with DARPA and DOE, and we could ultimately share or lose the rights we do have under certain circumstances.

Some of our intellectual property rights have been or may be developed in the course of research funded by the U.S. government, including under our agreements with Defense Advanced Research Projects Agency (DARPA)

and Department of Energy (DOE). As a result, the U.S. government may have certain rights to intellectual property embodied in our current or future products pursuant to the Bayh-Dole Act of 1980. Government rights in certain inventions developed under a government-funded program include a non-exclusive, non-transferable, irrevocable worldwide license to use inventions for any governmental purpose. In addition, the U.S. government has the right to require us, or an assignee or exclusive licensee to such inventions, to grant licenses to any of these inventions to a third party if the U.S. government determines that: (i) adequate steps have not been taken to commercialize the invention; (ii) government action is necessary to meet public health or safety needs; (iii) government action is necessary to meet requirements for public use under federal regulations; or (iv) the right to use or sell such inventions is exclusively licensed to an entity within the United States and substantially manufactured outside the United States without the U.S. government's prior approval. Additionally, we may be restricted from granting exclusive licenses for the right to use or sell our inventions created pursuant to such agreements unless the licensee agrees to additional restrictions (e.g., manufacturing substantially all of the invention in the United States). The U.S. government also has the right to take title to these inventions if we fail to disclose the invention to the government and fail to file an application to register the intellectual property within specified time limits. In addition, the U.S. government may acquire title in any country in which a patent application is not filed within specified time limits. Further, certain inventions are subject to transfer restrictions during the term of these agreements and for a period thereafter, including sales of products or components, transfers to foreign subsidiaries for the purpose of the relevant agreements, and transfers to certain foreign third parties. If any of our intellectual property becomes subject to any of the rights or remedies available to the U.S. government or third parties pursuant to the Bayh-Dole Act of 1980, this could impair the value of our intellectual property and could adversely affect our business.

Our products subject us to product safety risks, and we may be sued for product liability.

The design, development, formulation, production, and sale of our products, in particular those designed for human consumption, involve an inherent risk of product liability claims and the associated adverse publicity. Our products could be used by a wide variety of consumers with varying levels of sophistication. Although safety is a priority for us, we are not always in control of the final uses and formulations of the products we supply or their use as ingredients. Our products could have detrimental impacts or adverse impacts we cannot anticipate. Despite our efforts, negative publicity about the Company, including product safety or similar concerns, whether real or perceived, could occur, and our products could face withdrawal, recall or other quality issues. In addition, we may be named directly in product liability suits relating to our products, including, among other things, that our products include inadequate instructions for use or inadequate warnings concerning possible side effects and interactions with other substances, even for defects resulting from errors of our commercial partners, contract manufacturers, chemical finishers, customers or end users of our products. These claims could be brought by various parties, including customers who are purchasing products directly from us or other users who purchase products from our customers. We could also be named as co-parties in product liability suits that are brought against the contract manufacturers with whom we partner to produce our products. Insurance coverage is expensive, may be difficult to obtain and may not be available in the future on acceptable terms. Any insurance we do maintain may not provide adequate coverage against potential losses, and if claims or losses exceed our liability insurance coverage, our business would be adversely impacted. In addition, insurance coverage may become more expensive, which would harm our results of operations.

Nutritional supplement products may not be supported by conclusive clinical studies, and sales of our consumable products and ingredients including alternative sweeteners and nutraceuticals could be negatively impacted by adverse publicity associated with any assertions made about the safety or efficacy of such ingredients and products.

Certain consumer brands feature nutritional supplements that are made from vitamins, minerals, herbs, and other ingredients, all deemed safe for human consumption by the FDA. All of our products are tested for quality, safety

and efficacy based on consumer feedback and third party inspections in a controlled laboratory environment. Although we believe that our products are safe when taken as directed, we have not yet performed or sponsored randomized, double-blinded placebo human clinical studies. Furthermore, because we are highly dependent on consumers' perception of the quality, safety and efficacy of our products, as well as similar products distributed by other companies, we could be adversely affected in the event that those products prove or are asserted to be ineffective or harmful to consumers or in the event of adverse publicity associated with any illness or other adverse effects resulting from consumers' use or misuse of our products or similar products of our competitors. For example, on February 27, 2023, one new study was published relating to the cardiovascular risk associated with the sweetener ingredient, erythritol, which is in Purecane products. Erythritol has been classified as Generally Recognized as Safe in the United States since 2001 and consumed globally for many years; however, any such negative publicity around the potential health risks associated with an ingredient in our products could negatively impact consumer demand, customer satisfaction, and product sales, or expose us to potential legal claims.

Risks Related to Ownership of Our Common Stock

Our stock price has been, and may continue to be, volatile.

The market price of our common stock has been, and may continue to be, subject to material volatility. Such fluctuations could be in response to, among other things, the factors described in this "Risk Factors" section, or other factors, some of which are beyond our control, such as:

- fluctuations in our financial results or outlook, or those of companies perceived to be similar to us;
- changes in estimates of our financial results or recommendations by securities analysts;
- changes in the prices of commodities associated with our business or changes in the prices of commodities that some of our products may replace, such as oil and other petroleum sourced products;
- changes in our capital structure, such as future issuances of securities or the incurrence of debt;
- announcements by us or our competitors of significant contracts, acquisitions or strategic partnerships;
- regulatory developments in the United States, Brazil, and/or other foreign countries;
- the ongoing impacts of the COVID-19 pandemic and resulting impact on stock market performance;
- litigation or government investigations involving us or our general industry;
- additions or departures of key personnel;
- investors' general perceptions of us; and
- changes in general economic, industry and market conditions.

Furthermore, stock markets have experienced price and volume fluctuations that have affected, and continue to affect, the market prices of equity securities of many companies. These fluctuations often have been unrelated or disproportionate to the operating performance of those companies. These broad market fluctuations, as well as general economic, political and market conditions, such as recessions, interest rate changes and international currency fluctuations, may negatively affect the market price of our common stock.

Additionally, the global economy and financial markets may be adversely affected by geopolitical events, including the current or anticipated impact of military conflict and related sanctions imposed on Russia by the United States and other countries due to Russia's recent invasion of Ukraine.

In the past, many companies that have experienced volatility and sustained declines in the market price of their stock have become subject to securities class action and derivative action litigation. We have been involved in four such lawsuits that were dismissed in September 2017, July 2018 and September 2018, and in another such lawsuit that was resolved in December 2020. We are currently defending three such lawsuits, as described in more detail below under "Legal Proceedings," and we may be the target of this type of litigation in the future. Securities litigation against us could result in substantial costs and divert our management's attention from other business concerns, which could materially harm our business. Any insurance we maintain may not provide

adequate coverage against potential losses from such securities litigation, and if claims or losses exceed our liability insurance coverage, our business would be adversely impacted. In addition, insurance coverage may become more expensive, which would harm our financial condition and results of operations.

The concentration of our capital stock ownership and certain rights we have granted to insiders will limit the ability of other stockholders to influence corporate matters and presents risks related to our future securities offerings, which could substantially impact our business.

As of December 31, 2022, over 30% of our capital stock was beneficially owned by a limited number of stockholders, including Foris Ventures, LLC (Foris) and DSM. Furthermore, Foris and other insider stockholders hold some or a combination of convertible preferred stock, warrants and purchase rights, pursuant to which they may acquire additional shares of our common stock and thereby increase their ownership interest in the Company. Additionally, Foris is indirectly owned by John Doerr, one of our current directors, and DSM has one director on our Board of Directors pursuant to designation rights under its agreement with the Company. This significant concentration of share ownership may adversely affect the trading price of our common stock because investors often perceive disadvantages in owning stock in companies with stockholders with significant interests. Also, these stockholders, acting together, may be able to control or materially influence our management and affairs and matters requiring stockholder approval, including the election of directors and the approval of significant corporate transactions such as mergers, consolidations or the sale of all or substantially all of our assets, and may not act in the best interests of our other stockholders. Consequently, this concentration of ownership may have the effect of delaying or preventing a change of control or a change in our management or Board of Directors, or discouraging a potential acquirer from making a tender offer or otherwise attempting to obtain control of the Company, even if such actions would benefit our other stockholders.

While we have a related party transactions policy that requires certain approvals of any transaction between the Company and a significant stockholder or its affiliates, there can be no assurance that our significant stockholders will act in the best interests of our other stockholders, which could harm our results of operations and cause our stock price to decline.

Future sales and issuances of our common stock, convertible securities, warrants or rights to purchase common stock could result in additional dilution of the percentage ownership of our stockholders and could cause our stock price to decline.

From time to time, we have sold a substantial number of warrants and rights to acquire our common stock as well as convertible securities, which, if exercised, purchased, or converted, result in dilution to our stockholders. In the future, we may sell additional warrants, rights, convertible or exchangeable securities or other equity securities in one or more transactions at prices and in a manner we determine from time to time, to finance our business operations and investments. To the extent we raise capital by issuing equity securities, our stockholders may experience substantial dilution.

If our existing stockholders, particularly our largest stockholders, our directors, their affiliates, or our executive officers, sell a substantial number of shares of our common stock in the public market, the market price of our common stock could decrease materially. The perception in the public market that these stockholders might sell our common stock could also depress the market price of our common stock and could impair our future ability to obtain capital, especially through an offering of equity securities.

We have in place, or have agreed to file, registration statements for the resale of certain shares of our common stock held by, or issuable to, certain of our largest stockholders. All of our common stock sold pursuant to an offering covered by such registration statements will be freely transferable. In addition, shares of our common stock issued or issuable under our equity incentive plans to employees and directors have been registered on

Form S-8 registration statements and may be freely sold in the public market upon issuance, except for shares held by affiliates who have certain restrictions on their ability to sell.

The conditional conversion feature of our 2026 Convertible Senior Notes, if triggered, may adversely affect our financial condition and operating results.

In the event the conditional conversion feature of our 2026 Convertible Senior Notes is triggered, holders thereof will be entitled to convert the 2026 Convertible Senior Notes into shares of our common stock, at any time during specified periods at their option. If one or more holders elect to convert their notes, unless we elect to satisfy our conversion obligation by delivering solely shares of our common stock (other than cash in lieu of any fractional share), we would be required to settle a portion or all of our conversion obligation through the payment of cash, which could adversely affect our liquidity. In addition, even if holders of the 2026 Convertible Senior Notes do not elect to convert their notes, we could be required under applicable accounting rules to reclassify all or a portion of the outstanding principal of the 2026 Convertible Senior Notes as a current rather than long-term liability, which would result in a material reduction of our net working capital.

The capped call transactions may affect the value of our 2026 Convertible Senior Notes and our common stock.

In connection with the pricing of the 2026 Convertible Senior Notes, we entered into capped call transactions with certain of the initial purchasers or their respective affiliates and other financial institutions (the “option counterparties”). The capped call transactions are expected generally to reduce the potential dilution to our common stock upon any conversion of the notes and/or offset any cash payments we are required to make in excess of the principal amount of converted notes, as the case may be, with such reduction and/or offset subject to a cap. In addition, the option counterparties and/or their respective affiliates may modify their hedge. This could also cause or avoid an increase or a decrease in the market price of our common stock or the notes, which could affect holders’ ability to convert the 2026 Convertible Senior Notes which may potentially affect the number of shares and value of the consideration that note holders will receive upon conversion of the 2026 Convertible Senior Notes.

We are subject to counterparty risk with respect to the capped call transactions related to our 2026 Convertible Senior Notes.

The option counterparties may default or otherwise fail to perform, or terminate, their obligations under the capped call transactions. Our exposure to the credit risk of the option counterparties will not be secured by any collateral. Past global economic conditions have resulted in the actual or perceived failure or financial difficulties of many financial institutions. If an option counterparty becomes subject to insolvency proceedings, we would become an unsecured creditor in those proceedings. In addition, any default or other failure to perform, or a termination of obligations, by an option counterparty, may cause our shares of common stock to be further diluted more than we currently anticipate.

We are subject to new U.S. foreign investment regulations which may impose additional burdens on or may limit certain investors’ ability to purchase our common stock, potentially making our common stock less attractive to investors.

The U.S. Department of Treasury implemented part of the Foreign Investment Risk Review Modernization Act (FIRRMA) on November 10, 2018. The FIRRMA program expands the jurisdiction of the Committee on Foreign Investment in the United States (CFIUS), to include certain direct or indirect foreign investments in a defined category of U.S. companies, including companies involved in critical infrastructure and critical technologies. Among other things, FIRRMA empowers CFIUS to require certain mandatory filings in connection with certain foreign

investments in U.S. companies and permits CFIUS to charge filing fees related to such filings. Such filings are subject to review by CFIUS, which will have the authority to recommend that the U.S. President block or impose conditions on certain foreign investments in companies subject to CFIUS's oversight. Any such restrictions on the ability of foreign investors to invest in the Company could limit our ability to engage in strategic transactions that may benefit our stockholders, including a change of control, and may prevent our stockholders from receiving a premium for their shares of our common stock in connection with a change of control, and could also affect the price that some investors are willing to pay for our common stock.

If securities or industry analysts do not publish or cease publishing research or reports about us, our business or our market, or if they change their recommendations regarding our stock adversely, our stock price and trading volume could decline.

The trading market for our common stock can be influenced by the research and reports that industry or securities analysts publish about us, our business, our market or our competitors. If any of the analysts who cover the Company change their recommendation regarding our stock adversely, or provide more favorable relative recommendations about our competitors, our stock price may decline. If any analyst who covers the Company were to cease coverage of our stock or fail to regularly publish reports on the Company, we could lose visibility in the financial markets, which in turn could cause our stock price or trading volume to decline.

We do not expect to declare any cash dividends in the foreseeable future.

We do not anticipate declaring any cash dividends to holders of our common stock in the foreseeable future. In addition, certain of our equipment leases and credit facilities currently restrict our ability to pay dividends. Consequently, investors may need to rely on sales of their shares of our common stock after price appreciation, which may never occur, as the only way to realize any future gains on their investment. Investors seeking cash dividends should not purchase our common stock.

Anti-takeover provisions contained in our Certificate of Incorporation and Bylaws, as well as provisions of Delaware law, could impair a takeover attempt.

Our Certificate of Incorporation and Bylaws contain provisions that could delay or prevent a change in control. These provisions could also make it more difficult for stockholders to nominate directors and take other corporate actions. These provisions include:

- a staggered Board of Directors;
- authorizing the Board of Directors to issue, without stockholder approval, preferred stock with rights senior to those of our common stock;
- authorizing the Board of Directors to amend our Bylaws, to increase the number of directors and to fill board vacancies until the end of the term of the applicable class of directors;
- prohibiting stockholder action by written consent;
- limiting the liability of, and providing indemnification to, our directors and officers;
- eliminating the ability of our stockholders to call special meetings; and
- requiring advance notification of stockholder nominations and proposals.

Section 203 of the Delaware General Corporation Law (DGCL) prohibits, subject to some exceptions, "business combinations" between a Delaware corporation and an "interested stockholder," which is generally defined as a stockholder who becomes a beneficial owner of 15% or more of a Delaware corporation's voting stock, for a three-year period following the date that the stockholder became an interested stockholder. While we have agreed to opt out of Section 203 through our Certificate of Incorporation, our Certificate of Incorporation contains substantially similar protections to the Company and stockholders as those afforded under Section 203.

These and other provisions in our Certificate of Incorporation and our Bylaws could discourage potential takeover attempts, reduce the price that investors are willing to pay in the future for shares of our common stock and result in the market price of our common stock being lower than it would be without these provisions.

The exclusive forum provisions in our restated Bylaws 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 directors, officers, or other employees, which may discourage lawsuits with respect to such claims.

In November 2020, we amended our restated Bylaws to provide that, to the fullest extent permitted by law, the Court of Chancery of the State of Delaware will be the exclusive forum for any derivative action or proceeding brought on our behalf; any action asserting a breach of fiduciary duty; any action asserting a claim against us arising pursuant to the DGCL, our certificate of incorporation, or our restated Bylaws; or any action asserting a claim against us that is governed by the internal affairs doctrine. Our restated bylaws further provide that the U.S. federal district courts will, to the fullest extent permitted by law, be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act, or a Federal Forum Provision. Our decision to adopt a Federal Forum Provision followed a decision by the Supreme Court of the State of Delaware holding that such provisions are facially valid under Delaware law. While there can be no assurance that federal or state courts will follow the holding of the Delaware Supreme Court or determine that the Federal Forum Provision should be enforced in a particular case, application of the Federal Forum Provision means that suits brought by our stockholders to enforce any duty or liability created by the Securities Act must be brought in federal court and cannot be brought in state court.

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 directors, officers, or other employees, which may discourage lawsuits with respect to such claims. Alternatively, if a court were to find the choice of forum provisions contained in our Certificate of Incorporation or restated Bylaws 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, financial condition, and results of operations. In addition, Section 203 of the DGCL may discourage, delay or prevent a change in control of our company.

General Risks

Loss of key personnel, including key executives and key members of our research and development programs and our brand teams, and/or failure to attract and retain additional personnel could delay our product development programs and harm our research and development efforts and the commercialization efforts of our brands, which could impact our ability to meet our business objectives.

Our business involves complex, global operations across a variety of markets and requires a management team and employee workforce that are knowledgeable in the many areas in which we operate. As we continue to build our business, we will need to hire and retain qualified research and development, management, and other personnel to succeed. The process of hiring, training, and successfully integrating qualified personnel (including ones who were hired through acquisitions) into our operations in the United States, Brazil, and other countries in which we may seek to operate, can be lengthy and expensive. The market for qualified personnel is very competitive because of the limited number of people available who have the necessary technical skills and understanding of our technology and products. Our failure to hire and retain qualified personnel could impair our ability to meet our research and development and business objectives and adversely affect our results of operations and financial condition.

The loss of any key member of our management or any key technical and operational employee, or the failure to attract or retain such employees, could prevent us from developing and commercializing our products for our

target markets and executing our business strategy. In addition, we may not be able to attract or retain qualified employees in the future due to the intense competition for qualified personnel among biotechnology and other technology-based businesses. Furthermore, the loss of one or more of our employees to a competitor could materially adversely affect our business, results of operations and ability to capitalize on our proprietary information, particularly if we cannot enforce any non-compete or non-solicitation obligations with respect to our employees.

If we do not maintain the necessary personnel to accomplish our business objectives, we may experience staffing constraints that will adversely affect our ability to meet the demands of our collaboration partners and customers in a timely fashion or to support our internal research and development programs and operations. In particular, our product and process development programs depend on our ability to attract and retain highly skilled technical and operational personnel. Competition for such personnel from numerous companies and academic and other research institutions may limit our ability to do so on acceptable terms. All of our U.S. employees are “at-will” employees, which means that either the employee or the Company may terminate the employee’s employment at any time.

Our operations rely on sophisticated information technology and equipment systems, a disruption of which could harm our operations.

We rely on various information technology and equipment systems, some of which are dependent on services provided by third parties, to manage our technology platform and operations. These systems provide critical data and services for internal and external users, including research and development activities, procurement and inventory management, transaction processing, financial, commercial and operational data, partner and joint venture activities, human resources management, legal and tax compliance and other processes necessary to operate and manage our business. These systems are complex and are frequently updated as technology improves, and include software and hardware that is licensed, leased, or purchased from third parties. If our information technology and equipment systems experience breaches or other failures or disruptions, our systems and the information contained therein could be compromised. While we have implemented security measures and disaster recovery plans designed to mitigate the effects of any failures or disruption of these systems, such measures may not adequately prevent adverse events such as breaches or failures from occurring or mitigate their severity if they do occur. If our information technology or equipment systems are breached, damaged, or fail to function properly due to internal errors or defects, implementation or integration issues, catastrophic events, or power outages, we may experience a material disruption in our ability to manage our business operations. Failure or disruption of these systems could have a material adverse effect on our results of operations and financial condition.

Increased security threats to information systems and more sophisticated, targeted computer invasions could pose a risk to our technology platform and operations.

Increased information systems security threats, cyber- or phishing-attacks and more sophisticated, targeted computer invasions pose a risk to the security of our systems and networks, and the confidentiality, availability, and integrity of our data, operations, and communications. Exposure to such risks is enhanced in our remote work environment as a result of the COVID-19 pandemic. Cyber-attacks against our technology platform and infrastructure could result in exposure of confidential information, the modification of critical data, and/or the failure of critical operations. Likewise, improper or inadvertent employee behavior, including data privacy breaches by employees and others with permitted access to our systems may pose a risk that sensitive data may be exposed to unauthorized persons or to the public. While we attempt to mitigate these risks by employing a number of measures, including security measures, employee training, comprehensive monitoring of our networks and systems, maintenance of backup and protective systems, and incident response procedures, if these measures prove inadequate, we could be adversely affected by, among other things, loss or damage of intellectual property,

proprietary and confidential information, data integrity, and communications or customer data, increased costs to prevent, respond to, or mitigate these cyber security threats and interruptions of our business operations.

Growth may place material demands on our management, our infrastructure, and our contract manufacturing relationships.

We have experienced, and expect to continue to experience, expansion of our business as we continue to make efforts to develop and bring our products to market. We have grown from approximately 300 employees at the time of our initial public offering in 2010 to 1,598 full-time employees at December 31, 2022. Our growth and diversified operations have placed, and may continue to place, material demands on our management and our operational and financial infrastructure, particularly with respect to integrating the business practices, operations, and personnel with those of any of our acquired businesses. In particular, continued growth could strain our ability to:

- manage multiple research and development programs;
- operate multiple manufacturing facilities around the world;
- develop and improve our operational, financial and management controls;
- enhance our reporting systems and procedures;
- recruit, train, and retain highly skilled personnel;
- fully realize the anticipated benefits of our acquired companies and businesses;
- develop and maintain our relationships with existing and potential business partners including contract manufacturers;
- maintain our quality standards; and
- maintain customer satisfaction.

Managing our growth will require material expenditures and allocation of valuable management resources. If we fail to achieve the necessary level of efficiency in our organization as it grows, our business, financial condition, and results of operations would be adversely impacted.

Our headquarters and other facilities are located in active earthquake, tsunami or hurricane zones, and an earthquake, hurricane, wildfire or other type of natural disaster affecting us or our suppliers could cause resource shortages, disrupt our business and harm our results of operations.

We conduct our primary research and development operations in the San Francisco Bay Area in an active earthquake and tsunami zone, and certain of our suppliers conduct their operations in the same region or in other locations that are susceptible to natural disasters. In addition, California and some of the locations where certain of our suppliers are located have experienced shortages of water, electric power and natural gas from time to time. The occurrence of a hurricane or associated flooding in the Wilmington, North Carolina area could cause damage to our facility located in Leland or result in localized extended outages of utilities or transportation systems. The occurrence of a natural disaster, such as an earthquake, wildfire, hurricane, drought or flood, or localized extended outages of critical utilities or transportation systems, or any critical resource shortages, affecting us or our suppliers could cause a material interruption in our business, damage or destroy our facilities, production equipment or inventory or those of our suppliers and cause us to incur material costs or result in limitations on the availability of our raw materials, any of which could harm our business, financial condition and results of operations. The insurance we maintain against earthquakes, fires and other natural disasters may not be adequate to cover our losses in any particular case. Our facilities undergo annual loss control audits and both our Emeryville and Leland facilities have emergency actions plans outlining emergency response practices for these and other emergency scenarios. Training on emergency response is provided to all employees at hire and annually thereafter as a refresh.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

We lease our principal office and research and development facilities located in Emeryville, California. We hold a 49% ownership interest in a manufacturing facility located in Leland, North Carolina, lease a pilot plant and demonstration facility and related office and laboratory space located in Campinas, Brazil, are the majority owner of a precision fermentation facility located in Barra Bonita, Brazil, and are guarantor to a manufacturing facility lease in Reno, Nevada. In May 2022, we acquired Interfaces, a manufacturing facility subject to a lease in the State of Sao Paulo, Brazil. In 2022, we entered into certain leases in New York, Florida, and England that will be used as office and retail space for our consumer business and a financial shared service center. Our lease agreements expire at various dates through 2039.

We believe that our current facilities are suitable and adequate to meet our needs and that additional space will be available to accommodate the foreseeable expansion of our operations.

Item 3. Legal Proceedings

For a description of our significant pending legal proceedings, please see Note 9, Commitments and Contingencies of the Notes to Consolidated Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K.

Item 4. Mine Safety Disclosures

Not applicable.

Part II

Item 5. Market for Registrant's Common Equity and Related Stockholder Matters

Market Information for Common Stock

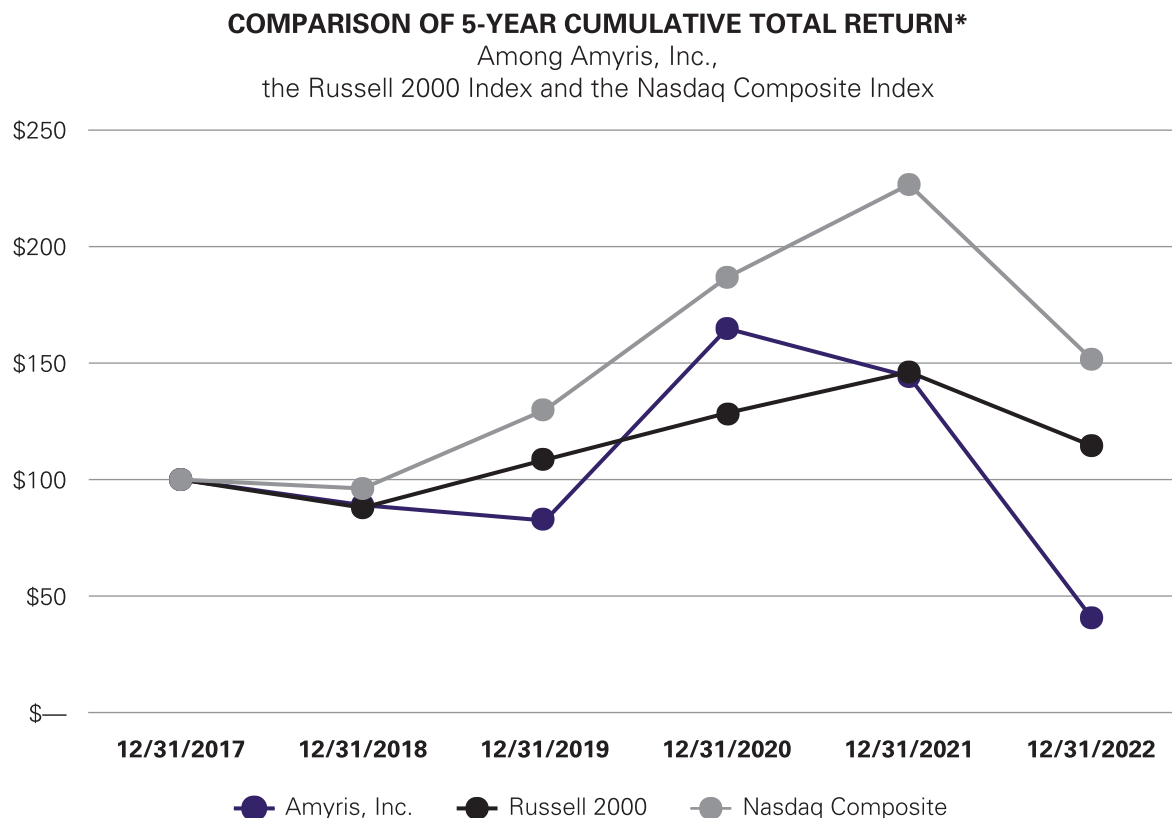
Our common stock is traded on the NASDAQ Global Select Market under the symbol AMRS. At March 14, 2023, there were 166 common stockholders of record (not including beneficial holders of stock held in street names).

Dividend Policy

We have never declared or paid any cash dividend on our common stock. We do not expect to pay cash dividends in the foreseeable future.

Performance Graph

The following graph compares the cumulative total return on Amyris's common stock with the cumulative total return of the Vanguard Standard & Poor's (S&P) SmallCap 600 Index and the S&P 500 Index for the five-year period ended December 31, 2022. The graph assumes that the value of the investment in Amyris and in each index was \$100 on December 31, 2017 and assumes that all dividends were reinvested.



* \$100 invested on 12/31/2017 in stock or index, including reinvestment of dividends.

	December 31, 2017	December 31, 2018	December 31, 2019	December 31, 2020	December 31, 2021	December 31, 2022
Amyris, Inc.	\$100.00	\$89.07	\$ 82.40	\$164.80	\$144.27	\$ 40.80
Russell 2000	\$100.00	\$87.82	\$108.66	\$128.61	\$146.23	\$114.70
Nasdaq Composite	\$100.00	\$96.12	\$129.97	\$186.69	\$226.63	\$151.61

Recent Sales of Unregistered Equity Securities and Use of Proceeds

For information regarding unregistered sales of our equity securities during the two years ended December 31, 2022, see the financial statements included in Part II, Item 8 of this Annual Report on Form 10-K.

Securities Authorized for Issuance under Equity Compensation Plans

The following table shows certain information concerning our common stock reserved for issuance in connection with our 2005 Stock Option/Stock Issuance Plan, our 2010 Equity Incentive Plan, our 2020 Equity Incentive Plan, and our 2010 Employee Stock Purchase Plan, all as of December 31, 2022:

Plan category	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options	Number of securities to be issued upon vesting of outstanding restricted stock units	Number of securities remaining available for future issuance under equity compensation plans(1)(2)
Equity compensation plans approved by security holders	4,504,430	\$6.72	16,897,826	45,285,559
Equity compensation plans not approved by security holders	—	—	—	—
Total	4,504,430	\$6.72	16,897,826	45,285,559

(1) Includes 41,855,461 shares reserved for future issuance under our 2020 Equity Incentive Plan and 3,430,098 shares reserved for future issuance under our 2010 Employee Stock Purchase Plan. No shares are reserved for future issuance under our 2005 Stock Option/Stock Issuance Plan other than shares issuable upon exercise of equity awards outstanding under such plan.

(2) Effective January 1, 2023, the number of shares available for future issuance under our 2020 Equity Incentive Plan is expected to be increased by up to 18,237,263 shares pursuant to the automatic increase provision in the 2020 Equity Incentive Plan, and the number of shares available for future issuance under our 2010 Employee Stock Purchase Plan is expected to be increased by up to 3,637,452 shares, in each case pursuant to automatic increase provisions in the respective plans, as discussed in more detail below.

Our 2020 Equity Incentive Plan includes all shares of our common stock previously reserved but unissued under the 2010 Equity Incentive Plan and all shares of our common stock reserved for issuance under our 2005 Stock Option/Stock Issuance Plan immediately prior to our initial public offering that were not subject to outstanding grants as of the completion of such offering. In addition, any shares of our common stock (i) issuable upon exercise of stock options granted under our 2005 Stock Option/Stock Issuance Plan or under our 2010 Equity Incentive Plan that cease to be subject to such options and (ii) issued under our 2005 Stock Option/Stock Issuance Plan or under our 2010 Equity Incentive Plan that are forfeited or repurchased by us at the original issue price, will become part of our 2020 Equity Incentive Plan reserve.

The number of shares available for grant and issuance under our 2020 Equity Incentive Plan is increased on January 1 of each year during the term of the plan by an amount equal to the lesser of (1) five percent (5%) of our shares outstanding on the immediately preceding December 31 and (2) a number of shares as may be determined

by our Board of Directors or the Leadership, Development, Inclusion, and Compensation Committee in their discretion. In addition, shares will again be available for grant and issuance under our 2020 Equity Incentive Plan that are:

- subject to issuance upon exercise of an option or stock appreciation right granted under our 2020 Equity Incentive Plan and that cease to be subject to such award for any reason other than the award's exercise;
- subject to an award granted under our 2020 Equity Incentive Plan and that are subsequently forfeited or repurchased by us at the original issue price;
- surrendered pursuant to an exchange program; or
- subject to an award granted under our 2020 Equity Incentive Plan that otherwise terminates without shares being issued.

The number of shares reserved for issuance under our 2010 Employee Stock Purchase Plan is increased on January 1 of each year during the term of the plan by an amount equal to the lesser of (1) one percent (1%) of our shares outstanding on the immediately preceding December 31 and (2) a number of shares as may be determined by our Board of Directors or the Leadership, Development, Inclusion, and Compensation Committee of the Board in their discretion, provided that the aggregate number of shares issued over the term of our 2010 Employee Stock Purchase Plan shall not exceed 1,666,666 shares.

Item 6. [Reserved]

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

Overview

We are a biotechnology company delivering sustainable, science-based ingredients and consumer products that are better than incumbent options for people and the planet. To accelerate the world's transition to sustainable consumption, we create, manufacture, and commercialize consumer products and ingredients that reach more than 300 million consumers. The largest component of our revenue is derived from marketing and selling Clean Beauty, Personal Care, and Health & Wellness consumer products through our direct-to-consumer e-commerce platforms and a growing network of retail partners. Our proprietary sustainable ingredients are sold in bulk to industrial leaders who serve Flavor & Fragrance (F&F), Nutrition, Food & Beverage, and Clean Beauty & Personal Care end markets.

We began 2022 with eight consumer brands, Biossance® clean beauty skincare, JVN™ haircare, Rose Inc.™ clean color cosmetics, Pipette® clean baby skincare, Costa Brazil® luxury skincare, OLIKA™ clean wellness, Purecane™ zero-calorie sweetener, and Terasana® clean skincare. During 2022, we added MenoLabs™, a brand focused on healthy living and menopause wellness, EcoFabulous™ clean beauty for Gen-Z consumers, and Stripes™ (peri)menopausal wellness; and prepared to discontinue the Terasana business. In the first quarter of 2023, we launched 4U by Tia™, a new clean haircare line exclusively available in Walmart.

The ingredients and consumer products we produce are powered by our unique, fermentation-based Lab-to-Market™ technology platform. This technology platform creates a portfolio connection between our proprietary science and formulation expertise, our manufacturing capability at industrial scale, and our ability to commercialize sustainable products that give consumers the power to choose products that benefit the planet. Our technology platform offers advantages to traditional methods of sourcing similar ingredients (such as petrochemistry, unsustainable agricultural practices, and extraction from organisms). These advantages include but are not limited to renewable and ethical sourcing of raw materials, less resource-intensive production, minimal impact on sensitive ecosystems, enhanced purity and safety profile, less vulnerability to climate disruption, and improved supply chain resilience. We bring together biology and engineering to produce sustainable materials that are scarce or endangered in nature. We leverage state-of-the-art machine learning, robotics, and artificial intelligence, which enable our technology platform to rapidly bring new innovation to market. Our revenue is generated from consumer product sales, ingredient product sales, research and development collaboration programs and grants, and consumer marketing services.

Our state-of-the-art infrastructure includes industry-leading strain engineering and lab automation located in Emeryville, California; pilot-scale production facilities in Emeryville and Campinas, Brazil; a demonstration-scale facility in Campinas; commercial scale production facilities in Leland, North Carolina and the State of Sao Paulo, Brazil. While a wide variety of feedstocks for production exists, we source Brazilian sugarcane for our large-scale production because of its supply resilience, renewability, low cost, and relative price stability. As of December 31, 2022, we have commissioned three lines of our new purpose-built, large-scale precision fermentation facility in Brazil, which we anticipate will accommodate the manufacturing of up to five products concurrently. We expect to commission the remaining lines in 2023. Pending full commissioning of the new facility, we continue to manufacture our products at manufacturing sites, some of which are third party, in Brazil, the United States, and Europe.

The results of operations for the years ended December 31, 2022, 2021, and 2020 reflected impacts of the COVID-19 pandemic, as well as the ongoing conflict in Ukraine. At the onset of the pandemic, we saw a shift in consumer behavior from purchasing in brick and mortar retail stores to online shopping. These events have also caused delays and increased costs within our supply chain, particularly related to inbound freight, packaging and componentry and other input costs. Inflationary pressures, rising interest rates, and risk of recession inherently result in uncertainty in business trends and consumer behavior. Although we are not currently seeing meaningful signs of a slowdown in consumer demand for our products, we are closely monitoring economic conditions.

Critical Accounting Policies and Estimates

Management's discussion and analysis of results of operations and financial condition are based on our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the U.S. (U.S. GAAP). We believe that the critical accounting policies described in this section are those that significantly impact our financial condition and results of operations and require the most subjective or complex judgements, often as a result of the need to make estimates about the effects of matters that are inherently uncertain. Because of this uncertainty, actual results may vary from these estimates.

Our most critical accounting estimates include:

- Revenue recognition, including arrangements with multiple performance obligations;
- Valuation and allocation of fair value to elements of complex related party transactions;
- Valuation of freestanding and embedded derivatives, which impacts gains or losses on such derivatives, the carrying value of debt, interest expense, and deemed dividends;
- Valuation of debt for which we have elected fair value accounting; and
- Valuation of goodwill, intangible assets, and contingent consideration payables, which are generated through business acquisitions.

A summary of our significant accounting policies is contained in Note 1 of Notes to Consolidated Financial Statements. This listing is not intended to be a comprehensive list of all of our accounting policies.

Results of Operations

Revenue

Years Ended December 31, (In thousands)	2022	2021	Change
Revenue:			
Renewable products	\$222,323	\$149,703	49%
Licenses and royalties	32,434	173,812	(81)%
Collaborations, grants and other	15,090	18,302	(18)%
Total revenue	\$269,847	\$341,817	(21)%

Total revenue was \$269.6 million in 2022 compared to \$341.8 million in 2021. Revenue in 2022 decreased by 21% primarily due to a large license revenue transaction in 2021 that did not repeat in 2022, offset in part by continued double-digit growth in renewable products.

Renewable products revenue increased by 49% to \$222.3 million in 2022, due to an \$84.9 million (92%) increase in consumer products revenue partially offset by a \$12.3 million (21%) decrease in ingredients revenue.

Licenses and royalties revenue decreased by 81% to \$32.4 million in 2022, primarily due to a \$149.6 million license in 2021 of intellectual property for our flavors and fragrances molecules, the sale of certain farnesene technology to DSM, and \$10.0 million of license revenue from the licensing of RebM related intellectual property to PureCircle.

Collaborations, grants, and other revenue decreased by 18% to \$15.1 million in 2022, mainly due to decreased collaboration revenue from DSM.

Cost and Operating Expenses

Years Ended December 31, (In thousands)	2022	2021	Change
Cost of products sold	\$258,668	\$155,139	67%
Research and development	110,215	94,289	17%
Sales, general and administrative	493,629	257,811	91%
Change in fair value of acquisition-related contingent consideration	(24,874)	—	nm
Restructuring	1,192	—	—%
Impairment	—	12,204	(100)%
Total cost and operating expenses	\$838,830	\$519,443	61%

"nm" indicates not meaningful

Cost of Products Sold

Cost of products sold increased by 67% to \$258.7 million in 2022, due to a corresponding 49% increase in renewable products revenue, coupled with an increase in manufacturing input costs for our ingredients products as well as increased freight and logistics costs for our consumer products business.

Research and Development Expenses

Research and development expenses increased by 17% to \$110.2 million in 2022, primarily due to an increase in employee compensation.

Sales, General, and Administrative Expenses

Sales, general, and administrative expenses increased by 91% to \$493.6 million in 2022, primarily due to increased sales and marketing expense and employee compensation related to our consumer brands.

Change in Fair Value of Acquisition-Related Contingent Consideration

The Company established earnout liabilities for certain of its acquisitions that are contingent upon the achievement of certain financial and other metrics over multiple years. These liabilities are remeasured quarterly based upon actual results to date and projections for future periods. In fiscal year 2022, the Company reduced the related liabilities by \$24.9 million.

Restructuring

In the fourth quarter of 2022, the Company committed to its "Fit-to-Win" strategy, which is a company-wide initiative with a goal of delivering \$150.0 million of benefit in fiscal year 2023. This program will include price increases on selective ingredients and consumer products, production and shipping cost reductions, and reductions within SG&A related to shipping and fulfillment, paid media, and workforce right-sizing. During 2022, the Company recognized restructuring expense of \$1.2 million related to employee severance.

Impairment

Impairment expense was \$0 in 2022 and \$12.2 million in 2021. In 2021, we impaired the remaining \$12.2 million asset related to manufacturing capacity fees paid to DSM for the production of RebM at DSM's Brotas, Brazil facility. Due to the 2022 commissioning of our new fermentation facility in Barra Bonita, Brazil, we determined RebM would not be manufactured at the DSM facility in 2022 and concluded that the asset was no longer recoverable.

Other Income (Expense), Net

Years Ended December 31, (In thousands)	2022	2021	Change
Interest expense	\$(24,733)	\$(25,605)	(3)%
Gain (loss) from change in fair value of derivative instruments	3,905	1,453	169%
Gain (loss) from change in fair value of debt	53,400	(38,649)	(238)%
Loss upon extinguishment of debt	—	(32,464)	(100)%
Other (expense) income, net	(2,214)	580	(482)%
Total other income (expense), net	\$ 30,358	\$(94,685)	(132)%

Total other income, net, was \$30.4 million in 2022, compared to other expense, net, of \$94.7 million in 2021. The \$125.0 million change was primarily comprised of a \$92.0 million decrease in loss from change in fair value of debt and a \$32.5 million decrease in loss upon extinguishment of debt.

Interest expense decreased slightly to \$24.7 million in 2022 compared to \$25.6 million in 2021 as the weighted average debt balance was similar year over year.

The increase in gain in fair value of derivative instruments was due to the decrease in our stock price during 2022.

The change from a loss to a gain in fair value of debt was due to the decrease in our stock price during 2022.

The loss upon extinguishment of debt for the year ended December 31, 2021 was primarily due to a \$28.9 million loss in connection with exchange of the Schottenfeld notes into common stock, and early payment penalties in connection with the repayment in full of certain other debt instruments. There was no extinguishment of debt in fiscal year 2022.

Income Taxes

For the year ended December 31, 2022, we recorded an income tax benefit of \$2.7 million due to losses in our foreign affiliates and an income tax benefit from an acquisition. For the year ended December 31, 2021, we recorded an income tax benefit of \$8.1 million related to the reversal of an uncertain tax position for which the statute of limitations had expired.

Liquidity and Capital Resources

Years Ended December 31, (In thousands)	2022	2021
Net cash (used in) provided by:		
Operating activities	\$(525,894)	\$(181,333)
Investing activities	(123,707)	(64,098)
Financing activities	231,413	701,962
Effect of exchange rate changes on cash, cash equivalents and restricted cash	474	359
Net (decrease) increase in cash, cash equivalents and restricted cash	\$(417,714)	\$ 456,890

Liquidity

We have incurred operating losses since our inception, and we expect to continue to incur losses and negative cash flows from operations in 2023. As of December 31, 2022, we had working capital of \$80.8 million, an accumulated deficit of \$2.9 billion, and unrestricted cash and cash equivalents of \$64.4 million. As of December 31, 2022, the principal amounts due under our debt instruments totaled \$923.0 million, of which \$128.7 million is classified as current. However, \$50.0 million of the \$128.7 million of current principal due is related party debt that is convertible into shares of the Company's common stock at \$3.00 per share. The maturity date of this debt is July 1, 2023.

Our operating plan for 2023 contemplates a significant reduction in net operating cash outflows as compared to the year ended December 31, 2022, resulting from (1) revenue growth from sales of existing and new products with positive gross margins and expansion outside the United States; (2) reduced production costs as a result of technical developments and transitioning to the new manufacturing facility in the last half of 2022 and remaining transition in 2023; and (3) an increase in cash inflows from milestone royalties under the DSM and Ingredient license agreements.

Management currently believes that the Company's cash position combined with cash generated from operations, expected earnout payments along with planned price increases, operating expense reduction, portfolio decisions, debt, and, importantly, the successful completion of the Givaudan transaction described in Note 16, Subsequent Events, to the Consolidated Financial Statements, alleviates substantial doubt about the Company's ability to continue as a going concern for the next 12 months.

Cash Flows during the Years Ended December 31, 2022 and 2021*Cash Flows from Operating Activities*

Our primary uses of cash from operating activities are for personnel costs and costs related to the production and sale of our products, offset by cash received from sales to customers.

For the year ended December 31, 2022, net cash used in operating activities was \$525.9 million, which was primarily comprised of our \$543.4 million net loss, partially offset by a decrease of \$9.6 million in cash used for working capital and an increase of \$7.9 million of non-cash add-backs. Non-cash activity was primarily comprised of a \$53.4 million gain from change in fair value of debt and \$48.7 million of stock-based compensation expense. The decrease in cash used for working capital was primarily comprised of a \$16.6 million increase in prepaid expenses and other assets and a \$35.0 million increase in inventories, partially offset by a \$114.5 million increase in accounts payable.

For the year ended December 31, 2021, net cash used in operating activities was \$181.3 million, which was primarily comprised of our \$271.8 million net loss and an increase in cash used for working capital of \$44.9 million, partially offset by \$135.4 million of non-cash add-backs. Non-cash add-backs were primarily comprised of a \$38.6 million loss from change in fair value of debt, \$33.4 million of stock-based compensation expense, and a \$29.3 million non-cash loss upon extinguishment of debt. The increase in cash used for working capital was primarily comprised of a \$36.3 million increase in prepaid expenses and other assets and a \$32.2 million increase in inventories, partly offset by a \$37.4 million increase in accounts payable.

Cash Flows from Investing Activities

For the year ended December 31, 2022, net cash used in investing activities was \$123.7 million comprised of \$105.9 million of property, plant and equipment purchases, and \$17.8 million of cash used in acquisitions.

For the year ended December 31, 2021, net cash provided by investing activities was \$64.1 million comprised of \$45.6 million of property, plant, and equipment purchases, and \$18.5 million of cash used in acquisitions.

Cash Flows from Financing Activities

For the year ended December 31, 2022, net cash provided by financing activities was \$231.4 million, primarily comprised of \$175.9 million from the issuance of debt and \$56.4 million of proceeds from the issuance of common stock, partially offset by \$0.8 million of debt principal payments.

For the year ended December 31, 2021, net cash provided by financing activities was \$702.0 million, primarily comprised of \$190.3 million of proceeds from the issuance of common stock and \$671.0 million from the issuance of debt, partially offset by \$77.0 million of principal payments on debt and \$4.1 million of principal payments on financing leases.

Contractual Obligations

The following is a summary of our contractual obligations as of December 31, 2022, representing our non-discretionary cash payments for the period:

Payable by Year Ended December 31, (In thousands)	Total	2023	2024	2025	2026	2027	Thereafter
Principal payments on debt	\$ 929,046	\$133,235	\$ 80,811	\$25,000	\$690,000	\$ —	\$ —
Interest payments on debt	69,187	31,064	14,988	12,756	10,379	—	—
Operating leases	323,963	14,705	23,767	24,120	23,466	23,849	214,056
Construction costs in connection with new production facility	8,133	8,133	—	—	—	—	—
Financing leases	80	22	21	21	16	—	—
Contract termination fees	1,369	1,369	—	—	—	—	—
Total	\$1,331,778	\$188,528	\$119,587	\$61,897	\$723,861	\$23,849	\$214,056

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

The market risk inherent in our market risk sensitive instruments and positions is the potential loss arising from adverse changes in the price of our common stock, foreign currency exchange rates, interest rates, and commodity prices.

Amyris Common Stock Price Risk

We are exposed to potential losses related to the price of our common stock. At each balance sheet date, the fair value of our derivative liabilities and certain of our outstanding debt instruments, for which we have elected fair value accounting, is remeasured using current fair value inputs, one of which is the price of our common stock.

During any particular period, if the price of our common stock increases, there will likely be increases in the fair value of our derivative liabilities and our debt instrument, for which we have elected fair value accounting. Such increases in fair value will result in losses in our consolidated statements of operations from change in fair value of derivative instruments and from change in fair value of debt. Conversely, a decrease in the price of our stock during any particular period will likely result in gains in relation to these derivative and debt instruments. Given the current and historical volatility of our common stock price, any changes period-over-period have, and could in the future, result in a significant change in the fair value of our derivative liabilities and convertible debt instruments and significantly impact our net income during the period of change.

Foreign Currency Exchange Risk

Most of our sales contracts are denominated in U.S. dollars, and therefore our revenues are not currently subject to significant foreign currency risk.

The functional currency of our consolidated Brazilian subsidiary is the Brazilian Real. We do not use currency exchange contracts as hedges against our investment in that subsidiary.

Our permanent investment in Brazil was \$232.7 million as of December 31, 2022 and \$133.9 million as of December 31, 2021, using the exchange rate at each date. A hypothetical 10% adverse change in Brazilian Real exchange rates would have had an adverse impact to Other Comprehensive Loss of \$23.3 million as of December 31, 2022 and \$13.4 million as of December 31, 2021.

Interest Rate Risk

Our exposure to market risk for changes in interest rates relates primarily to our outstanding debt obligations, including embedded derivatives therein. We generally invest our cash in investments with short maturities or with frequent interest reset terms. Accordingly, our interest income fluctuates with short-term market conditions. As of December 31, 2021, our investment portfolio consisted of money market funds and certificates of deposit, both of which are highly liquid. Due to the short-term nature of our investment portfolio, we do not believe that an immediate 10% increase in interest rates would have a material effect on the fair value of our portfolio. Since we believe we have the ability to liquidate our investment portfolio, we expect that our operating results or cash flows would not be materially affected by a sudden change in market interest rates on the portfolio.

As of December 31, 2022, all of our outstanding debt was in fixed rate instruments. As a result, changes in interest rates would not affect interest expense and payments in relation to our debt.

Commodity Price Risk

Our primary exposure to market risk for changes in commodity prices relates to the procurement of products from contract manufacturers and other suppliers whose prices are affected by the price of sugar feedstocks. Our suppliers manage exposure to this risk primarily through the use of feedstock pricing agreements.

Item 8. Financial Statements and Supplementary Data

AMYRIS, INC.

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Report of Independent Registered Public Accounting Firm (PCAOB Number 324)

To the Board of Directors and Stockholders of Amyris, Inc.

Opinion on the Financial Statements and Internal Control Over Financial Reporting

We have audited the accompanying balance sheets of Amyris, Inc. and subsidiaries (the “Company”) as of December 31, 2022 and 2021, and the related statements of operations, comprehensive loss, stockholders’ equity (deficit) and mezzanine equity, and cash flows for each of the years in the three-year period ended December 31, 2022, and the related notes (collectively referred to as the “consolidated financial statements”). We also have audited Company’s internal control over financial reporting as of December 31, 2022, based on criteria established in the 2013 Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2022, in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2022, based on criteria established in 2013 Internal Control—Integrated Framework issued by the COSO.

Basis for Opinion

The Company’s management is responsible for these consolidated financial statements, 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, Management’s Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the entity’s consolidated financial statements and an opinion on the entity’s internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (“PCAOB”) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

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Our audits of the consolidated financial statements 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 responds 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. Our audit of internal control over financial reporting 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 audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control Over Financial Reporting

An entity's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of consolidated financial statements for external purposes in accordance with accounting principles generally accepted in the United States of America. An entity'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 entity; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of consolidated financial statements in accordance with accounting principles generally accepted in the United States of America, and that receipts and expenditures of the entity are being made only in accordance with authorizations of management and directors of the entity; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the entity's assets that could have a material effect on the consolidated 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.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters 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 matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Valuation of revenue recognition

Critical Audit Matter Description

As described in Notes 1 and 10, The Company recognizes revenue from the sale of renewable products, licenses and royalties from intellectual property, and grants and collaborative research and development services. Contracts with customers may contain multiple performance obligations and may contain up-front license fees, research and development services, contingent milestone payments upon achievement of contractual criteria, and royalty fees based on licensees' product revenue or usage. The Company makes significant judgments in determining revenue recognition for customer contracts.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to management's conclusion on revenue recognition, include the following, among others:

- Performed substantive disaggregated analytical procedures.
- Obtained an understanding of how management developed estimate of return reserves.
- Reviewed and tested management's process, including:
 - Tested data used in forming assumptions
 - Evaluated assumptions
 - Analyzed historical data
- Developed independent expectation of estimate to corroborate reasonableness of estimate of return reserves.
- Performed substantive analytical procedures relating to revenue using disaggregated data.
- Examined sample of revenue contracts, supply contracts with customers, and other source documents to test management's identification of significant terms for completeness, including the identification of distinct performance obligations and variable consideration, within the context of the five-step model prescribed by ASC 606.
- Performed sales and inventory cutoff procedures.
- Tested relevant controls to determine whether controls are suitably designed, placed in operation, and operating effectively.

Valuation of goodwill

Critical Audit Matter Description

As discussed in Note 1 to the consolidated financial statements, goodwill is assessed annually for impairment during the fourth quarter, or more frequently if an event occurs or circumstances change that would indicate that it is more likely than not that the fair value of a reporting unit has declined below its carrying value. As a result of the annual impairment test, the Company determined no impairment of goodwill impairment has occurred during the period presented in the consolidated financial statements.

Auditing the Company's quantitative impairment test for goodwill was especially complex and judgmental due to the significant estimation required in determining the fair value of the reporting unit. In particular, the fair value estimate was sensitive to the significant assumptions that require judgment including the amount and timing of expected future cash flows and the related discount rate. These assumptions are affected by such factors as expected future market or economic conditions and clinical trial and regulatory events.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to management's conclusion on the valuation of acquisitions, included the following, among others:

- Tested relevant controls to determine whether controls are suitably designed, placed in operation, and operating effectively.
- With the assistance of fair value specialists, evaluated the reasonableness of the (1) valuation methodology and (2) discount rate, including testing the source information underlying the determination of the discount rate, tested the mathematical accuracy of the calculation, and developed a range of independent estimates and comparing those to the discount rate selected by management.
- Evaluated management's ability to accurately forecast future revenue and cash flows by comparing prior year forecasts to actual results in the respective years.

- Evaluated the reasonableness of management’s current revenue and cash flow forecasts by comparing such forecasts to historical results and to forecasted information included in Company press releases as well as in analyst and industry reports of the Company and companies in its peer group.
- Performed sensitivity analyses of significant assumptions to evaluate the change in the fair values of the reporting unit that would result from changes in the assumptions.

/s/ Macias Gini & O’Connell LLP

We have served as the Company’s auditor since 2019

San Jose, California
March 16, 2023

AMYRIS, INC.
CONSOLIDATED BALANCE SHEETS

December 31, (In thousands, except shares and per share amounts)	2022	2021
Assets		
Current assets:		
Cash and cash equivalents	\$ 64,437	\$ 483,462
Restricted cash	71	199
Accounts receivable, net of allowance of \$995 and \$945	45,775	37,074
Accounts receivable - related party, net of allowance of \$0 and \$0	6,608	5,667
Contract assets	806	4,227
Contract assets - related party	36,638	—
Inventories	111,880	75,070
Prepaid expenses and other current assets	40,146	33,513
Total current assets	306,361	639,212
Property, plant and equipment, net	182,224	72,835
Restricted cash, noncurrent	6,090	4,651
Recoverable taxes from Brazilian government entities	29,472	16,740
Right-of-use assets under financing leases, net	152	7,342
Right-of-use assets under operating leases, net	97,216	32,428
Goodwill	142,575	131,259
Intangible assets, net	46,938	39,265
Other assets	13,904	10,566
Total assets	\$ 824,932	\$ 954,298
Liabilities, Mezzanine Equity and Stockholders' Equity (Deficit)		
Current liabilities:		
Accounts payable	\$ 190,486	\$ 79,666
Accrued and other current liabilities	73,565	71,457
Financing lease liabilities	13	140
Operating lease liabilities	2,255	7,689
Contract liabilities	26	2,530
Debt, current portion	1,916	896
Related party debt, current portion (includes instrument measured at fair value of \$54,026 and \$107,427)	118,886	107,427
Total current liabilities	387,147	269,805
Long-term debt, net of current portion	674,891	309,061

AMYRIS, INC.
CONSOLIDATED BALANCE SHEETS, Continued

December 31, (In thousands, except shares and per share amounts)	2022	2021
Related party debt, net of current portion (includes instrument measured at fair value of \$0 and \$0)	97,350	—
Financing lease liabilities, net of current portion	48	61
Operating lease liabilities, net of current portion	86,195	19,829
Derivative liabilities	5,403	7,062
Acquisition-related contingent consideration	34,555	64,762
Other noncurrent liabilities	7,053	4,510
Total liabilities	1,292,642	675,090
Commitments and contingencies		
Mezzanine equity:		
Contingently redeemable common stock	5,000	5,000
Contingently redeemable noncontrolling interest	28,892	28,520
Stockholders' equity (deficit):		
Preferred stock - \$0.0001 par value, 5,000,000 shares authorized as of December 31, 2022 and 2021; 0 shares issued and outstanding as of December 31, 2022 and 2021	—	—
Common stock - \$0.0001 par value, 550,000,000 and 450,000,000 shares authorized as of December 31, 2022 and 2021; 364,745,266 and 308,899,906 shares issued and outstanding as of December 31, 2022 and 2021	36	31
Additional paid-in capital	2,455,567	2,656,838
Accumulated other comprehensive loss	(64,114)	(52,769)
Accumulated deficit	(2,880,178)	(2,357,661)
Total Amyris, Inc. stockholders' (deficit) equity	(488,689)	246,439
Noncontrolling interest	(12,913)	(751)
Total stockholders' (deficit) equity	(501,602)	245,688
Total liabilities, mezzanine equity and stockholders' (deficit) equity	\$ 824,932	\$ 954,298

See notes to consolidated financial statements.

FORM 10-K

AMYRIS, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS

Years Ended December 31, (In thousands, except shares and per share amounts)	2022	2021	2020
Revenue:			
Renewable products (includes related party revenue of \$18,172, \$19,162 and \$986)	\$ 222,323	\$ 149,703	\$ 104,338
Licenses and royalties, net (includes related party revenue of \$31,781, \$149,612 and \$43,750)	32,434	173,812	50,991
Collaborations, grants and other (includes related party revenue of \$3,994, \$6,000 and \$7,018)	15,090	18,302	17,808
Total revenue (includes related party revenue of \$53,947, \$174,774 and \$51,754)	269,847	341,817	173,137
Cost and operating expenses:			
Cost of products sold	258,668	155,139	87,812
Research and development	110,215	94,289	71,676
Sales, general and administrative	493,629	257,811	137,071
Change in fair value of acquisition-related contingent consideration	(24,874)	—	—
Restructuring	1,192	—	—
Impairment	—	12,204	—
Total cost and operating expenses	838,830	519,443	296,559
Loss from operations	(568,983)	(177,626)	(123,422)
Other income (expense):			
Interest expense	(24,733)	(25,605)	(47,951)
Gain (loss) from change in fair value of derivative instruments	3,905	1,453	(11,362)
Gain (loss) from change in fair value of debt	53,400	(38,649)	(89,827)
Loss upon extinguishment of debt	—	(32,464)	(51,954)
Other (expense) income, net	(2,214)	580	666
Total other income (expense), net	30,358	(94,685)	(200,428)
Loss before income taxes and loss from investment in affiliates	(538,625)	(272,311)	(323,850)
Benefit from (provision for) income taxes	2,697	8,114	(293)
Loss from investment in affiliates	(7,443)	(7,595)	(2,731)
Net loss	(543,371)	(271,792)	(326,874)
Loss (income) attributable to noncontrolling interest	14,861	823	(4,165)
Net loss attributable to Amyris, Inc.	(528,510)	(270,969)	(331,039)
Less: deemed dividend to preferred stockholders upon conversion of Series E preferred stock	—	—	(67,151)
Add: loss allocated to participating securities	—	507	15,879
Net loss attributable to Amyris, Inc. common stockholders	\$ (528,510)	\$ (270,462)	\$ (382,311)

AMYRIS, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS, Continued

Years Ended December 31, (In thousands, except shares and per share amounts)	2022	2021	2020
Weighted-average shares of common stock outstanding used in computing net loss per share of common stock, basic	320,752,600	292,343,431	203,598,673
Basic loss per share	\$ (1.65)	\$ (0.93)	\$ (1.88)
Weighted-average shares of common stock outstanding used in computing net loss per share of common stock, diluted	339,333,994	292,667,631	203,598,673
Diluted loss per share	\$ (1.69)	\$ (0.97)	\$ (1.88)

See notes to consolidated financial statements.

AMYRIS, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS

Years Ended December 31, (In thousands)	2022	2021	2020
Comprehensive loss:			
Net loss	\$(543,371)	\$(271,792)	\$(326,874)
Foreign currency translation adjustment	(11,345)	(5,394)	(3,571)
Total comprehensive loss	\$(554,716)	\$(277,186)	\$(330,445)
Loss (income) attributable to noncontrolling interest	14,861	823	(4,165)
Comprehensive loss attributable to Amyris, Inc.	\$(539,855)	\$(276,363)	\$(334,610)

See notes to consolidated financial statements.

AMYRIS, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY (DEFICIT) AND MEZZANINE EQUITY

(In thousands, except number of shares)	Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Noncontrolling Interest	Total Stockholders' Equity (Deficit)	Mezzanine Equity-Common Stock	Mezzanine Equity-Contingently Redeemable Noncontrolling Interest
	Shares	Amount	Shares	Amount							
Balance as of December 31, 2019	8,280	\$—	117,742,677	\$12	\$1,543,668	\$(43,804)	\$(1,755,653)	\$ 609	\$(255,168)	\$5,000	\$—
Issuance of preferred and common stock in private placements, net of issuance costs	72,156	—	36,098,894	3	170,034	—	—	—	170,037	—	—
Issuance of common stock upon exercise of warrants - related party	—	—	29,165,166	2	83,113	—	—	—	83,115	—	—
Issuance of preferred and common stock in private placements - related party, net of issuance costs	30,000	—	10,505,652	1	57,188	—	—	—	57,189	—	—
Issuance of common stock and warrants upon conversion of debt principal and accrued interest	—	—	6,337,594	1	21,259	—	—	—	21,260	—	—
Issuance of common stock upon conversion of debt principal and accrued interest, and extinguishment of related derivative liability	—	—	3,246,489	—	15,778	—	—	—	15,778	—	—
Issuance of common stock right warrant - related party	—	—	5,226,481	1	8,903	—	—	—	8,904	—	—
Issuance of common stock upon exercise of warrants	—	—	1,343,675	—	3,476	—	—	—	3,476	—	—
Issuance of common stock upon ESPP purchase	—	—	357,655	—	843	—	—	—	843	—	—
Issuance of common stock upon exercise of stock options	—	—	11,061	—	46	—	—	—	46	—	—
Issuance of common stock upon automatic conversion of Series E preferred stock	(102,156)	—	34,052,084	4	(4)	—	—	—	—	—	—
Issuance of common stock and payment of minimum employee taxes withheld upon net share settlement of restricted stock	—	—	2,227,654	—	(404)	—	—	—	(404)	—	—
Beneficial conversion feature related to issuance of Series E preferred stock	—	—	—	—	67,151	—	—	—	67,151	—	—
Deemed dividend upon conversion of Series E preferred stock into common stock	—	—	—	—	(67,151)	—	—	—	(67,151)	—	—

FORM 10-K

AMYRIS, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY (DEFICIT) AND MEZZANINE EQUITY, Continued

(In thousands, except number of shares)	Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Noncontrolling Interest	Total Stockholders' Equity (Deficit)	Mezzanine Equity-Common Stock	Mezzanine Equity-Contingently Redeemable Noncontrolling Interest
	Shares	Amount	Shares	Amount							
Exercise of common stock rights warrant - related party	—	—	—	—	15,000	—	—	—	15,000	—	—
Extinguishment of liability warrants to equity	—	—	—	—	11,750	—	—	—	11,750	—	—
Fair value of pre-delivery shares released to holder in connection with previous debt issuance	—	—	—	—	10,478	—	—	—	10,478	—	—
Modification of previously issued common stock warrants	—	—	—	—	2,353	—	—	—	2,353	—	—
Stock-based compensation	—	—	—	—	13,743	—	—	—	13,743	—	—
Return of pre-delivery shares previously issued to lenders	—	—	(1,363,636)	—	—	—	—	—	—	—	—
Foreign currency translation adjustment	—	—	—	—	—	(3,571)	—	—	(3,571)	—	—
Net loss	—	—	—	—	—	—	(331,039)	4,165	(326,874)	—	—
Balance as of December 31, 2020	8,280	\$—	244,951,446	\$24	\$1,957,224	\$(47,375)	\$(2,086,692)	\$4,774	\$(172,045)	\$5,000	\$—
Value of cash conversion feature in connection with issuance of convertible senior note	—	—	—	—	367,974	—	—	—	367,974	—	—
Issuance of common stock and payment of minimum employee taxes withheld upon net share settlement of restricted stock	—	—	3,073,652	—	(1,482)	—	—	—	(1,482)	—	—
Issuance of common stock as purchase consideration in business combinations	—	—	3,806,263	—	54,379	—	—	—	54,379	—	—
Issuance of common stock in public offering	—	—	8,805,345	1	130,792	—	—	—	130,793	—	—
Issuance of common stock upon conversion of debt principal	—	—	2,862,772	1	38,632	—	—	—	38,633	—	—
Issuance of common stock upon conversion of debt principal, net of return of 2,600,000 pre-delivery shares returned to Amyris	—	—	5,827,164	1	110,574	—	—	—	110,575	—	—
Issuance of common stock upon conversion of preferred stock	(8,280)	—	1,943,659	—	—	—	—	—	—	—	—
Issuance of common stock upon ESPP purchase	—	—	290,063	—	1,171	—	—	—	1,171	—	—

AMYRIS, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY (DEFICIT) AND MEZZANINE EQUITY, Continued

(In thousands, except number of shares)	Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Noncontrolling Interest	Total Stockholders' Equity (Deficit)	Mezzanine Equity-Common Stock	Mezzanine Equity-Contingently Redeemable Noncontrolling Interest
	Shares	Amount	Shares	Amount							
Issuance of common stock upon exercise of stock options	—	—	636,930	—	3,295	—	—	—	3,295	—	—
Issuance of common stock upon exercise of warrants	—	—	20,809,472	2	45,642	—	—	—	45,644	—	—
Issuance of common stock upon exercise of warrants - related party	—	—	15,893,140	2	10,838	—	—	—	10,840	—	—
Issuance of contingently redeemable noncontrolling interest	—	—	—	—	(14,520)	—	—	—	(14,520)	—	28,520
Premium paid for convertible note hedge call option	—	—	—	—	(81,075)	—	—	—	(81,075)	—	—
Stock-based compensation	—	—	—	—	33,394	—	—	—	33,394	—	—
Foreign currency translation adjustment	—	—	—	—	—	(5,394)	—	—	(5,394)	—	—
Distribution to noncontrolling interest	—	—	—	—	—	—	—	(4,702)	(4,702)	—	—
Net loss	—	—	—	—	—	—	(270,969)	(823)	(271,792)	—	—
Balance as of December 31, 2021	—	\$—	308,899,906	\$31	\$2,656,838	\$(52,769)	\$(2,357,661)	\$ (751)	\$ 245,688	\$5,000	\$28,520
Cumulative effect of change in accounting principle for ASU 2020-06 (see "Significant Accounting Policies" in Note 1)	—	—	—	—	(367,974)	—	5,993	—	(361,981)	—	—
Acquisitions	—	—	—	—	—	—	—	155	155	—	2,917
Issuance of common stock, including payment of minimum employee taxes withheld, upon net share settlement of restricted stock	—	—	3,750,253	—	(19)	—	—	—	(19)	—	—
Issuance of common stock as consideration for services purchased	—	—	2,790,698	1	5,134	—	—	—	5,135	—	—
Issuance of common stock as purchase consideration for equity securities	—	—	2,583,247	—	7,893	—	—	—	7,893	—	—
Issuance of common stock as purchase consideration in business combinations	—	—	9,079,112	1	39,278	—	—	—	39,279	—	—
Issuance of common stock in lieu of cash compensation to non-employee directors	—	—	—	—	279	—	—	—	279	—	—

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AMYRIS, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY (DEFICIT) AND MEZZANINE EQUITY, Continued

(In thousands, except number of shares)	Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Noncontrolling Interest	Total Stockholders' Equity (Deficit)	Mezzanine Equity-Common Stock	Mezzanine Equity-Contingently Redeemable Noncontrolling Interest
	Shares	Amount	Shares	Amount							
Issuance of common stock and warrants in private placement, net of issuance costs - related party	—	—	13,333,334	1	19,999	—	—	—	20,000	—	—
Issuance of common stock and warrants in registered direct offering, net of issuance costs	—	—	20,000,000	2	27,832	—	—	—	27,834	—	—
Issuance of common stock upon ESPP purchase	—	—	722,909	—	1,412	—	—	—	1,412	—	—
Issuance of common stock upon exercise of stock options	—	—	36,021	—	103	—	—	—	103	—	—
Issuance of common stock upon exercise of warrants	—	—	3,549,786	—	9,748	—	—	—	9,748	—	—
Issuance of warrants in connection with related party debt issuance	—	—	—	—	5,833	—	—	—	5,833	—	—
Proceeds from extension of warrants	—	—	—	—	500	—	—	—	500	—	—
Stock-based compensation	—	—	—	—	48,711	—	—	—	48,711	—	—
Foreign currency translation adjustment	—	—	—	—	—	(11,345)	—	—	(11,345)	—	—
Net loss	—	—	—	—	—	—	(528,510)	(12,317)	(540,827)	—	(2,545)
Balance as of December 31, 2022	—	\$—	364,745,266	\$36	\$2,455,567	\$(64,114)	\$(2,880,178)	\$(12,913)	\$(501,602)	\$5,000	\$28,892

See notes to consolidated financial statements.

AMYRIS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS

Years Ended December 31, (In thousands)	2022	2021	2020
Operating activities:			
Net loss	\$(543,371)	\$(271,792)	\$(326,874)
Adjustments to reconcile net loss to net cash used in operating activities:			
Accretion of debt discount	6,367	9,536	3,829
Amortization of intangible assets	4,444	981	—
Amortization of right-of-use assets under operating leases	10,457	2,968	2,755
Changes in assets and liabilities:			
Contract asset credit loss reserve	—	—	8,342
Depreciation and amortization	12,373	8,745	9,371
Expense for warrants issued for covenant waivers	—	—	—
Gain from change in fair value of acquisition-related contingent consideration	(24,874)	—	—
(Gain) loss from change in fair value of debt	(53,401)	38,649	89,827
(Gain) loss from change in fair value of derivative instruments	(3,905)	(1,453)	11,362
(Gain) loss on foreign currency exchange rates	(404)	683	(119)
Impairment of deferred cost of products sold - related party	—	12,204	—
Impairment of property, plant and equipment	—	—	13
Loss from investment in affiliate	7,443	292	2,731
Loss on disposal of property, plant and equipment	706	—	—
Loss upon conversion or extinguishment of debt	—	29,346	51,954
Non-cash interest expense in connection with modification of warrants	—	—	1,066
Non-cash interest expense in connection with release of pre-delivery shares to debt holder	—	—	10,478
Other	—	9	161
Stock-based compensation	48,711	33,394	13,743
Accounts receivable	(9,584)	2,395	(24,161)
Contract assets	(33,216)	1,154	(4,035)
Inventories	(35,027)	(32,237)	(16,249)
Deferred cost of products sold - related party	—	7,536	(3,248)
Prepaid expenses and other assets	(16,554)	(36,291)	(443)
Accounts payable	114,533	37,389	(10,081)
Accrued and other liabilities	5,792	(9,924)	5,148
Lease liabilities	(13,849)	(12,700)	(4,438)

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AMYRIS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS, Continued

Years Ended December 31, (In thousands)	2022	2021	2020
Contract liabilities	(2,535)	(2,217)	3,115
Net cash used in operating activities	(525,894)	(181,333)	(175,753)
Investing activities:			
Purchases of property, plant and equipment	(105,947)	(45,636)	(12,781)
Acquisitions, net of cash acquired	(17,760)	(18,462)	—
Net cash used in investing activities	(123,707)	(64,098)	(12,781)
Financing activities:			
Distribution to noncontrolling interest	—	(4,702)	—
Issuance costs incurred in connection with debt modification	—	(2,500)	—
Payment of minimum employee taxes withheld upon net share settlement of restricted stock units	(19)	(1,482)	(404)
Principal payments on debt	(810)	(76,980)	(51,959)
Principal payments on financing leases	(140)	(4,067)	(3,461)
Proceeds from capital contribution by noncontrolling interest	—	10,000	—
Proceeds from ESPP purchases	1,412	1,171	843
Proceeds from exercise of common stock rights warrant - related party	—	—	15,000
Proceeds from exercise of warrants	6,591	39,904	3,476
Proceeds from exercise of warrants - related party	—	16,580	28,348
Proceeds from exercises of common stock options	103	3,295	46
Proceeds from extension of warrants	500	—	—
Proceeds from issuance of common stock and warrants in private placement, net of issuance costs - related party	20,000	—	—
Proceeds from issuance of common stock in public offering, net of issuance costs	—	130,793	—
Proceeds from issuance of common stock and warrants in registered direct offering, net of issuance costs	27,834	—	—
Proceeds from issuance of debt, net of issuance costs	175,942	671,025	15,599
Proceeds from issuance of preferred and common stock in private placements, net of issuance costs	—	—	170,037
Proceeds from issuance of preferred and common stock in private placements, net of issuance costs - related party	—	—	45,000
Purchase of capped calls related to convertible senior notes	—	(81,075)	—
Net cash provided by financing activities	231,413	701,962	222,525
Effect of exchange rate changes on cash, cash equivalents and restricted cash	474	359	(4,268)

AMYRIS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS, Continued

Years Ended December 31, (In thousands)	2022	2021	2020
Net (decrease) increase in cash, cash equivalents and restricted cash	(417,714)	456,890	29,723
Cash, cash equivalents and restricted cash at beginning of year	488,312	31,422	1,699
Cash, cash equivalents and restricted cash at end of year	\$ 70,598	\$488,312	\$31,422
Reconciliation of cash, cash equivalents and restricted cash to the consolidated balance sheets			
Cash and cash equivalents	\$ 64,437	\$483,462	\$30,152
Restricted cash, current	71	199	309
Restricted cash, noncurrent	6,090	4,651	961
Total cash, cash equivalents and restricted cash	\$ 70,598	\$488,312	\$31,422
Supplemental disclosures of cash flow information:			
Cash paid for interest	\$ 10,940	\$ 7,730	\$16,609
Supplemental disclosures of non-cash investing and financing activities:			
Accrued interest added to debt principal	\$ 1,089	\$ —	\$ 2,056
Acquisition of intangible assets in connection with business combinations	\$ 14,637	\$ —	\$ —
Acquisition of right-of-use assets under financing leases	\$ —	\$ 30	\$ —
Acquisition of right-of-use assets under operating leases	\$ 69,351	\$ 25,395	\$ —
Cash conversion feature in connection with issuance of 2026 convertible senior notes	\$ —	\$367,974	\$ —
Common stock issued as purchase consideration in business combinations	\$ —	\$ 56,418	\$ —
Derecognition of derivative liabilities to equity upon extinguishment of debt	\$ —	\$ 59	\$ 6,461
Derecognition of derivative liabilities upon authorization of shares	\$ —	\$ —	\$ 6,550
Derecognition of derivative liabilities upon exercise of warrants	\$ —	\$ —	\$ 5,200
Exercise of common stock warrants in exchange for debt principal and interest reduction	\$ —	\$ —	\$69,918
Extinguishment of derivative liability and issuance of common stock upon exercise of warrants	\$ 3,157	\$ —	\$ —
Fair value of embedded features in connection with private placement	\$ —	\$ —	\$ 2,962
Fair value of warrants and embedded features recorded as debt discount in connection with debt issuances	\$ —	\$ —	\$ 188
Fair value of warrants and embedded features recorded as debt discount in connection with debt issuances - related party	\$ 5,403	\$ —	\$ 747
Goodwill recorded in connection with business combination	\$ 22,231	\$133,025	\$ —
Issuance of common stock and warrants issued upon conversion of debt principal	\$ —	\$149,208	\$ —
Issuance of common stock as consideration for services purchased	\$ 5,135	\$ —	\$ —

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AMYRIS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS, Continued

Years Ended December 31, (In thousands)	2022	2021	2020
Issuance of common stock as purchase consideration for equity securities	\$ 7,893	\$ —	\$ —
Issuance of common stock as purchase consideration in business combinations	\$ 39,279	\$ —	\$ —
Issuance of common stock in lieu of cash compensation to non-employee directors	\$ 279	\$ —	\$ —
Issuance of common stock upon conversion of convertible notes and accrued interest	\$ —	\$ 42,520	\$ 27,650
Issuance of common stock upon exercise of common stock rights warrant in previous period - related party	\$ —	\$ —	\$ 1
Noncontrolling interest issued in subsidiary in exchange for settlement of other liabilities	\$ —	\$ 4,000	\$ —
Noncontrolling interest recorded in connection with business combinations	\$ 3,072	\$ —	\$ —
Reclassification of Additional paid-in capital to Mezzanine equity in connection with issuance of contingently redeemable noncontrolling interest in subsidiary	\$ —	\$ 14,520	\$ —
Unpaid property, plant and equipment balances in accounts payable and accrued liabilities at end of period	\$ 6,366	\$ 4,833	\$ 1,575

See notes to consolidated financial statements.

Amyris, Inc.
Notes to Consolidated Financial Statements

1. Basis of Presentation and Summary of Significant Accounting Policies

Business Description

Amyris, Inc. (together with subsidiaries, Amyris or the Company) is a biotechnology company delivering sustainable, science-based ingredients and consumer products that are better than incumbent options for people and the planet. The Company creates, manufactures, and commercializes consumer products and ingredients. The largest proportion of the Company's revenue is the marketing and selling of Clean Beauty, Personal Care, and Health & Wellness consumer products through direct-to-consumer e-commerce platforms and a growing network of retail partners. The Company's proprietary sustainable ingredients are sold in bulk to industrial leaders who serve Flavor & Fragrance (F&F), Nutrition, Food & Beverage, and Clean Beauty & Personal Care end markets. The Company's ingredients and consumer products are powered by the Company's Lab-to-Market™ technology platform. The technology platform creates a portfolio connection between the Company's proprietary science and formulation expertise, manufacturing capability at industrial scale and expertise in commercializing high performance, sustainable products that give consumers the power to choose products that benefit the planet.

The Company has incurred operating losses since its inception, and expects to continue to incur losses and negative cash flows from operations in 2023. As of December 31, 2022, the Company had working capital of \$80.8 million, an accumulated deficit of \$2.9 billion, and unrestricted cash and cash equivalents of \$64.4 million. As of December 31, 2022, the principal amounts due under the Company's debt instruments totaled \$923.0 million, of which \$128.7 million is classified as current. However, \$50.0 million of the \$128.7 million of current principal due is related party debt that is convertible into shares of the Company's common stock at \$3.00 per share. The maturity date of this debt is July 1, 2023.

The Company's operating plan for 2023 contemplates a significant reduction in net operating cash outflows as compared to the year ended December 31, 2022, resulting from (1) revenue growth from sales of existing and new products with positive gross margins and expansion outside the United States; (2) reduced production costs as a result of technical developments and transitioning to the new manufacturing facility in the last half of 2022 and remaining transition in 2023; and (3) an increase in cash inflows from milestone royalties under the DSM and Ingredient license agreements.

Management currently believes that the Company's cash position combined with cash generated from operations, expected earnout payments along with planned price increases, operating expense reduction, portfolio decisions, debt, and, importantly, the successful completion of the Givaudan transaction described in Note 16, Subsequent Events, to the Consolidated Financial Statements, alleviates substantial doubt about the Company's ability to continue as a going concern for the next 12 months.

Basis of Consolidation

The consolidated financial statements have been prepared in accordance with the accounting principles generally accepted in the United States (U.S. GAAP). The consolidated financial statements include the accounts of Amyris, Inc. and its wholly-owned and partially-owned subsidiaries in which the Company has a controlling financial interest after elimination of all significant intercompany accounts and transactions.

Investments and joint venture arrangements are assessed to determine whether the terms provide economic or other control over the entity requiring consolidation of the entity. Entities controlled by means other than a majority

voting interest are referred to as variable-interest entities (VIEs) and are consolidated when Amyris has both the power to direct the activities of the VIE that most significantly impact its economic performance and the obligation to absorb losses or the right to receive benefits that could potentially be significant to the entity. The Company accounts for its equity investments and joint ventures using the equity method for any investment or joint venture in which (i) the Company does not have a majority ownership interest, (ii) the Company does not possess the ability to exert significant influence, and (iii) the entity is not a VIE for which the Company is considered the primary beneficiary.

Use of Estimates and Judgements

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates, judgements, and assumptions that affect the reported amounts of assets and liabilities, disclosures of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates, and such differences may be material to the consolidated financial statements. Significant estimates and judgements used in these consolidated financial statements are discussed in the relevant accounting policies below or specifically discussed in the Notes to Consolidated Financial Statements where such transactions are disclosed.

Significant Accounting Policies

Acquisitions

When the Company acquires a controlling financial interest in an entity or group of assets that are determined to meet the definition of a business, the acquisition method is applied. The Company allocates the purchase consideration paid to acquire the business to the tangible and identifiable intangible assets acquired and liabilities assumed based on estimated fair values at the acquisition date, with the excess of purchase price over the estimated fair value of the net assets acquired recorded as goodwill. The determination of fair values of identifiable assets and liabilities requires significant judgment and estimates and the use of valuation techniques when market values are not readily available. If during the measurement period (a period not to exceed 12 months from the acquisition date) the Company receives additional information that existed as of the acquisition date but at the time of the original allocation described above was unknown, the Company makes the appropriate adjustments to the purchase price allocation in the reporting period in which the adjustments are identified.

Contingent consideration is measured at its acquisition-date fair value and included as part of the consideration transferred in a business combination. Contingent consideration that is classified as an asset or a liability is remeasured at subsequent reporting dates with the corresponding gain or loss being recognized in profit or loss.

Cash and Cash Equivalents

The Company considers all highly liquid investments purchased with an original or remaining maturity of three months or less at the date of purchase to be cash equivalents. Cash and cash equivalents are maintained with various financial institutions.

Derivatives

Embedded derivatives that are required to be bifurcated from the underlying debt instrument and free standing equity instruments that do not meet the derivative scope exception and equity classification criteria are accounted for and valued as separate financial instruments. The Company has evaluated the terms and features of its convertible notes and free standing equity instruments requiring bifurcation and have accounted for these instruments at fair value.

Fair Value Measurements

The carrying amounts of certain financial instruments, such as cash equivalents, short-term investments, accounts receivable, accounts payable, and accrued liabilities approximate fair value due to their relatively short maturities.

The Company measures the following financial liabilities at fair value:

- Warrants to purchase common stock and freestanding and bifurcated derivatives in connection with certain debt and equity financings; and
- Foris Convertible Note

Fair value is based on the exchange price that would be received for an asset or paid to transfer a liability in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants. Where available, fair value is based on or derived from observable market prices or other observable inputs. Where observable prices or inputs are not available, valuation techniques are applied. These valuation techniques involve management estimation and judgement, the degree of which is dependent on the price transparency for the instruments or market and the instruments' complexity.

Changes to the inputs, including the closing price of the Company common stock at each period end, used in these valuation models can have a significant impact on the estimated fair value of the Foris Convertible Note, the fair value of embedded features in the DSM Note, and the Company's freestanding derivatives. A decrease (increase) in the estimated credit spread for the Company results in an increase (decrease) in estimated fair value. Conversely, a decrease (increase) in the Company's closing stock price at period end results in a decrease (increase) in estimated fair value of these instruments.

The changes during 2022, 2021 and 2020 in the fair values of the warrants and bifurcated compound embedded derivatives are primarily related to the change in price of the Company's common stock and are reflected in the consolidated statements of operations as "Gain (loss) from change in fair value of derivative instruments".

The fair value of debt instruments for which the Company has not elected fair value accounting is based on the present value of expected future cash flows and assumptions about the then-current market interest rates as of the reporting period and the creditworthiness of the Company. Most of the Company's debt is carried on the consolidated balance sheet on a historical cost basis net of unamortized discounts and premiums, because the Company has not elected the fair value option of accounting. However, for the Foris Convertible Note, the Company elected fair value accounting upon reissuance in June 2020, so the balances reported for that debt instrument represents fair value as of each balance sheet date. Changes in fair value of the Foris Convertible Note and fair value of embedded features in the DSM Note are reflected in the consolidated statements of operations as "Gain (loss) from change in fair value of debt".

For all debt instruments, including any for which the Company has elected fair value accounting, the Company classifies interest that has been accrued during each period as Interest expense on the consolidated statements of operations.

Goodwill

Goodwill represents the excess of the cost over the fair value of net assets acquired from the Company's business combinations. Goodwill is not subject to amortization and is assessed for impairment using fair value measurement techniques on an annual basis on October 1, or more frequently if facts and circumstance warrant such a review. Goodwill is assigned to reporting units within the company. The Company has the option to first perform a qualitative assessment to determine if it is more likely than not that the fair value of a reporting unit is less than its carrying value. However, the Company may elect to bypass the qualitative assessment and proceed

directly to the quantitative impairment tests, whereby the fair value of a reporting unit is compared with its carrying amount, including goodwill. If the fair value of a reporting unit exceeds its carrying amount, goodwill of the reporting unit is not considered impaired. If the carrying amount of the reporting unit exceeds its estimated fair value, an impairment loss is recognized in an amount equal to the excess. All of the Company's goodwill resides within the Consumer reporting unit, with none allocated to Technology Access. No impairment of goodwill has occurred during the periods presented in these consolidated financial statements.

Intangible Assets

Intangible assets are comprised primarily of customer relationships, trademarks and trade names, developed technology, patents, and other intellectual property acquired through business combinations. Intangible assets are recorded at cost less accumulated amortization and impairment losses, if any.

Intangible assets acquired in a business combination are measured at fair value at the acquisition date. Amortization periods of assets with finite lives are based on management's estimates at the date of acquisition. The fair value of intangible assets is determined based on a complex series of judgments about future events and uncertainties and relies heavily on estimates and assumptions. We believe the assumptions are representative of those a market participant would use in estimating fair value. The fair values of the intangible assets were determined to be Level 3 under the fair value hierarchy. Level 3 inputs are unobservable inputs for an asset or liability. Unobservable inputs are used to measure fair value to the extent that observable inputs are not available thereby allowing for fair value estimates to be made in situations in which there is little, if any, market activity for an asset or liability at the measurement date. We consider the period of expected cash flows and underlying data used to measure the fair value of the intangible assets when selecting a useful life. Intangible assets with finite useful lives are amortized using an accelerated amortization method reflecting the pattern in which the asset will be consumed if that pattern can be reliably determined. If that pattern cannot be reliably determined, a straight-line amortization method is utilized.

Intangible assets are evaluated periodically for impairment by taking into account events or changes in circumstances that may warrant revised estimates of useful lives or that indicate the carrying value of an asset group may not be recoverable. If this evaluation indicates that the value of the intangible asset may be impaired, an assessment is made of the recoverability of the net carrying value of the intangible asset over its remaining useful life. If this assessment indicates that the intangible asset is not recoverable based on the estimated discounted future cash flows of the asset group over the estimated useful life, an impairment will be recorded to reduce the net carrying value of the related intangible asset to its fair value and may require an adjustment to the remaining amortization period.

Impairment

Long-lived assets that are held and used by the Company are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of such assets may not be recoverable. Determination of recoverability of long-lived assets is based on an estimate of the undiscounted future cash flows resulting from the use of the asset and its eventual disposition. Measurement of an impairment loss for long-lived assets that management expects to hold and use is based on the difference between the fair value of the asset and its carrying value. Long-lived assets to be disposed of are reported at the lower of carrying amount or fair value less costs to sell.

Inventories

Inventories, which consist of farnesene-derived products, flavors and fragrances ingredients, and clean beauty products, are stated at the lower of actual cost or net realizable value and are categorized as finished goods, work

in process, or raw material inventories. The Company evaluates the recoverability of its inventories based on assumptions about expected demand and net realizable value. If the Company determines that the cost of inventories exceeds their estimated net realizable value, the Company records a write-down equal to the difference between the cost of inventories and the estimated net realizable value. If actual net realizable values are less favorable than those projected by management, additional inventory write-downs may be required that could negatively impact the Company's operating results. If actual net realizable values are more favorable, the Company may have favorable operating results when products that have been previously written down are sold in the normal course of business. The Company also evaluates the terms of its agreements with its suppliers and establishes accruals for estimated losses on adverse purchase commitments as necessary, applying the same lower of cost or net realizable value approach that is used to value inventory. Cost for farnesene-derived products and flavors and fragrances ingredients are computed on a weighted-average basis. Cost for clean beauty products are computed on a standard cost basis.

Leases

The Company has operating leases primarily for administrative offices, retail space, laboratory equipment, other facilities, and certain third-party manufacturing agreements deemed to contain an embedded lease. The operating leases have remaining terms that range from one year to 18 years, and often include one or more options to renew. These renewal terms can extend the lease term from 1 to five years and are included in the lease term when it is reasonably certain that the Company will exercise the option. The operating leases are classified as Right-of-use (ROU) assets under operating leases on the Company's consolidated balance sheets and represent the Company's right to use the underlying asset for the lease term. The Company's obligation to make operating lease payments is included in "Lease liabilities" and "Lease liabilities, net of current portion" on the Company's consolidated balance sheets.

The Company has entered into financing leases primarily for laboratory and computer equipment. Assets purchased under financing leases are included in "Right-of-use assets under financing leases, net" on the consolidated balance sheets. For financing leases, the associated assets are depreciated or amortized over the shorter of the relevant useful life of each asset or the lease term.

Operating and Financing lease ROU assets and liabilities are recognized at commencement date based on the present value of lease payments over the lease term. Because the rate implicit in the Company's lease agreements is typically not readily determinable, the Company uses its incremental borrowing rate to determine the present value of the lease payments. The Company has certain contracts for real estate and marketing that may contain lease and non-lease components, which the Company has elected to treat as a single lease component.

Property, Plant, and Equipment, Net

Property, plant, and equipment are recorded at cost. Depreciation and amortization are computed straight-line based on the estimated useful lives of the related assets, ranging from three to 15 years for machinery, equipment, and fixtures, and 30 years for buildings. Leasehold improvements are amortized over their estimated useful lives or the period of the related lease, whichever is shorter.

The Company expenses costs for maintenance and repairs and capitalizes major replacements, renewals, and improvements. For assets retired or otherwise disposed, both cost and accumulated depreciation are eliminated from the asset and accumulated depreciation accounts, and gains or losses related to the disposal are recorded in the statement of operations.

Recoverable Taxes from Brazilian Government Entities

Recoverable taxes from Brazilian government entities represent value-added taxes paid on purchases in Brazil, which are reclaimable from the Brazilian tax authorities, net of reserves for amounts estimated not to be recoverable.

Noncontrolling Interest and Contingently Redeemable Noncontrolling interest

Noncontrolling interests represent the portion of net income (loss), net assets, and comprehensive income (loss) that is not allocable to the Company, in situations where the Company consolidates its equity investment in a joint venture or as the primary beneficiary of a variable-interest entity (VIE) for which there are other owners. The amount of noncontrolling interest is comprised of the amount of such interests at the date of the Company's original acquisition of an equity interest or involvement in a joint venture, plus the other shareholders' share of changes in equity since the date the Company made an investment in the joint venture. If a noncontrolling interest is contingently redeemable under circumstances that are not solely within the control of the Company, the contingently redeemable noncontrolling interest is presented in the balance sheet and statement of stockholders' equity (deficit) and mezzanine equity outside of permanent equity.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to a concentration of credit risk consist primarily of cash and cash equivalents, short-term investments, and accounts receivable. The Company places its cash equivalents and investments with high credit quality financial institutions and limits the amount of credit exposure with any one financial institution. Deposits held with banks may exceed the amount of insurance provided on such deposits. The Company has not experienced any losses on its deposits of cash and cash equivalents and short-term investments.

The Company performs ongoing credit evaluation of its customers, does not require collateral, and maintains allowances for potential credit losses on customer accounts when deemed necessary.

Customers representing 10% or greater of revenue were as follows:

Years Ended December 31,	Year First Customer	2022	2021	2020
DSM (related party)	2017	20%	51%	30%
Sephora	2017	13%	**	**
Firmenich	2014	**	**	10%

** Less than 10%

Revenue Recognition

The Company recognizes revenue from the sale of renewable products, licenses and royalties from intellectual property, and grants and collaborative research and development services. Revenue is measured based on the consideration specified in a contract with a customer and the transaction price is allocated utilizing the stand-alone selling price. Revenue is recognized when the Company satisfies a performance obligation by transferring control over a product or service to a customer. The Company generally does not incur costs to obtain new contracts. The costs to fulfill a contract are expensed as incurred.

The Company accounts for a contract when it has approval and commitment to perform from both parties, the rights of the parties are identified, payment terms are established, the contract has commercial substance, and collectability of the consideration is probable. Changes to contracts are assessed for whether they represent a modification or should be accounted for as a new contract. The Company considers the following indicators, among others, when determining if it is acting as a principal in the transaction and recording revenue on a gross basis: (i) the Company is primarily responsible for fulfilling the promise to provide the specified product or service, (ii) the Company has inventory risk before the specified product or service has been transferred to a customer or after transfer of control to the customer and, (iii) the Company has discretion in establishing the price for the specified product or service. If a transaction does not meet the Company's indicators of being a principal in the transaction, then the Company is acting as an agent in the transaction and the associated revenues are recognized on a net basis.

The Company recognizes revenue when control of the product or service has passed to the customer. The following indicators are evaluated in determining when control has passed to the customer: (i) the customer has legal title to the product, (ii) the Company has transferred physical possession of the product or service to the customer, (iii) the Company has a right to receive payment for the product or service, (iv) the customer absorbs the significant risks and rewards of ownership of the product and, (v) the customer has accepted the product. For most of the Company's renewable products customers, supply agreements between the Company and each customer indicate when transfer of title occurs.

In some cases, the Company may make a payment to a customer. When that occurs, the Company evaluates whether the payment is for a distinct product or service from the customer. If the fair value of the product or service is greater than or equal to the amount paid to the customer, then the entire payment is treated as a purchase. If, on the other hand, the fair value of product or service is less than the amount paid, then the difference is treated as a reduction in transaction price of the Company's sales to the customer or a reduction of cumulative to-date revenue recognized from the customer in the period the payment is made or products or services are received from the customer.

Performance Obligations

A performance obligation is a promise in a contract to transfer a distinct product or service to the customer. A contract's transaction price is allocated to each distinct performance obligation and recognized as revenue when the performance obligation is satisfied. The Company's contracts may contain multiple performance obligations if a promise to transfer the individual product or service is separately identifiable from other promises in the contracts and, therefore, is considered distinct. For contracts with multiple performance obligations, the Company determines the standalone selling price of each performance obligation and allocates the total transaction price using the relative selling price basis.

The following is a description of the principal products and services from which the Company generates revenue.

Renewable Product Sales

Revenues from renewable product sales are recognized as a distinct performance obligation on a gross basis as the Company is acting as a principal in these transactions, with the selling price to the customer recorded net of discounts and allowances. Revenues are recognized at a point in time when control has passed to the customer, which typically occurs when the renewable product leaves the Company's facilities with the first transportation carrier. The Company, on occasion, may recognize revenue under a bill and hold arrangement, whereby the customer requests and agrees to purchase product but requests delivery at a later date. Under these arrangements, control transfers to the customer when the product is ready for delivery, which occurs when the product is identified separately as belonging to the customer, the product is ready for shipment to the customer in

its current form, and the Company does not have the ability to direct the product to a different customer. It is at this point the Company has the right to receive payment, the customer obtains legal title, and the customer has the significant risks and rewards of ownership. The Company's renewable product sales do not include rights of return, except for direct-to-consumer products, for which the Company estimates sales returns and reduces revenue accordingly. For renewable products other than direct-to-consumer, returns are accepted only if the product does not meet product specifications and such nonconformity is communicated to the Company within a set number of days of delivery. The Company offers a two-year assurance-type warranty to replace or reprocess its ingredient products that do not meet Company-established criteria as set forth in the Company's trade terms. An estimate of the cost to replace or reprocess its ingredient products sold is made based on a historical rate of experience and recognized as a liability and related expense when the renewable product sale is consummated.

Licenses and Royalties

Licensing of Intellectual Property: When the Company's intellectual property licenses are determined to be distinct from the other performance obligations identified in the arrangement, revenue is recognized from non-refundable, up-front fees allocated to the license at a point in time when the license is transferred to the licensee and the licensee is able to use and benefit from the license. For intellectual property licenses that are combined with other promises, the Company utilizes judgment to assess the nature of the combined performance obligation to determine whether the combined performance obligation is satisfied over time or at a point in time and, if over time, the appropriate method of measuring progress for purposes of recognizing revenue from non-refundable up-front-fees. The Company evaluates the measure of progress each reporting period and, if necessary, adjusts the measure of performance and related revenue recognized.

Royalties from Licensing of Intellectual Property: The Company earns royalties from the licensing of its intellectual property whereby the licensee uses the intellectual property to produce and sell its products to its customers and the Company shares in the profits.

When the Company's intellectual property license is the only performance obligation, or it is the predominant performance obligation in arrangements with multiple performance obligations, the Company applies the sales-based royalty exception which requires the Company to estimate the revenue that is recognized at a point in time when the licensee's product sales occur. Estimates of sales-based royalty revenues are made using the most likely outcome method, which is the single amount in a range of possible amounts, using the best evidence available at the time, derived from the licensee's historical sales volumes and sales prices of its products and recent commodity market pricing data and trends. Estimates are adjusted to actual or as new information becomes available.

When the Company's intellectual property license is not the predominant performance obligation in arrangements with multiple performance obligations, the royalty represents variable consideration and is allocated to the transaction price of the predominant performance obligation, which generally is the supply of renewable products to the Company's customers. Revenue is estimated and recognized at a point in time when the renewable products are delivered to the customer. Estimates of the amount of variable consideration to include in the transaction price are made using the expected value method, which is the sum of probability-weighted amounts in a range of possible amounts determined based on the cost to produce the renewable product plus a reasonable margin for the profit share. The Company only includes an amount of variable consideration in the transaction price to the extent it is probable that a significant reversal in the cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is subsequently resolved. Also, the transaction price is reduced for estimates of customer incentive payments payable by the Company for certain customer contracts.

Collaborations, Grants, and Other

Collaborative Research and Development Services: The Company earns revenues from collaboration agreements with customers to perform research and development services to develop new molecules using the Company's technology and to scale production of the molecules for commercialization and use in the collaborator's products. The collaboration agreements generally include providing the Company's collaboration partners with research and development services and with licenses to the Company's intellectual property to use the technology underlying the development of the molecules and to sell its products that incorporate the technology. The terms of the Company's collaboration agreements typically include one or more of the following: (i) advance payments for the research and development services that will be performed, (ii) nonrefundable upfront license payments, (iii) milestone payments to be received upon the achievement of the milestone events defined in the agreements, (iv) milestone payments at fixed intervals based on the passage of time, (v) payments for inventory manufactured under supply agreements upon the commercialization of the molecules, and (vi) royalty payments upon the commercialization of the molecules in which the Company shares in the customer's profits.

Collaboration agreements are evaluated at inception to determine whether the intellectual property licenses represent distinct performance obligations separate from the research and development services. If the licenses are determined to be distinct, the non-refundable upfront license fee is recognized as revenue at a point in time when the license is transferred to the licensee and the licensee is able to use and benefit from the license while the research and development service fees are recognized over time as the performance obligations are satisfied. The research and development service fees represent variable consideration. Estimates of the amount of variable consideration to include in the transaction price are made using the expected value method, which is the sum of probability-weighted amounts in a range of possible amounts. The Company only includes an amount of variable consideration in the transaction price to the extent it is probable that a significant reversal in the cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is subsequently resolved. Revenue is recognized over time using either an input-based measure of labor hours expended or a time-based measure of progress towards the satisfaction of the performance obligations. The measure of progress is evaluated each reporting period and, if necessary, adjustments are made to the measure of progress and the related revenue recognized.

Collaboration agreements that include milestone payments are evaluated at inception to determine whether the milestone events are considered probable of achievement, and estimates are made of the amount of the milestone payments to include in the transaction price using the most likely amount method, which is the single amount in a range of possible amounts. If it is probable that a significant revenue reversal will not occur, the estimated milestone payment amount is included in the transaction price. Each reporting period, the Company re-evaluates the probability of achievement of the milestone events and any related constraint, and if necessary, adjusts its estimate of the overall transaction price. Any such adjustments are recorded on a cumulative basis, which would affect collaboration revenues in the period of adjustment. Generally, revenue is recognized using an input-based measure of progress towards the satisfaction of the performance obligations which can be labor hours expended or time-based in proportion to the estimated total project effort or total projected time to complete. The measure of progress is evaluated each reporting period and, if necessary, adjustments are made to the measure of progress and the related revenue recognized. Certain performance obligations are associated with technical achievements that require customer acceptance. Revenue generated from the performance of services in accordance with these types of milestones is recognized upon confirmation from the customer that the milestone has been achieved. In these cases, amounts recognized are constrained to the amount of consideration received upon achievement of the milestone.

The Company generally invoices its collaboration partners on a monthly or quarterly basis, or upon the completion of the effort or achievement of a milestone, based on the terms of each agreement. Contract liabilities arise from amounts received in advance of performing the research and development activities and are recognized as

revenue in future periods as the performance obligations are satisfied. Contract assets arise from services provided or completed performance obligations that are not yet billed to the customer.

Grants: The Company earns revenues from grants with government agencies to, among other things, provide research and development services to develop molecules using the Company's technology, and create research and development tools to improve the timeline and predictability for scaling molecules from proof of concept to market by reducing time and costs. Grants typically consist of research and development milestone payments to be received upon the achievement of the milestone events defined in the agreements.

The milestone payments are evaluated at inception to determine whether the milestone events are considered probable of achievement and estimates are made of the amount of the milestone payments to include in the transaction price using the most likely amount method, which is the single amount in a range of possible amounts. If it is probable that a significant revenue reversal will not occur, the estimated milestone payment amount is included in the transaction price. Each reporting period, the Company re-evaluates the probability of achievement of the milestone events and any related constraint and, if necessary, adjusts its estimate of the overall transaction price. Any such adjustments are recorded on a cumulative basis, which would affect grant revenues in the period of adjustment. Revenue is recognized over time using a time-based measure of progress towards the satisfaction of the performance obligations. The measure of progress is evaluated each reporting period and, if necessary, adjustments are made to the measure of progress and the related revenue recognized.

The Company receives certain consideration from AICEP Portugal Global (AICEP), an entity funded by the government of Portugal, under the Consortium Internal Regulatory Agreement and an AICEP Investment Contract entered into by Amyris with Universidade Católica Portuguesa (UCP) Porto Campus. The Company considers this arrangement to be a government grant. Grant revenue is recognized when there is reasonable assurance that monies will be received and that conditions attached to the grant have been met.

Cost of Products Sold

Cost of products sold reflects the production costs of renewable products and includes the cost of raw materials, in-house manufacturing labor and overhead, amounts paid to contract manufacturers, including amortization of tolling fees, and period costs, including inventory write-downs resulting from applying lower of cost or net realizable value inventory adjustments. Cost of products sold also includes certain costs related to the scale-up of production. Shipping and handling costs charged to customers are recorded as revenue. Inbound shipping costs for raw materials are included in cost of products sold.

The Company recognizes deferred cost of products sold as an asset on the balance sheet when a cost is incurred in connection with a revenue performance obligation that will not be fulfilled until a future period. The Company recorded a deferred cost of products sold asset for the fair value of amounts paid to DSM under a supply agreement for manufacturing capacity to produce its sweetener product at the Brotas facility in Brazil. The deferred cost of products sold asset is allocated to inventory and expensed to cost of products sold on a units of production basis over the five-year term of the supply agreement. On a quarterly basis, the Company evaluates its future production volumes for its sweetener product and adjusts the unit cost to be expensed over the remaining estimated production volume. The Company also periodically evaluates the asset for impairment indicators and recoverability based on changes in business strategy and product demand trends over the term of the supply agreement.

Research and Development

Research and development costs are expensed as incurred and include costs associated with research performed pursuant to collaborative agreements and government grants, including internal research. Research and development costs consist of direct and indirect internal costs related to specific projects, as well as fees paid to others that conduct certain research activities on the Company's behalf.

Debt Extinguishment

The Company accounts for the income or loss from extinguishment of debt, including instances where the terms of a debt instrument are modified in a manner that significantly changes the underlying cash flows, by recognizing the difference between the reacquisition consideration and the net carrying amount of the debt being extinguished as gain or loss when the debt is extinguished. Losses from debt extinguishment are shown in the consolidated statements of operations under "Other income (expense)" as "Loss upon extinguishment of debt".

Stock-based Compensation

The Company accounts for stock-based employee compensation plans using the grant-date fair value of each award. The Company recognizes stock-based compensation expense net of expected forfeitures over each award's service period, which is generally the vesting term. Expected forfeiture rates are estimated based on the Company's historical experience.

Income Taxes

The Company is subject to income taxes in the United States and foreign jurisdictions and uses estimates to determine its provisions for income taxes. The Company uses the asset and 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.

Recognition of deferred tax assets is appropriate when realization of such assets is more likely than not. The Company recognizes a valuation allowance against its net deferred tax assets unless it is more likely than not that such deferred tax assets will be realized. This assessment requires judgement as to the likelihood and amounts of future taxable income by tax jurisdiction.

The Company assesses all material positions taken in any income tax return, including all significant uncertain positions, in all tax years that are still subject to assessment or challenge by relevant taxing authorities. Assessing an uncertain tax position begins with the initial determination of the position's sustainability, and the tax benefit to be recognized is measured at the largest amount of benefit that is greater than 50 percent likely of being realized upon ultimate settlement. As of each balance sheet date, unresolved uncertain tax positions must be reassessed, and the Company will determine whether (i) the factors underlying the sustainability assertion have changed and (ii) the amount of the recognized tax benefit is still appropriate. The recognition and measurement of tax benefits requires significant judgement, and such judgements may change as new information becomes available.

Foreign Currency Translation

Assets and liabilities of non-U.S. subsidiaries that operate in a local currency environment, where that local currency is the functional currency, are translated to U.S. dollars at exchange rates in effect at the balance sheet date, with the resulting translation adjustments directly recorded to a separate component of AOCI. Income and expense accounts are translated at average exchange rates during the year. Remeasurement adjustments are recorded in other income (loss), net.

As of December 31, 2022 and 2021, cumulative translation adjustment, net of tax, was \$64.1 million and \$52.8 million.

For the year ended December 31, 2022, the Company recorded a \$2.9 million loss resulting from foreign exchange transactions. For the years ended December 31, 2021 and 2020, the Company recorded gains of \$0.6 million and \$0.7 million, resulting from foreign exchange transactions.

Accounting Standards Recently Adopted

During the year ended December 31, 2022 the Company adopted the following Accounting Standards Updates (ASUs):

Convertible Debt, and Derivatives and Hedging. In August 2020, the FASB issued ASU 2020-06, *Debt—Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity*, to improve financial reporting associated with accounting for convertible instruments and contracts in an entity's own equity. Adoption of this standard on January 1, 2022 in connection with the 2026 Convertible Senior Notes, decreased additional paid-in capital by \$368.0 million, increased debt by the same amount, and decreased accumulated deficit by \$6.0 million for debt discount accretion expense that was recorded prior to adoption.

Accounting Standards or Updates Not Yet Adopted

Credit Losses. In June 2016, the FASB issued ASU 2016-13, *Financial Instruments—Credit Losses (Topic 326), Measurement of Credit Losses on Financial Instruments*. ASU 2016-13 requires entities to measure all expected credit losses for most financial assets held at the reporting date based on an expected loss model which includes historical experience, current conditions, and reasonable and supportable forecasts. Entities will now use forward-looking information to better form their credit loss estimates. ASU 2016-13 also requires enhanced disclosures to help financial statement users better understand significant estimates and judgments used in estimating credit losses, as well as the credit quality and underwriting standards of an entity's portfolio. Because the Company met the SEC definition of a smaller reporting company when ASU 2016-13 was issued, this new accounting standard will be effective for the Company in the first quarter of 2023. The Company is currently evaluating the impact this standard will have on its consolidated financial statements and related disclosures.

Business Combinations: Accounting for Contract Assets and Contract Liabilities from Contracts with Customers. In October 2021, the FASB issued ASU 2021-08, *Business Combinations (Topic 805): Accounting for Contract Assets and Contract Liabilities from Contracts with Customers*. This update requires that an acquirer recognize and measure contract assets and contract liabilities acquired in a business combination in accordance with Topic 606, *Revenue from Contracts with Customers*. This standard will be effective for the Company in the first quarter of 2023 and will be applied prospectively to business combinations occurring on or after the effective date of the standard. The Company is currently evaluating the guidance and the impact on its consolidated financial statements and related disclosures.

Fair Value Measurement: Fair Value Measurement of Equity Securities Subject to Contractual Sale Restrictions. In June 2022, the FASB issued ASU 2022-03, *Fair Value Measurement (Topic 820): Fair Value Measurement of Equity Securities Subject to Contractual Sale Restrictions*. This ASU clarifies that a contractual restriction on the sale of an equity security is not considered part of the unit of account of the equity security and, therefore, is not considered in measuring fair value. The ASU also clarifies that an entity cannot, as a separate unit of account, recognize and measure a contractual sale restriction and requires specific disclosures for equity securities subject to contractual sale restrictions. These changes will become effective for the Company on January 1, 2024. The Company is currently evaluating the guidance and the impact on its consolidated financial statements and related disclosures.

2. Balance Sheet Details

Allowance for Doubtful Accounts

(In thousands)	Balance at Beginning of Year	Provisions	Write-offs, Net	Balance at End of Year
Allowance for doubtful accounts:				
Year Ended December 31, 2022	\$945	\$944	\$(894)	\$995
Year Ended December 31, 2021	\$137	\$808	\$ —	\$945
Year Ended December 31, 2020	\$ 45	\$ 92	\$ —	\$137

Inventories

December 31, (In thousands)	2022	2021
Raw materials	\$ 43,043	\$25,733
Work in process	8,028	6,941
Finished goods	60,809	42,396
Total inventories	\$111,880	\$75,070

Prepaid expenses and other current assets

December 31, (In thousands)	2022	2021
Prepayments, advances and deposits	\$18,849	\$25,140
Non-inventory production supplies	8,138	3,956
Note receivable ⁽¹⁾	6,871	—
Recoverable taxes from Brazilian government entities	870	1,188
Other	5,418	3,229
Total prepaid expenses and other current assets	\$40,146	\$33,513

- (1) In March 2022, the Company loaned a privately-held company \$10 million in exchange for a senior secured convertible promissory note (the Note, as amended from time to time) which unless earlier redeemed or converted into equity of the privately-held company, shall be repaid in tranches according to the terms of the Note by June 2023. The Note bears interest at 10% per annum and is convertible, at the Company's option, into equity of the privately-held company upon maturity of the Note or in the event of an initial public offering, equity financing, or corporate transaction (such as a sale or merger), in each case, at a conversion price that is dependent on a variety of factors. In addition, the Note is redeemable prior to maturity, at the issuer's option, in the event of one or more equity or debt financings, one or more asset sales, or an initial public offering, in each case equal to or greater than \$65 million. The arrangement is accounted for as a loan. The Company will periodically evaluate the collectability of the loan, and an allowance for credit losses will be recorded if the Company concludes that all or a portion of the loan balance is no longer collectible.

Property, plant, and equipment, net

December 31, (In thousands)	2022	2021
Machinery and equipment	\$ 149,413	\$ 51,855
Leasehold improvements	51,426	45,780
Building	29,389	—
Computers and software	10,356	9,174
Furniture and office equipment, vehicles and land	3,979	3,688
Construction in progress	41,012	48,032
Total property, plant and equipment, gross	285,575	158,529
Less: accumulated depreciation and amortization	(103,351)	(85,694)
Total property, plant and equipment, net	\$ 182,224	\$ 72,835

During the years ended December 31, 2022, 2021 and 2020, depreciation and amortization expense, which includes amortization of financing lease assets, was as follows:

Years Ended December 31, (In thousands)	2022	2021	2020
Depreciation and amortization	\$12,372	\$8,745	\$8,508

Goodwill

Year ended December 31, (In thousands)	2022	2021
Beginning balance	\$131,259	\$ —
Acquisitions	22,231	133,025
Effect of currency translation adjustment	(10,915)	(1,766)
Ending balance	\$142,575	\$131,259

Intangible Assets

During the year ended December 31, 2022, the Company purchased \$14.6 million of intangible assets related to trademarks and trade names, customer relationships, developed technology, and patents as a result of the acquisitions completed during the year.

	Estimated Useful Life (in Years)	December 31, 2022			December 31, 2021		
		Gross Amount	Accumulated Amortization	Net	Gross Amount	Accumulated Amortization	Net
Trademarks and trade names	10	\$21,042	\$1,948	\$19,094	\$11,484	\$496	\$10,988
Customer relationships	5 - 16	8,182	1,045	7,137	8,197	267	7,930
Developed technology	5 - 12	21,472	1,315	20,157	19,962	200	19,762
Patents	17	600	50	550	600	15	585
		<u>\$51,296</u>	<u>\$4,358</u>	<u>\$46,938</u>	<u>\$40,243</u>	<u>\$978</u>	<u>\$39,265</u>

Amortization expense for intangible assets was \$4.4 million and \$1.0 million for the years ended December 31, 2022 and 2021 and is included in general and administrative expenses.

Total future amortization estimated as of December 31, 2022 is as follows (in thousands):

2023	\$ 5,260
2024	6,333
2025	6,464
2026	6,218
2027	5,346
Thereafter	17,317
Total future amortization	\$46,938

Leases

Operating Leases

The Company had \$97.2 million and \$32.4 million of ROU assets as of December 31, 2022 and 2021. Operating lease liabilities were \$88.5 million and \$27.5 million as of December 31, 2022 and 2021. For the years ended December 31, 2022 and 2021, the Company recorded \$20.3 million and \$8.1 million of expense in connection with operating leases, of which \$1.3 million and \$1.1 million were included in cost of products sold.

In October 2021, the Company entered into a 10-year manufacturing partnership agreement with Renfield Manufacturing, LLC to provide manufacturing services and third-party logistics ("3PL") processes, including inventory management, warehousing, and fulfillment for certain of the Company's consumer product lines. Under the agreement, the Company will pay Renfield a series of fixed payments totaling \$37.4 million over the 10-year period and variable payments for products manufactured and/or fulfilled by Renfield on a cost plus markup basis. The Company also provided a \$0.5 million letter of credit and guarantee to the lessor of the Renfield manufacturing facility, which extends through August 2032. If Renfield fails to perform under the facility lease, the Company can terminate the manufacturing agreement. The Company evaluated the key terms and provisions of the agreement and concluded the fixed payments represented an embedded operating lease. As a result, the Company recorded a \$20.1 million ROU asset that will be expensed to cost of goods sold over the 10-year manufacturing agreement, and a corresponding \$12.0 million lease liability, which represents the present value of the fixed payments.

Information related to the Company's ROU assets and related lease liabilities were as follows:

	2022	2021
Cash paid for amounts included in the measurements of operating lease liabilities	\$15,042	\$ 7,791
ROU assets obtained in exchange for new operating lease obligations	\$69,351	\$17,184
Weighted-average remaining lease term in years	11.3	7.7
Weighted-average discount rate	22.4%	19.3%

Financing Leases

The Company has entered into financing leases primarily for laboratory and computer equipment. Assets purchased under financing leases are included in "Right-of-use assets under financing leases, net" on the

consolidated balance sheets. For financing leases, the associated assets are depreciated or amortized over the shorter of the relevant useful life of each asset or the lease term. Accumulated amortization of assets under financing leases totaled \$1.6 million and \$6.8 million as of December 31, 2022 and 2021.

Maturities of Financing and Operating Leases

Maturities of lease liabilities as of December 31, 2022 were as follows:

Years Ending December 31, (In thousands)	Financing Leases	Operating Leases	Total Lease Obligations
2023	\$ 22	\$ 14,705	\$ 14,727
2024	21	23,767	23,788
2025	21	24,120	24,141
2026	16	23,466	23,482
2027	—	23,849	23,849
Thereafter	—	214,056	214,056
Total future minimum payments	80	323,963	324,043
Less: amount representing interest	(19)	(235,513)	(235,532)
Present value of minimum lease payments	61	88,450	88,511
Less: current portion	(13)	(2,255)	(2,268)
Long-term portion	\$ 48	\$ 86,195	\$ 86,243

Other assets

December 31, (In thousands)	2022	2021
Investments in equity securities	\$ 7,892	\$ —
Equity-method investments in affiliates	3,000	9,443
Notes receivable, net of current portion	671	—
Deposits	530	129
Other	1,811	994
Total other assets	\$13,904	\$10,566

When the Company acquires a noncontrolling interest in an entity (investee) where the Company is not the primary beneficiary, does not control any of the ongoing activities of the entity, and the investment does not meet consolidation requirements of U.S. GAAP, the investment is initially recognized as an equity-method investment at cost. If the investee subsequently reports losses, the Company records its proportional share of such losses as a reduction to the amount invested. If the Company's cumulative share of the investee's losses equals or exceeds the Company's investment in the investee, the Company writes down its investment balance to no lower than zero, as the Company is not liable to fund the investee's future losses.

During the year ended December 31, 2022, the Company incurred losses on two of its equity-method investments that resulted in a \$6.4 million decrease in the carrying value of the investments. No new equity-method investments in affiliates were recorded during the year ended December 31, 2022.

Accrued and other current liabilities

December 31, (In thousands)	2022	2021
Payroll and related expenses	\$18,795	\$ 9,151
Accrued interest	14,639	9,572
Liability in connection with acquisition of equity-method investment	11,275	8,735
Deferred consideration payable	7,883	30,000
Professional services	4,826	2,447
Asset retirement obligation ⁽¹⁾	3,763	3,336
Contract termination fees	1,369	1,345
License fee payable	1,050	1,050
Tax-related liabilities	829	988
Other	9,136	4,833
Total accrued and other current liabilities	\$73,565	\$71,457

(1) The asset retirement obligation represents liabilities incurred but not yet discharged in connection with the Company's 2013 abandonment of a partially constructed facility in Pradópolis, Brazil.

Other noncurrent liabilities

December 31, (In thousands)	2022	2021
Liability for deferred tax liabilities	\$1,734	\$4,296
Contract liabilities, net of current portion	—	111
Other	5,319	103
Total other noncurrent liabilities	\$7,053	\$4,510

FORM 10-K

3. Fair Value Measurement

Liabilities Measured and Recorded at Fair Value

As of December 31, 2022 and 2021, the Company's financial liabilities measured and recorded at fair value were classified within the fair value hierarchy as follows:

December 31, (In thousands)	2022				2021			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Liabilities								
Foris Convertible Note	\$—	\$—	\$54,026	\$54,026	\$—	\$—	\$107,427	\$107,427
Freestanding derivative instruments issued in connection with debt and equity instruments	—	—	—	—	—	—	7,062	7,062
Embedded derivatives bifurcated from debt instruments	—	—	5,403	5,403	—	—	—	—
Acquisition-related contingent consideration	—	—	37,574	37,574	—	—	64,762	64,762
Total liabilities measured and recorded at fair value	\$—	\$—	\$97,003	\$97,003	\$—	\$—	\$179,251	\$179,251

The Company's assessment of the significance of a particular input to the fair value measurement in its entirety requires management to make judgements and consider factors specific to the asset or liability. Market risk associated with embedded derivative liabilities relates to the potential reduction in fair value and negative impact to future earnings from a decrease in interest rates.

Changes in fair value of derivative liabilities are presented as gains or losses in the consolidated statements of operations in the line captioned "Gain (loss) from change in fair value of derivative instruments". Changes in the fair value of debt instruments that are accounted for at fair value are presented as gains or losses in the consolidated statements of operations in the line captioned "Gain (loss) from change in fair value of debt".

Fair Value of Debt — Foris Convertible Note

On June 1, 2020, the Company and Foris Ventures, LLC (Foris), an entity that beneficially owns greater than 5% of the Company's outstanding common stock and that is affiliated with Director John Doerr, entered into an amendment to the Foris agreement in which Foris has the option to convert all or a portion of the secured indebtedness, including accrued interest, into shares of Common Stock at a \$3.00 conversion price. The Company accounted for the new debt issuance under the fair value option, resulting in a \$22.0 million loss upon extinguishment. Changes in fair value will be reported in the consolidated statements of operations as "Gain (loss) from change in fair value of debt".

At December 31, 2022, the principal of the Foris Convertible Note was \$50.0 million and fair value was \$54.0 million. The Company measured the fair value of the Foris Convertible Note using a binomial lattice model using the following inputs: (i) \$1.53 stock price, (ii) 32% secured discount yield, (iii) 4.80% risk free interest rate, (iv) 45% equity volatility, and (v) 0% probability of change in control. The Company assumed that if a change of

control event were to occur, it would occur at the end of the calendar year. For the years ended December 31, 2022 and 2021, the Company recorded a gain of \$53.4 million and \$15.7 million, respectively.

Binomial Lattice Model

The Company uses the binomial lattice model to measure the fair value of the Foris Convertible Note and the fair value of embedded features in the DSM Note. For each reporting period, the Company:

- Remeasures the fair value of the Foris Convertible Note and records the change as a gain or loss from change in fair value of debt in the statement of operations; and
- Remeasures the fair value of the derivative liability associated with embedded features in the DSM Note and records the change as a gain or loss from change in fair value of derivative instruments in the statement of operations.

Derivative Liabilities Recognized in Connection with the Issuance of Debt and Equity Instruments

The following table provides a reconciliation of the beginning and ending balances for the Company's derivative liabilities recognized in connection with the issuance of debt instruments, either freestanding or embedded, measured at fair value using significant unobservable inputs (Level 3):

(In thousands)	Derivative Liability
Balance at December 31, 2021	\$ 7,062
Issuance of new derivative instruments	5,403
Change in fair value of derivative instruments	(3,905)
Derecognition on settlement or extinguishment	(3,157)
Balance at December 31, 2022	\$ 5,403

Freestanding Derivative Instruments

The liabilities associated with the Company's freestanding derivatives during 2022 and 2021 represent the fair value of freestanding liability-classified warrants. There is no current observable market for these types of derivatives and, as such, the Company determined the fair value of these instruments using the Black-Scholes-Merton option pricing model.

During 2020, the Company entered into forbearance agreements with certain affiliates of the Schottenfeld Group LLC (Schottenfeld) related to certain defaults under the Schottenfeld Notes. The Company committed to issuing new warrants to Schottenfeld under certain contingent events for 1.9 million shares of common stock at a \$2.87 purchase price and a two-year term. The contingent obligation to issue the warrants was accounted for as a derivative liability. In December 2022, Schottenfeld and the Company entered into an exchange agreement under which the Company issued the warrants, Schottenfeld exercised them, and the Company issued 1,253,451 common shares in a cashless net shares transaction. The exchange resulted in a \$0.1 million gain from change in fair value of derivative instruments and the derecognition of \$3.2 million of derivative liability upon extinguishment. For the year ended December 31, 2022, the Company recorded a \$3.9 million gain from change in fair value of derivative instruments in connection with the Schottenfeld derivative liability.

The Company determine the fair value of its liability classified warrants using the following input assumptions:

Year ended December 31,	2022	2021
Fair value of common stock on valuation date	\$1.70 - \$4.36	\$5.41 - \$19.10
Exercise price of warrants	\$2.87 - \$2.87	\$2.87 - \$2.87
Expected volatility	106% - 117%	107% - 114%
Risk-free interest rate	2.28% - 4.22%	0.16% - 0.73%
Expected term in years	2.00 - 2.00	2.00 - 2.00
Dividend yield	0%	0%

Bifurcated Embedded Features in Debt Instruments

During 2022, the Company issued a \$100 million promissory note to DSM (DSM Note). The note provides that for \$50M of the DSM Note's principal, on the date the Company receives any earn-out payment from DSM, Amyris must prepay debt principal in the same amount, plus accrued and unpaid interest. This prepayment feature is considered an embedded feature in the DSM Note to be bifurcated from and separately accounted for as a derivative liability, with an offset to debt discount on the DSM Note. At December 31, 2022, the Company measured the fair value of the embedded feature at \$5.4 million using a secured discount yield of 32%.

At December 31, 2021, no embedded derivative liability was outstanding.

Acquisition-related Contingent Consideration

The fair value of acquisition related contingent consideration ("Earnout Payments") was determined at acquisition using a Monte Carlo simulation to estimate the probability of the acquired business units achieving the relevant financial and operational milestones. The model results reflect the time value of money, non-performance risk within the required time frame and the risk due to uncertainty in the estimated cash flows. Key inputs to the Monte Carlo simulation for the Costa Brazil acquisition were: Revenue Risk Adjustment of 27%, Annual Revenue Volatility of 68%, EBITDA Risk Adjustment of 32%, and Annual EBITDA Volatility of 85%. Key inputs to the Monte Carlo simulations for the Olika, MG Empower, and Beauty Labs acquisitions were: Revenue Risk Adjustment of 1.5% to 2.3% and Annual Revenue Volatility of 12.5% to 15%. A significant change in an acquired business unit's financial performance and the timing of such changes could materially change the fair value of contingent consideration. Contingent consideration is recorded in other liabilities in the accompanying consolidated balance sheets.

The fair value of contingent consideration is classified as Level 3. The change in fair value totaled \$24.9 million in 2022 and was recognized in Change in fair value of acquisition-related contingent consideration. The change in the fair value of contingent consideration reflects the changes in the business's expected performance over the remaining earnout period and the Company's estimate of the likelihood of achieving the applicable operational milestones.

The following table provides a reconciliation of the beginning and ending balances for the Company's acquisition-related contingent consideration:

(In thousands)	Acquisition-related Contingent Consideration
Balance at December 31, 2021	\$ 64,762
Additions	440
Purchase accounting adjustment	(2,754)
Change in fair value of acquisition-related contingent consideration	(24,874)
Balance at December 31, 2022	\$ 37,574
Less: current portion ⁽¹⁾	\$ (3,019)
Acquisition-related contingent consideration, net of current portion	\$ 34,555

(1) Current portion is included within Accrued and other current liabilities on the Consolidated Balance Sheets.

Assets and Liabilities Recorded at Carrying Value

The carrying amounts of certain financial instruments, such as cash equivalents, accounts receivable, prepaid expenses and other current assets, accounts payable, and accrued liabilities, approximate fair value due to their relatively short maturities and low market interest rates. Loans payable and credit facilities are recorded at carrying value, which is representative of fair value at the date of acquisition. The Company estimates the fair value of these instruments using observable market-based inputs (Level 2). The carrying amount of the Company's debt at December 31, 2022 and at December 31, 2021, excluding the debt instruments recorded at fair value, was \$839.0 million and \$310.0 million. The fair value of such debt at December 31, 2022 and at December 31, 2021 was \$331.6 million and \$328.0 million, and was determined by (i) discounting expected cash flows using current market discount rates estimated for certain of the debt instruments and (ii) using third-party fair value estimates for the remaining debt instruments.

4. Debt

(In thousands)	2022				2021			
	Principal	Unaccreted Debt Discount	Fair Value Adjustment	Net	Principal	Unaccreted Debt Discount	Fair Value Adjustment	Net
<i>Convertible notes payable</i>								
2026 convertible senior notes	\$690,000	\$(15,109)	\$ —	\$ 674,891	\$690,000	\$(380,939)	\$ —	\$ 309,061
<i>Related party convertible notes payable</i>								
Foris convertible note	50,041	—	3,985	54,026	50,041	—	57,386	107,427
<i>Loans payable and credit facilities</i>								
Other loans payable (revolving)	1,917	—	—	1,917	896	—	—	896
<i>Related party loans payable</i>								
DSM note	100,000	(14,108)	—	85,892	—	—	—	—
Foris senior note	81,089	(4,772)	—	76,317	—	—	—	—
Subtotal related party loans payable	181,089	(18,880)	—	162,209	—	—	—	—
Total debt	\$923,047	\$(33,989)	\$3,985	893,043	\$740,937	\$(380,939)	\$57,386	417,384
Less: current portion				(120,802)				(108,323)
Long-term debt, net of current portion				\$ 772,241				\$ 309,061

Adoption of ASU 2020-06

The adoption of ASU 2020-06 on January 1, 2022, in connection with the 2026 Convertible Senior Notes, decreased additional paid-in capital by \$368.0 million, increased debt by the same amount, and decreased the accumulated deficit by \$6.0 million for debt discount accretion expense that was recorded prior to adoption.

Amendment to Foris Convertible Note

On June 30, 2022, the Company and Foris Ventures, LLC entered into an agreement to extend the maturity of the convertible note from July 1, 2022 to July 1, 2023. The amendment was accounted for as a debt modification and the note is classified as noncurrent.

Issuance of Foris Senior Note

In September 2022, the Company issued an \$80.0 million secured term note to Foris. The note accrues interest at 7.0% per annum, which is capitalized as additional principal on a monthly basis. Principal and capitalized accrued interest is payable in tranches in April 2023, January 2024, and June 2024. As part of the arrangement, the Company issued 2,046,036 of common stock warrants at an exercise price of \$3.91 to Foris with a term of three years. The warrants qualified for equity accounting treatment with a fair value at issuance of \$5.8 million, which was recorded as debt discount. The debt discount also includes debt issuance costs that are being accreted over the term of the note.

Issuance of DSM Term Loan

On October 11, 2022, Amyris entered into a secured term loan facility with DSM Finance for \$100.0 million to be used for general corporate purposes, consisting of three tranches: a \$50.0 million tranche drawn on October 11,

2022 (“Tranche 1”), a \$25.0 million tranche drawn on November 7, 2022 (“Tranche 2”), and a \$25.0 million tranche drawn on December 12 and 13, 2022 (“Tranche 3”).

The obligations under the DSM Term Loan are guaranteed by certain Amyris subsidiaries, and secured by a perfected security interest in certain payment obligations due to Amyris from DSM.

The term loan will amortize as follows: (a) \$25 million on the earlier of June 30, 2023 or the consummation of the Company’s sale, assignment, or licensing certain of its cosmetic ingredients businesses to Givaudan (see Note 16, Subsequent Events); (b) \$25 million on October 11, 2023, (c) \$25 million on October 11, 2024, and (d) \$25 million on October 11, 2025; provided that the total amortization amount on any of the foregoing dates shall be reduced by the amount of any DSM Earn-Outs due to Amyris from DSM Nutritional during the one-year period prior to such dates. Tranche 1, Tranche 2 and Tranche 3 will accrue interest at a 9%, 9% and 12% annual interest rate, with quarterly interest payments due in cash. Amyris paid DSM Finance an upfront structuring fee of \$5.1 million. In addition, the arrangement gives DSM a \$4 million credit to be applied against R&D services that the Company will provide to DSM.

Prepayment of the outstanding amounts under the secured term loan facility will be required upon any DSM Earn-Outs becoming due from DSM Nutritional to Amyris and, after prepayment of \$30.0 million of Amyris’s existing indebtedness with Foris Ventures, LLC, on a pro rata basis concurrently with any prepayments of outstanding indebtedness with Foris Ventures, LLC, upon the occurrence of certain events.

The prepayment feature is considered an embedded derivative in the DSM Note to be bifurcated from and separately accounted for as a derivative liability, with an offset to debt discount on the DSM Note. The Company measured the fair value of the embedded feature at \$5.4 million.

Both DSM Finance and DSM Nutritional are affiliates of DSM International B.V., which is a shareholder of the Company and affiliated with Philip Eykerman, a member of the Company’s Board of Directors.

Future Minimum Payments

Future minimum payments under the debt agreements as of December 31, 2022 are as follows:

Years ending December 31 (In thousands)	Convertible Notes	Loans Payable and Credit Facilities	Related Party Convertible Notes	Related Party Loans Payable and Credit Facilities	Total
2023	\$ 10,350	\$ 1,921	\$ 62,622	\$ 89,406	\$ 164,299
2024	10,350	—	—	85,449	95,799
2025	10,350	—	—	27,406	37,756
2026	700,379	—	—	—	700,379
2027	—	—	—	—	—
Thereafter	—	—	—	—	—
Total future minimum payments	731,429	1,921	62,622	202,261	998,233
Less: amount representing interest ⁽¹⁾	(41,429)	(4)	(12,581)	(15,173)	(69,187)
Less: future conversion of accrued interest to principal	—	—	—	(5,999)	(5,999)
Present value of minimum debt payments	690,000	1,917	50,041	181,089	923,047
Less: current portion of debt principal	—	(1,917)	(50,041)	(76,750)	(128,708)
Noncurrent portion of debt principal	\$690,000	\$ —	\$ —	\$104,339	\$ 794,339

⁽¹⁾ Excluding debt discount of \$34.0 million that will be accreted to interest expense over the term of the debt.

Letters of Credit

The Company had \$4.4 million of letters of credit outstanding at December 31, 2022 and 2021 related to certain leases. In connection with these letters of credit, the Company had \$4.7 million of restricted cash at December 31, 2022 and 2021.

5. Mezzanine Equity

Gates Foundation

Mezzanine equity at December 31, 2022 and 2021 is comprised of proceeds from common shares sold on May 10, 2016 to the Bill & Melinda Gates Foundation (the Gates Foundation). In 2016, the Company entered into an agreement with the Gates Foundation, where Amyris agreed to sell 292,398 shares of its common stock to the Gates Foundation in a private placement at a purchase price per share of \$17.10, resulting in proceeds of \$5.0 million.

Also in 2016, the Company and the Gates Foundation entered into an agreement where the Company agreed to expend an amount not less than \$5 million to develop and supply a yeast strain that produces artemisinic acid and/or amorphadiene at a low cost for inclusion in therapies used to treat malaria commencing in 2017.

The Company and the Gates Foundation mutually agreed in 2022 that the Company met all commitments of the agreement.

Ingredion Contingently Redeemable Noncontrolling Interest in Subsidiary

On June 1, 2021, the Company entered into a Membership Interest Purchase Agreement (MIPA) with Ingredion Corporation (Ingredion) to purchase 31% of RealSweet LLC (RealSweet), a 100% owned Amyris, Inc. subsidiary. Total consideration was \$28.5 million consisting of a \$10 million cash payment, the exchange of a \$4 million payable previously due to Ingredion, and \$14.5 million of manufacturing intellectual property rights. The terms of the MIPA provide both parties with put/call rights under certain circumstances.

The Company recorded the \$28.5 million noncontrolling interest in RealSweet as Mezzanine equity—contingently redeemable noncontrolling interest, which represents the value of Ingredion's 31% ownership interest in the net assets of the RealSweet subsidiary and recorded a \$14.5 million decrease to additional paid in capital for the difference between the fair value of the consideration received and Ingredion's ownership interest claims against the net assets of the RealSweet subsidiary. Under the terms of the MIPA, Amyris, Inc. is funding the cash construction costs of the project, which are currently estimated to be \$155 million. As of December 31, 2022, the Company has funded \$126.0 million towards the project and has \$8.1 million of contractual purchase commitments for construction related costs.

6. Stockholders' Equity (Deficit)

Registered Direct Offering and Private Placement

On December 29, 2022, the Company entered into securities purchase agreements with certain accredited investors where the Company agreed to sell (i) an aggregate of 33,333,334 shares of the Company's common stock, \$0.0001 par value per share and (ii) warrants to purchase up to 25,000,000 shares of common stock for \$50 million through a registered direct offering and concurrent private placement:

- Registered Direct Offering: a securities purchase agreement where the Company agreed to sell (i) 20,000,000 shares of common stock and (ii) warrants to purchase up to 15,000,000 shares of common stock. The

common stock was sold together with the warrants to purchase 0.75 of a share of common stock for \$1.50 per unit. The warrants are exercisable at \$1.80 per share for five years.

- **Private Placement:** a securities purchase agreement with Foris, where the Company agreed to sell to Foris, in a private placement (i) 13,333,334 shares of common stock, and (ii) warrants to purchase up to 10,000,000 shares of common stock. The shares were sold together with the warrants to purchase 0.75 of a share of common stock for \$1.50 per unit. The warrants are exercisable at \$1.80 per share for five years. Foris beneficially owns more than 5% of the Company's outstanding common stock and is affiliated with individuals serving on the Company's board of directors.

Net proceeds to the Company from the Offering were \$47.7 million after expenses upon closing on December 30, 2022.

Increase in Authorized Common Stock

On May 27, 2022, through a proxy vote at the Company's Annual Stockholder meeting, the Company's stockholders approved an increase in the Company's authorized common stock shares from 450 million to 550 million.

Shares Issuable under Convertible Notes

In connection with various debt transactions, the Company issued notes that are convertible into shares of common stock as follows as of December 31, 2022, at the election of each debtholder:

Debt Instrument	When Convertible	Number of Shares Instrument Is Convertible into as of December 31, 2022
2026 convertible senior notes	At any time from January 1, 2023 until November 15, 2026	86,683,389
Foris convertible note	At any time until July 1, 2023	20,370,947
		107,054,336

Warrants

The Company issues warrants in certain debt and equity transactions in order to facilitate raising equity capital or reduce borrowing costs. The Company has issued warrants exercisable for shares of common stock. The following table summarizes warrant activity for the year ended December 31, 2022:

Transaction	Year Issued	Expiration Date	Number Outstanding as of December 31, 2021	Additional Warrants Issued	Exercises	Expired	Weighted-average Exercise Price per Share of Warrants Exercised ¹	Number Outstanding as of December 31, 2022	Exercise Price per Share as of December 31, 2022
2022 registered direct offering warrants	2022	December 30, 2027	—	15,000,000	—	—	n/a	15,000,000	\$1.80
2022 PIPE warrants	2022	December 30, 2027	—	10,000,000	—	—	n/a	10,000,000	\$1.80
Schottenfeld warrants	2022	December 21, 2024	—	1,253,451	(1,253,451)	—	\$2.87	—	\$ —
Foris senior note warrants	2022	September 13, 2025	—	2,046,036	—	—	n/a	2,046,036	\$3.91
Blackwell / Silverback warrants	2020	July 10, 2023	1,000,000	—	—	—	n/a	1,000,000	\$3.25
January 2020 warrant exercise right shares	2020	January 31, 2022	431,378	—	(431,378)	—	\$2.87	—	\$ —
May 2019 6.50% note exchange warrants	2019	January 31, 2022	960,225	—	(960,225)	—	\$2.87	—	\$ —
May 2017 cash warrants	2017	July 10, 2023	1,492,652	—	(904,732)	—	\$2.87	587,920	\$2.87
May 2017 dilution warrants	2017	July 10, 2022	56,910	—	—	(56,910)	n/a	—	\$ —
July 2015 related party debt exchange	2015	July 29, 2025	58,690	—	—	—	n/a	58,690	\$0.15
			3,999,855	28,299,487	(3,549,786)	(56,910)	\$2.87	28,692,646	

¹ "n/a" indicates not applicable, as there were no exercises.

Warrant Exercises

During the year ended December 31, 2022, upon the cash and cashless exercises of warrants to issue 3,549,786 shares of common stock, the Company issued 3,549,786 shares of its common stock at a weighted-average exercise price of \$2.87 per share, and received cash proceeds of \$6.6 million.

Right of First Investment to Certain Investors

In connection with investments in the Company, certain investors, including Vivo and DSM, have been granted a right of first investment if the Company proposes to sell securities in certain financing transactions. With these rights, such investors may subscribe for a portion of any such new financing and require the Company to comply with certain notice periods, which could discourage other investors from participating in, or cause delays in its ability to close, such a financing.

7. Consolidated Variable-interest Entities and Unconsolidated Investments

Consolidated Variable-interest Entities

Aprinova, LLC (Aprinova JV)

In December 2016, the Company, Nikko Chemicals Co., Ltd., and Nippon Surfactant Industries Co., Ltd., (collectively, Nikko) entered into a joint venture where the Company contributed certain intellectual property and other commercial assets relating to its business-to-business cosmetic ingredients business, as well as its Leland production facility for a 50% ownership share in the business. The Company also agreed to provide exclusive royalty-free licenses to certain of the Company's intellectual property. Nikko purchased their 50% interest in exchange for \$10.0 million and the profits, if any, distributed to Nikko in cash as members of the joint venture during the three-year period from 2017 to 2019, up to a maximum of \$10.0 million. Amyris accounts for the Aprinova JV on a consolidation basis, as it is considered a variable-interest entity.

The following presents the carrying amounts of the Aprinova JV's assets and liabilities included in the accompanying consolidated balance sheets.

December 31, (In thousands)	2022	2021
Assets	\$30,373	\$27,521
Liabilities	\$ 1,857	\$ 5,575

The Aprinova JV's assets and liabilities are primarily comprised of cash, accounts receivable, inventory, property, plant and equipment, and accounts payable.

The change in noncontrolling interest for the Aprinova JV for the years ended December 31, 2022 and 2021 is as follows:

Year Ended December 31, (In thousands)	2022	2021
Balance at beginning of year	\$ 6,265	\$ 5,319
Income attributable to noncontrolling interest	4,891	5,649
Distribution to noncontrolling interest	—	(4,703)
Balance at end of year	\$11,156	\$ 6,265

On December 15, 2022, Nikko and Nippon Surfactant Industries, Co., Ltd. ("Nissa") entered into an agreement, where Amyris agreed to purchase 39 shares of Aprinova from Nikko and 10 shares of Aprinova from Nissa, which constitute 49% of Aprinova, for \$49 million, less applicable deductions and withholdings required by law. The agreement is subject to certain closing conditions, including the payment of the purchase price, \$0.3 million related to an existing distribution agreement, \$4.3 million related to distributable net cash flows of Aprinova, and the receipt of required governmental authorizations, approvals, or permits. Upon closing of the transaction, which is expected to occur in the first quarter of 2023, the Company will own 99% of Aprinova.

RealSweet LLC

On June 1, 2021, the Company entered into a Membership Interest Purchase Agreement (MIPA) with Ingredion Corporation (Ingredion) to sell 31% of RealSweet LLC (RealSweet), a 100% owned Amyris, Inc. subsidiary, which

entity owns a manufacturing facility in Brazil. Total consideration was \$28.5 million, consisting of \$10 million cash, the exchange of a \$4 million payable previously due to Ingredion, and \$14.5 million of manufacturing intellectual property rights. The terms of the MIPA provide both parties with put/call rights under certain circumstances.

The Company recorded the \$28.5 million noncontrolling interest in RealSweet as Mezzanine equity—contingently redeemable noncontrolling interest, which represents the value of Ingredion’s 31% ownership interest in the net assets of the RealSweet subsidiary and recorded a \$14.5 million decrease to additional paid-in capital for the difference between the fair value of the consideration received and Ingredion’s ownership interest claims against the net assets of the RealSweet subsidiary.

Under the terms of the MIPA, Amyris is funding the construction costs of the project, which are currently estimated to be \$155 million. As of December 31, 2022, the Company has funded \$126.0 million towards the project and has \$8.1 million of contractual purchase commitments for construction related costs.

The following presents the carrying amounts of the RealSweet JV’s assets and liabilities included in the accompanying consolidated balance sheets.

December 31, (In thousands)	2022	2021
Assets	\$158,944	\$58,340
Liabilities	\$ 36,927	\$ 8,411

The RealSweet JV’s assets and liabilities are primarily comprised of cash, property, plant and equipment, and accounts payable.

The change in contingently redeemable noncontrolling interest for the RealSweet JV for the year ended December 31, 2022 and 2021 is as follows:

Year Ended December 31, (In thousands)	2022	2021
Balance at beginning of year	\$28,520	\$ —
Loss attributable to noncontrolling interest	(483)	—
Contribution by contingently redeemable noncontrolling interest	—	28,520
Balance at end of year	\$28,037	\$28,520

Clean Beauty Collaborative, Inc.

In October 2020, the Company entered into an agreement with Rosie Huntington-Whiteley, (RHW), model turned businesswoman and founder of beauty knowledge and commerce destination, RoseInc.com, for the commercialization of clean sustainable cosmetics under the Amyris umbrella using the creative design capabilities of RHW. Clean Beauty Collaborative, Inc. (CBC) was formed and is accounted for on a consolidation basis, as it is considered a variable-interest entity. The commercial launch of the new product line to the general public occurred in August 2021.

The following presents the carrying amounts of CBC assets and liabilities included in the accompanying consolidated balance sheets.

December 31, (In thousands)	2022	2021
Assets	\$20,995	\$10,817
Liabilities	\$ 9,765	\$ 5,132

CBC assets and liabilities are primarily comprised of cash, accounts receivable, prepaid expenses, inventory and accounts payable.

The change in noncontrolling interest for CBC for the years ended December 31, 2022 and 2021 is as follows:

Year Ended December 31, (In thousands)	2022	2021
Balance at beginning of year	\$ (7,001)	\$ (538)
Loss attributable to noncontrolling interest	(17,068)	(6,463)
Balance at end of year	\$(24,069)	\$(7,001)

Equity-method Investments

Novvi LLC

Novvi LLC (Novvi) is a U.S.-based joint venture among the Company, American Refining Group, Inc., Chevron U.S.A. Inc., and H&R Group US, Inc. Novvi's purpose is to develop, produce, and commercialize base oils, additives, and lubricants derived from Biofene for use in the automotive, commercial, and industrial lubricants markets. As of December 31, 2022, the Company held equity ownership of 16.1% in Novvi.

The Company accounts for its investment in Novvi under the equity method of accounting. The Company's share of profits and losses and impairment charges on investments in affiliates are included in "Loss from investments in affiliates" in the consolidated statements of operations. The Company is not obligated to fund Novvi's potential future losses, so the Company will not record equity-method losses that would result in the investment in Novvi falling below zero. As of December 31, 2022 and December 31, 2021, the carrying amount of the Company's equity investment in Novvi was \$0.0 million and \$2.7 million.

AMF Low Carbon LLC

In December 2021, MF 92 Ventures LLC (Minerva), a Minerva Foods subsidiary, and Amyris entered into an agreement to establish AMF Low Carbon LLC (AMF Low Carbon). The purpose of AMF Low Carbon is to create, develop, market, and sell its products in the recombinant proteins segment, including individual animal proteins, vegetable proteins, and other similar inputs and products. The products will be produced through a fermentation or brewing process of sugars derived from sugarcane plants. AMF Low Carbon and Amyris also entered into a license agreement and a supply agreement. The Company contributed a perpetual, exclusive, worldwide, royalty-free, non-sublicensable license to certain intellectual property to develop Heparin and products that extend the shelf life of beef in exchange for its 40% interest in AMF Low Carbon. If and when product development is successful, Amyris will manufacture and sell the products to AMF Low Carbon in return for consideration on a cost-plus fixed margin basis. Minerva is obligated to fund \$7.5 million in exchange for its 60% interest in AMF Low Carbon. The initial carrying value of the equity method investment in AMF Low Carbon is \$5.0 million. Under the equity method, the Company records its share of AMF Low Carbon's profits or losses in "Loss from investments

in affiliates” in the consolidated statements of operations. The Company recorded a loss from investments in affiliates of \$2.0 million from inception through December 31, 2022. As of December 31, 2022 and 2021, the carrying amount of the Company’s equity investment in AMF Low Carbon was \$3.0 million.

AccessBio LLC

In December 2021, ImmunityBio, Inc. and Amyris entered into an agreement governing the operation and management of AccessBio LLC (AccessBio). The purpose of AccessBio is the clinical development, manufacture, and commercialization of therapeutic, prophylactic, or diagnostic agent, that contains or uses the RNA Vaccine Platform or any element of the RNA Vaccine for the prevention and/or treatment of COVID-19 infection.

The Company contributed an intellectual property sublicense in certain intellectual property rights granted to Amyris under a world-wide, royalty-bearing, exclusive, sublicensable license in the Infectious Disease Research Institute (IDRI) technology and a rvRNA COVID-19 vaccine developed in connection with a collaboration and license agreement between the Company and IDRI. The sublicense contributed to AccessBio is a world-wide, royalty-bearing, exclusive license for the development and commercialization of the rvRNA COVID-19 vaccine. The Company received 50% equity interest in AccessBio with a fair value of \$9.0 million in exchange for the sublicense. In accordance with the agreement, Amyris contributed an additional \$1.0 million cash after closing.

The Company accounts for its investment in AccessBio using the equity method. Under the equity method, the Company records its share of AccessBio’s profits or losses for each accounting period in “Loss from investments in affiliates” in the consolidated statements of operations. The Company recorded a loss on equity method investment of \$4.7 million and \$5.3 million for the periods ended December 31, 2022 and December 31, 2021. As of December 31, 2022 and December 31, 2021, the carrying amount of the Company’s equity investment in AccessBio was \$0.0 million and \$3.7 million.

8. Net Loss per Share Attributable to Common Stockholders

Basic net loss per share of common stock is computed by dividing the Company’s net loss attributable to Amyris, Inc. common stockholders by the weighted-average number of shares of common stock outstanding during the period. Diluted net loss per share of common stock is computed by giving effect to all potentially dilutive securities, including stock options, restricted stock units, convertible preferred stock, convertible promissory notes, common stock warrants, and contingently issuable common stock, using the treasury stock method or the as-converted method, as applicable.

The Company’s convertible preferred stock are participating securities as they contractually entitle the holders of such shares to participate in dividends and contractually require the holders of such shares to participate in the Company’s losses.

The following table presents the calculation of basic and diluted net loss per share of common stock attributable to Amyris, Inc. common stockholders:

Years Ended December 31, (In thousands, except shares and per share amounts)	2022	2021	2020
<i>Numerator:</i>			
Net loss attributable to Amyris, Inc.	\$ (528,510)	\$ (270,969)	\$ (331,039)
Less: deemed dividend to preferred stockholders upon conversion of Series E preferred stock	—	—	(67,151)
Add: loss allocated to participating securities	—	507	15,879
Net loss attributable to Amyris, Inc. common stockholders, basic	(528,510)	(270,462)	(382,311)
Adjustment to loss allocated to participating securities	—	(507)	—
Interest on convertible debt	2,750	—	—
Gain from change in fair value of debt	(45,254)	—	—
Gain from change in fair value of derivative instruments	(3,883)	(14,279)	—
Net loss attributable to Amyris, Inc. common stockholders, diluted	\$ (574,897)	\$ (285,248)	\$ (382,311)
<i>Denominator:</i>			
Weighted-average shares of common stock outstanding used in computing loss per share of common stock, basic	320,752,600	292,343,431	203,598,673
Basic loss per share	\$ (1.65)	\$ (0.93)	\$ (1.88)
Weighted-average shares of common stock outstanding	320,752,600	292,343,431	203,598,673
Effect of dilutive convertible debt	18,404,839	—	—
Effect of dilutive common stock warrants	176,555	324,200	—
Weighted-average common stock equivalents used in computing loss per share of common stock, diluted	339,333,994	292,667,631	203,598,673
Diluted loss per share	\$ (1.69)	\$ (0.97)	\$ (1.88)

The following outstanding shares of potentially dilutive securities were excluded from the computation of diluted net loss per share of common stock for the periods presented because including them would have been anti-dilutive:

Years Ended December 31,	2022	2021	2020
Common stock warrants and warrant exercise rights	28,633,956	5,741,297	38,248,741
Convertible promissory notes ⁽¹⁾	86,683,389	86,683,389	22,061,759
Stock options to purchase common stock	4,504,430	3,087,225	6,502,096
Restricted stock units	16,897,826	13,731,320	7,043,909
Contingently issuable common shares	1,187,508	5,383,580	—
Preferred shares on an as-converted basis	—	—	1,943,661
Total potentially dilutive securities excluded from computation of diluted loss per share	137,907,109	114,626,811	75,800,166

⁽¹⁾ The potentially dilutive effect of convertible promissory notes was computed based on conversion ratios in effect as of the respective period end dates. A portion of the convertible promissory notes issued carries a provision for a reduction in conversion price under certain circumstances, which could potentially increase the dilutive shares outstanding. Another portion of the convertible promissory notes issued carries a provision for an increase in the conversion rate under certain circumstances, which could also potentially increase the dilutive shares outstanding.

9. Commitments and Contingencies

Guarantor Arrangements

The Company has agreements whereby it indemnifies its executive officers and directors for certain events or occurrences while the executive officer or director is serving in his or her official capacity. The indemnification period remains enforceable for the executive officer's or director's lifetime. The maximum potential amount of future payments the Company could be required to make under these indemnification agreements is unlimited; however, the Company has a director and officer insurance policy that limits its exposure and enables the Company to recover a portion of any future payments. As a result of its insurance policy coverage, the Company believes the estimated fair value of these indemnification agreements is minimal and had no liabilities recorded for these agreements as of December 31, 2022 and 2021.

The Foris Convertible Note is collateralized by first-priority liens on substantially all of the Company's assets, including Company intellectual property, other than certain Company intellectual property licensed to DSM, the Company's international subsidiaries, and the Company's ownership interests in joint ventures. Certain of the Company's subsidiaries have guaranteed the Company's obligations under the Foris Convertible Note.

The obligations under the DSM Term Loan are guaranteed by certain Amyris subsidiaries, and secured by a perfected security interest in certain payment obligations due to Amyris from DSM Nutritional Products Ltd.

In October 2021, the Company entered into a 10-year manufacturing partnership agreement with Renfield Manufacturing, LLC (Renfield) to provide manufacturing services and third-party logistics processes, including inventory management, warehousing, and fulfillment for certain of the Company's consumer product lines. The Company also provided a \$0.5 million letter of credit and guarantee to the lessor of the Renfield manufacturing facility, which extends through August 2032. If Renfield fails to perform under the facility lease, the Company can terminate the manufacturing agreement. The Company expects that its potential future performance under the guarantee is not probable of occurrence. Accordingly, the Company had no liabilities recorded for the guarantee as of December 31, 2022 and December 31, 2021.

Other Matters

Certain conditions may exist as of the date the financial statements are issued, which may result in a loss to the Company but will only be recorded when one or more future events occur or fail to occur. The Company's management assesses such contingent liabilities, and such assessment inherently involves an exercise of judgement. In assessing loss contingencies related to legal proceedings that are pending against and by the Company or unasserted claims that may result in such proceedings, the Company's management evaluates the perceived merits of any legal proceedings or unasserted claims as well as the perceived merits of the amount of relief sought or expected to be sought.

If the assessment of a contingency indicates that it is probable that a material loss has been incurred and the amount of the liability can be estimated, then the estimated liability would be accrued in the Company's financial statements. If the assessment indicates that a potential material loss contingency is not probable but is reasonably possible, or is probable but cannot be reasonably estimated, then the nature of the contingent liability, together with an estimate of the range of possible loss if determinable and material would be disclosed. Loss contingencies considered to be remote by management are generally not disclosed unless they involve guarantees, in which case the guarantee would be disclosed.

On April 3, 2019, a securities class action complaint was filed against the Company and our CEO, John G. Melo, and former CFO, Kathleen Valiasek, in the U.S. District Court for the Northern District of California, alleging

securities law violations based on statements and omissions made by the Company in 2018-2019. On February 4, 2022, the parties reached a tentative settlement of the securities class action in the amount of \$13,500,000 to be paid from the Company's insurer. On November 8, 2022, the settlement agreement was fully approved by the court.

Subsequent to the filing of the securities class action complaint described above, on June 21, 2019 and October 1, 2019, respectively, two separate purported shareholder derivative complaints were filed in the U.S. District Court for the Northern District of California (Bonner v. Doerr, et al., and Carlson v. Doerr, et al.) based on similar allegations to those made in the securities class action complaint and naming the Company, and certain of the Company's current and former officers and directors, as defendants. The derivative lawsuits sought to recover, on the Company's behalf, unspecified damages purportedly sustained by the Company in connection with allegedly misleading statements and omissions made in connection with the Company's securities filings. An additional shareholder derivative complaint (Kimbrough v. Melo, et al.), substantially identical to the Bonner complaint, was filed on December 18, 2020 in the U.S. District Court for the Northern District of California. By agreement, the Kimbrough and Bonner complaints were consolidated for all purposes on April 9, 2021. On June 20, 2022, the Court granted the Company's motion to dismiss Bonner's amended complaint without prejudice. Subsequently, Bonner informed the Court that it did not intend to file a second amended complaint. On August 18, 2022, the Court issued the judgment in favor of the Company and awarded the Company an immaterial amount in costs. On September 9, 2022, Bonner filed a notice of appeal of the Court's decision.

On August 23, 2020, Lavvan, Inc. (Lavvan) brought claims in arbitration against the Company under that certain Research, Collaboration and License Agreement dated March 18, 2019, as amended (RCLA), and, on September 10, 2020, Lavvan filed a suit against the Company in the U.S. District Court for the Southern District of New York (SDNY). The evidentiary hearing took place in arbitration from October 24 through 28, 2022. Both the arbitration and SDNY proceedings are currently pending, and it is not yet possible to reliably determine any potential liability that could result therefrom. The Company believes Lavvan's claims lack merit and intends to continue to defend itself vigorously.

On February 22, 2023, Disruptional Ltd. and &Vest Beauty Labs LP, sellers of Beauty Labs International Ltd., a business acquired by the Company on August 31, 2021, filed a complaint against the Company in New York State court, alleging, among other things, a breach of contract related to earnout payments. The Company believes the Sellers' claims lack merit and intends to defend itself vigorously.

The Company is subject to disputes and claims that arise or have arisen in the ordinary course of business and that have not resulted in legal proceedings or have not been fully adjudicated. Such matters that may arise in the ordinary course of business are subject to many uncertainties and outcomes are not predictable with reasonable assurance and therefore an estimate of all the reasonably possible losses cannot be determined at this time. Therefore, if one or more of these legal disputes or claims resulted in settlements or legal proceedings that were resolved against the Company for amounts in excess of management's expectations, the Company's consolidated financial statements for the relevant reporting period could be materially adversely affected.

10. Revenue Recognition

The following table presents revenue by primary geographical market, based on the location of the customer, as well as by major product and service:

Years Ended December 31, (In thousands)	2022				2021				2020			
	Renewable Products	Licenses and Royalties	Collaborations, Grants and Other	TOTAL	Renewable Products	Licenses and Royalties	Collaborations, Grants and Other	TOTAL	Renewable Products	Licenses and Royalties	Collaborations, Grants and Other	TOTAL
Europe	\$ 20,340	\$15,329	\$ 7,666	\$ 43,335	\$ 14,323	\$149,800	\$10,770	\$174,893	\$ 17,156	\$50,991	\$ 8,765	\$ 76,912
North America	174,936	17,105	5,915	197,956	115,493	24,012	1,684	141,189	68,675	—	526	69,201
Asia	18,090	—	1,481	19,571	16,362	—	5,848	22,210	13,720	—	8,517	22,237
South America	5,589	—	28	5,617	1,907	—	—	1,907	4,105	—	—	4,105
Other	3,368	—	—	3,368	1,618	—	—	1,618	682	—	—	682
	\$222,323	\$32,434	\$15,090	\$269,847	\$149,703	\$173,812	\$18,302	\$341,817	\$104,338	\$50,991	\$17,808	\$173,137

The following table presents revenue by management revenue classification and by major product and service:

Years Ended December 31, (In thousands)	2022				2021				2020			
	Renewable Products	Licenses and Royalties	Collaborations, Grants and Other	Total	Renewable Products	Licenses and Royalties	Collaborations, Grants and Other	Total	Renewable Products	Licenses and Royalties	Collaborations, Grants and Other	Total
Consumer	\$171,484	\$ 431	\$ 5,003	\$176,918	\$ 91,041	\$ 13	\$ 934	\$ 91,988	\$ 51,627	\$ —	\$ —	\$ 51,627
Technology access	50,839	32,003	10,087	92,929	58,662	173,799	17,368	249,829	52,711	50,991	17,808	121,510
	\$222,323	\$32,434	\$15,090	\$269,847	\$149,703	\$173,812	\$18,302	\$341,817	\$104,338	\$50,991	\$17,808	\$173,137

Significant Revenue Agreements

DSM Revenue Agreements

DSM Ingredients Collaboration

The Company provides DSM with research and development services for specific field of use ingredients. Revenue is recognized based on an input measure of progress as labor hours are expended each quarter. DSM funded the development work with payments of \$2.0 million quarterly from October 1, 2020 to September 30, 2021 for services focused on achieving a certain fermentation yield and cost target over the twelve-month period. During the years ended December 31, 2022 and 2021, the Company recognized \$4.0 million and \$6.0 million of collaboration revenue in connection with the agreement.

DSM License Agreement and Contract Assignment

In March 2021, the Company and DSM entered into a license agreement and asset purchase agreement where DSM acquired exclusive rights to the Company's Flavor and Fragrance (F&F) product portfolio. The Company granted DSM exclusive licenses covering specific intellectual property of the Company and assigned the Company's rights and obligations under certain F&F ingredients supply agreements to DSM, in exchange for non-refundable upfront consideration totaling \$150 million, and up to \$235 million of contingent consideration if and when certain commercial milestones are achieved in each of the calendar years 2022 through 2024. The Company recognized \$143.6 million of license and royalty revenue during the year ended December 31, 2021. The Company is recognizing revenue at the later of (1) when the underlying sales or usage has occurred and (2) the related performance obligation has been satisfied (or partially satisfied). During the year ended December 31, 2022, the Company recognized \$31.8 million of license and royalty revenue.

PureCircle License and Supply Agreement

On June 1, 2021, the Company and PureCircle Limited (PureCircle), a subsidiary of Ingredion Incorporated, entered into an intellectual property license agreement under which the Company (i) granted certain intellectual property licenses to PureCircle to make, have made, commercialize, and advance the development of sustainably sourced, zero-calorie, nature-based sweeteners and potentially other types of fermentation-based ingredients, as the exclusive global business-to-business commercialization partner for the Company's sugar reduction technology that includes fermented RebM, (ii) entered into a product supply and profit sharing agreement to provide manufacturing services and products to PureCircle, and (iii) assigned and transferred certain customer contracts to PureCircle related to the sale and distribution of RebM. Ingredion purchased 31% of the membership interests in Amyris RealSweet LLC (RealSweet), a 100% owned subsidiary of the Company, which entity owns the new manufacturing facility in Brazil. Ingredion's purchase of the contingently redeemable noncontrolling interest in RealSweet was deemed to be an equity transaction. Under the PureCircle license agreement, the Company will continue to own and market its Purecane® consumer brand offering of tabletop and culinary sweetener products to consumers. As consideration for the license and product supply agreements, the Company received a \$10 million license fee at closing and may receive additional payments of up to \$35 million upon achievement of certain milestones related to RebM sales and manufacturing cost targets. Additionally, under the product supply and profit sharing agreement, the Company will earn revenues from product sales to PureCircle and a profit share from future product sales, including RebM, by PureCircle. In connection with the arrangement, the Company recognized license revenue of \$10 million during the year ended December 31, 2021.

Revenue in connection with Significant Revenue Agreements

In connection with the significant revenue agreements discussed above and others previously disclosed, the Company recognized revenue for the years ended December 31, 2022 and 2021 in connection with significant revenue agreements and from all other customers as follows:

Years Ended December 31, (In thousands)	2022				2021				2020			
	Renewable Products	Licenses and Royalties	Collaborations, Grants and Other	TOTAL	Renewable Products	Licenses and Royalties	Collaborations, Grants and Other	TOTAL	Renewable Products	Licenses and Royalties	Collaborations, Grants and Other	TOTAL
DSM (related party)	\$ 18,172	\$31,781	\$ 3,994	\$ 53,947	\$ 19,162	\$149,612	\$ 6,000	\$174,774	\$ 946	\$43,750	\$ 7,018	\$ 51,714
Sephora	35,159	—	—	35,159	27,640	—	—	27,640	13,802	—	—	13,802
PureCircle	3,884	158	—	4,042	2,915	10,000	—	12,915	—	—	—	—
AccessBio	—	—	—	—	—	9,000	—	9,000	—	—	—	—
Yifan	—	—	1,481	1,481	—	—	5,848	5,848	—	—	8,468	8,468
AMF Low Carbon	—	—	—	—	—	5,000	—	5,000	—	—	—	—
Firmenich	—	64	3,417	3,481	671	188	3,528	4,387	9,967	7,241	594	17,802
Givaudan	10	—	—	10	210	—	—	210	10,081	—	—	10,081
DARPA	—	—	—	—	—	—	—	—	—	—	526	526
Lavvan	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal revenue from significant revenue agreements	57,225	32,003	8,892	98,120	50,598	173,800	15,376	239,774	34,796	50,991	16,606	102,393
Revenue from all other customers	165,098	431	6,198	171,727	99,105	12	2,926	102,043	69,542	—	1,202	70,744
Total revenue from all customers	\$222,323	\$32,434	\$15,090	\$269,847	\$149,703	\$173,812	\$18,302	\$341,817	\$104,338	\$50,991	\$17,808	\$173,137

Contract Assets and Liabilities

When a contract results in revenue being recognized in excess of the amount the Company has invoiced or has the right to invoice to the customer, a contract asset is recognized. Contract assets are transferred to accounts receivable, net when the rights to the consideration become unconditional.

Contract liabilities consist of payments received from customers, or such consideration that is contractually due, in advance of providing the product or performing services such that control has not passed to the customer.

Trade receivables related to revenue from contracts with customers are included in accounts receivable on the consolidated balance sheets, net of the allowance for doubtful accounts. Trade receivables are recorded at the point of renewable product sale or in accordance with the contractual payment terms for licenses and royalties, and grants and collaborative research and development services for the amount payable by the customer to the Company for sale of goods or the performance of services, and for which the Company has the unconditional right to receive payment.

Contract Balances

The following table provides information about accounts receivable and contract liabilities from contracts with customers:

December 31, (In thousands)	2022	2021
Accounts receivable, net	\$45,775	\$37,074
Accounts receivable - related party, net	\$ 6,608	\$ 5,667
Contract assets	\$ 806	\$ 4,227
Contract assets - related party	\$36,638	\$ —
Contract liabilities	\$ 26	\$ 2,530
Contract liabilities, noncurrent ⁽¹⁾	\$ —	\$ 111

⁽¹⁾ The balances in contract liabilities, noncurrent are included in other noncurrent liabilities on the consolidated balance sheets.

Contract liabilities, current decreased by \$2.5 million at December 31, 2022 as the result of satisfying certain performance obligations under collaboration agreements during the year ended December 31, 2022.

Remaining Performance Obligations

As of December 31, 2022, there were no unsatisfied performance obligations in connection with existing customer agreements.

11. Related Party Transactions

Related Party Debt

Related party debt was as follows:

(In thousands)	2022				2021			
	Principal	Unaccreted Debt Discount	Fair Value Adjustment	Net	Principal	Unaccreted Debt Discount	Fair Value Adjustment	Net
DSM notes	\$100,000	\$(14,108)	\$ —	\$ 85,892	\$—	\$—	\$ —	\$—
Foris								
Foris convertible note	50,041	—	3,985	54,026	50,041	—	57,386	107,427
Foris senior note	81,089	(4,772)	—	76,317	—	—	—	—
	131,130	(4,772)	3,985	130,343	50,041	—	57,386	107,427
	\$231,130	\$(18,880)	\$3,985	\$216,235	\$50,041	\$—	\$57,386	\$107,427

Related Party Equity

In September 2022, the Company issued an \$80 million secured term note to Foris. As part of the arrangement, the Company issued warrants to purchase common stock.

In December 2022, the Company entered into a securities purchase agreement with Foris that resulted in the sale of shares of common stock and warrants to purchase common stock.

Related Party Revenue

The Company recognized revenue from related parties and from all other customers as follows:

Years Ended December 31, (In thousands)	2022				2021				2020			
	Renewable Products	Licenses and Royalties	Collaborations, Grants and Other	Total	Renewable Products	Licenses and Royalties	Collaborations, Grants and Other	Total	Renewable Products	Licenses and Royalties	Collaborations, Grants and Other	Total
DSM	\$ 18,172	\$31,781	\$ 3,994	\$ 53,947	\$ 19,162	\$149,612	\$ 6,000	\$174,774	\$ 946	\$43,750	\$ 7,018	\$ 51,714
Daling (affiliate of a Board member)	—	—	—	—	—	—	—	—	40	—	—	40
Subtotal revenue from related parties	18,172	31,781	3,994	53,947	19,162	149,612	6,000	174,774	986	43,750	7,018	51,754
Revenue from all other customers	204,151	653	11,096	215,900	130,541	24,200	12,302	167,043	103,352	7,241	10,790	121,383
Total revenue from all customers	\$222,323	\$32,434	\$15,090	\$269,847	\$149,703	\$173,812	\$18,302	\$341,817	\$104,338	\$50,991	\$17,808	\$173,137

Related Party Accounts Receivable

Related party accounts receivable was as follows:

December 31, (In thousands)	2022	2021
DSM	\$6,608	\$5,667

Related Party Accounts Payable and Accrued Liabilities

Amounts due to DSM on the consolidated balance sheets include Accounts payable and accrued and other current liabilities of \$3.5 million and \$5.2 million at December 31, 2022 and December 31, 2021

Related Party DSM Transactions

The Company is party to the following significant agreements (and related amendments) with DSM:

Related to	Agreement	For Additional Information, See the Note Indicated
Debt	DSM Credit Agreement	4. Debt
Debt	2019 DSM Credit Agreement	4. Debt
Revenue	Farnesene Framework Agreement	10. Revenue Recognition
Revenue	DSM Collaboration Agreement	10. Revenue Recognition
Revenue	DSM Developer License	10. Revenue Recognition
Revenue	DSM License Agreement and Contract Assignment	10. Revenue Recognition
Revenue	DSM Performance Agreement	10. Revenue Recognition
Revenue	DSM Ingredients Collaboration Agreement	10. Revenue Recognition

12. Acquisitions

The purchase accounting for the net assets acquired, including goodwill, and the fair value of contingent consideration for the following acquisitions, is preliminarily recorded based on available information, incorporates management's best estimates, and is subject to change as additional information is obtained about the facts and circumstances that existed at the valuation date. For acquisitions that occurred during 2022, the Company expects to finalize the fair values of the assets acquired and liabilities assumed during the one-year measurement period from the date of acquisition, if any new information is obtained about facts and circumstances that existed as of the acquisition date. The net assets acquired in each transaction are generally recorded at their estimated acquisition-date fair values, while transaction costs associated with the acquisition are expensed as incurred. These transactions were accounted for by the acquisition method, and accordingly, the results of operations were included in the Company's consolidated financial statements from their respective acquisition dates.

Interfaces Indústria E Comércio De Cosméticos Ltda.

On May 16, 2022, Amyris acquired Interfaces Indústria e Comércio de Cosméticos Ltda. (Interfaces). Interfaces is headquartered in São Paulo, Brazil and specializes in producing cosmetics for skin care, hair care, and makeup. The acquisition is deemed critical to sustain the Company's growth, add operational resilience to its supply chain, reduce its dependency on third-party manufacturing, and increase the ability to source strategic components. Interfaces was acquired for \$6.7 million, consisting of \$3.4 million cash at closing and \$3.3 million cash to be paid over two years.

The following table summarizes the purchase price allocation:

(In thousands)	
Net tangible assets	\$1,474
Goodwill	5,219
Total consideration	\$6,693

Goodwill associated with this acquisition is not deductible for tax purposes.

Onda Beauty Inc.

On April 11, 2022, Amyris acquired Onda Beauty Inc. (Onda). Founded in 2014, Onda offers a curated matrix of brands as well as services, such as facials. Onda provides Amyris with a venue to test products, host events, and produce content in a luxury retail setting. Onda was acquired for \$4.9 million, consisting of \$1.0 million cash at closing and Amyris stock valued at \$3.5 million.

The following table summarizes the purchase price allocation:

(In thousands)	
Net tangible liabilities	\$ (630)
Trademarks, trade names and other intellectual property	4,275
Customer relationships	251
Goodwill	1,019
Total consideration	\$4,915

The allocated purchase price also included deferred tax liabilities attributable to the intangible assets, excluding goodwill. Goodwill associated with this acquisition is not deductible for tax purposes.

MenoLabs, LLC.

On March 10, 2022, Amyris acquired MenoLabs, LLC, (MenoLabs), which was founded to fundamentally change how menopause is addressed by offering research-backed all-natural treatments of menopause symptoms. Amyris believes that the acquisition of MenoLabs will serve as a catalyst to accelerate growth and establish a leadership position in the fast-growing menopause market. MenoLabs was acquired for \$16.2 million, consisting of \$11.3 million in cash, a bridge loan of \$0.5 million provided by Amyris in January 2022, 852,234 shares of Amyris stock with a fair value of \$3.9 million, and contingent consideration with a fair value of \$0.4 million. The contingent consideration consists of two potential payments of up to \$10 million each during the 12-month period after the closing date and the fourth quarter of 2024, if both MenoLabs's product revenues and profit margin meet certain targets.

The following table summarizes the purchase price allocation:

(In thousands)	
Net tangible assets	\$ 311
Branded products	5,600
Application	3,600
Goodwill	6,642
Total consideration	\$16,153

Goodwill associated with this acquisition is expected to be deductible for tax purposes.

EcoFab LLC.

On January 26, 2022, Amyris acquired 70% of EcoFab, LLC (EcoFabulous). EcoFabulous is focused on delivering high performance, makeup artist-quality clean beauty products in ecofriendly packaging, and priced for Gen Z consumers. The purchase consideration consisted of \$1.7 million in cash and 1,292,776 shares of Amyris stock with a fair value of \$5.5 million. The Mezzanine equity—contingently redeemable noncontrolling interest had a fair value of \$3.1 million as of the acquisition date. Amyris has determined that EcoFab is a variable-interest entity and is accounted for in consolidation.

The following table summarizes the purchase price allocation:

(In thousands)	
Goodwill ⁽¹⁾	10,240
Less: noncontrolling interest	\$ (3,072)
Total consideration	\$ 7,168

⁽¹⁾ Includes a purchase price adjustment during the fourth quarter 2022 to reclassify definite-lived intangibles to goodwill. The related accumulated amortization of intangibles was insignificant.

Goodwill associated with this acquisition is not deductible for tax purposes.

Beauty Labs International, Ltd.

On August 31, 2021, the Company closed on an agreement with Beauty Labs International Limited (Beauty Labs) to purchase the U.K.-based data sciences and machine learning technology company that has developed one of the leading consumer applications for “try before you buy” color cosmetics. The acquisition of Beauty Labs accelerates the Company’s growth and market leadership in clean beauty by adding digital innovation, machine learning, and data science to further enhance the consumer experience of its family of consumer brands.

Beauty Labs was acquired for \$111.9 million, consisting of cash of \$13.3 million, Amyris stock of \$59.5 million (including deferred stock consideration of \$30 million payable within six months after the closing date), and contingent consideration with a fair value of \$39.1 million to nonemployee shareholders. The contingent consideration consists of two potential payments that are based on future revenue of up to \$31.3 million each, with additional payments due in the case of overperformance for the years ending on December 31, 2022 and December 31, 2023.

The following table summarizes the purchase price allocation:

(In thousands)	
Net tangible assets (liabilities)	\$ (3,948)
Trademarks, trade names and other intellectual property	1,200
Developed technology	20,300
Goodwill	94,393
Total consideration	\$111,945

The allocated purchase price also included deferred tax liabilities attributable to the intangible assets, excluding goodwill, established at the acquisition date. No portion of goodwill is deductible for tax purposes.

MG Empower Ltd.

On August 11, 2021, the Company closed on an agreement with MG Empower Ltd. (MG Empower) to purchase MG Empower, a U.K.-based company providing influencer marketing and digital innovation services. Amyris' acquisition of MG Empower represents its continued investment in the future of marketing innovation by establishing a unique operating model that places digital technology and influencer marketing at the core of its consumer growth strategy.

MG Empower was acquired for \$14.6 million, consisting of cash of \$3.1 million, Amyris stock of \$7.4 million, and contingent consideration with a fair value of \$4.1 million. The contingent consideration consists of three potential payments of up to \$20.0 million that are based on achieving certain thresholds of revenue for the years ending on December 31, 2022, December 31, 2023 and December 31, 2024. The portion of the earnout payments due to the nonemployee shareholders are treated as consideration transferred, with a fair value of \$4.1 million, which was classified as other liabilities in the accompanying consolidated balance sheets.

The following table summarizes the purchase price allocation:

(In thousands)	
Net tangible assets (liabilities)	\$ (1,542)
Trademarks, trade names and other intellectual property	1,900
Customer relationships and influencer network database	2,600
Goodwill	11,613
Total consideration	\$14,571

The allocated purchase price also included deferred tax liabilities attributable to the intangible assets, excluding goodwill, established at the acquisition date. No portion of goodwill is deductible for tax purposes.

Olika Inc.

On August 11, 2021, the Company closed on an agreement with OLIKA Inc. (Olika) for the acquisition of Olika and the purchase of outstanding notes from certain Olika noteholders. Olika specializes in the clean wellness category, combining safe and effective ingredients and nature-inspired design packages. The acquisition of Olika furthers the Company's growth in clean health and beauty, and complements the Company's family of consumer brands.

Olika was acquired for \$29.6 million, consisting of cash of \$1.8 million, Amyris stock of \$14.3 million, and contingent consideration with a fair value of \$13.5 million. The contingent consideration consists of i) two potential payments of \$5.0 million each that are based on achieving certain thresholds of revenue for the years ending December 31, 2022 and December 31, 2023 and; ii) two potential payments of \$2.5 million each that are based on continuing employment of certain key management during predetermined measurement periods. The revenue earnout payments to all selling stockholders and the portion of the retention earnout payments to the nonemployee shareholders totaling \$15.0 million are treated as consideration transferred.

The following table summarizes the purchase price allocation:

(In thousands)	
Net tangible assets (liabilities)	\$ (9)
Trademarks, trade names and other intellectual property	1,500
Customer relationships	4,500
Patents	600
Goodwill	23,005
Total consideration	\$29,596

The allocated purchase price also included deferred tax liabilities attributable to the intangible assets, excluding goodwill, established at the acquisition date. No portion of goodwill is deductible for tax purposes.

Costa Brazil

On May 7, 2021, the Company acquired 100% of Upland 1 LLC (Costa Brazil), a company providing consumer products made and inspired by pure, potent, enriching ingredients, sustainably sourced from the Brazilian Amazon. The acquisition allows the Company to further expand its consumer product offering and to leverage its science platform and fermentation technology to develop and scale Costa Brazil products. Costa Brazil was acquired for \$11.6 million. The following table summarizes the components of the purchase consideration:

(In thousands)	Paid at Closing	Contingent Consideration	Total
Cash payments	\$ 314	\$ —	\$ 314
Amyris common stock value	3,167	70,000	73,167
Fair value adjustments	—	(61,900)	(61,900)
Total consideration	\$3,481	\$ 8,100	\$ 11,581

Total contractual contingent payments based on achieving certain targets are payable annually up to \$10 million each year for six years after acquisition plus a one-time \$10 million payment, upon the successful achievement of annual product revenue targets and certain cost milestones. The \$11.6 million total purchase consideration is allocated to tangible net assets, identifiable intangible assets related to trademarks, trade names, website domain names, other social media intellectual property, and customer relationships based on the estimated fair value of each asset. The excess purchase price over the fair value of the net assets and identifiable intangible assets was classified as goodwill.

The following table summarizes the purchase price allocation:

(In thousands)	
Net tangible assets (liabilities)	\$ (540)
Trademarks, trade names and other intellectual property	6,949
Customer relationships	1,158
Goodwill	4,014
Total consideration	\$11,581

No portion of goodwill is deductible for tax purposes.

13. Stock-based Compensation

Stock-based Compensation Expense Related to All Plans

Stock-based compensation expense related to all employee stock compensation plans, including options, restricted stock units, and ESPP, was as follows:

Years Ended December 31, (In thousands)	2022	2021	2020
Cost of products sold	\$ 307	\$ 295	\$ 0
Research and development	6,472	5,591	3,871
Sales, general and administrative	41,932	27,507	9,872
Total stock-based compensation expense	\$48,711	\$33,393	\$13,743

Plans

2020 Equity Incentive Plan

On June 22, 2020 the Company's 2020 Equity Incentive Plan (2020 Equity Plan) became effective. The plan will terminate in 2030. The 2020 Equity Plan provides for the grant of incentive stock options (ISOs), non-statutory stock options (NSOs), restricted stock awards, stock bonuses, stock appreciation rights, restricted stock units, and performance awards. ISOs may be granted only to Company employees or employees of its subsidiaries and affiliates. NSOs may be granted to eligible Company employees, consultants, and directors or any of the Company's parent, subsidiaries, or affiliates. The Company is able to issue up to 30,000,000 shares pursuant to the grant of ISOs under the 2020 Equity Plan. The Leadership, Development, Inclusion, and Compensation Committee of the Board of Directors (LDICC) determines the terms of each option award, provided that ISOs are subject to statutory limitations. The LDICC also determines the exercise price for a stock option, provided that the exercise price of an option may not be less than 100% (or 110% in the case of recipients of ISOs who hold more than 10% of the Company's stock on the option grant date) of the fair market value of the Company's common stock on the date of grant. Options granted under the 2020 Equity Plan vest at the rate specified by the LDICC, generally, up to a term of ten years (or five years in the case of ISOs granted to 10% stockholders). In 2021, the LDICC approved the expansion of 2020 Equity Plan to cover employees in the United Kingdom and Portugal.

As of December 31, 2022, options were outstanding to purchase 4,504,430 shares of the Company's common stock granted under the 2020 and 2010 Equity Plans, with weighted-average exercise price per share of \$6.72. In addition, as of December 31, 2022, restricted stock units representing the right to receive 16,897,826 shares of the Company's common stock granted under the 2020 and 2010 Equity Plans were outstanding. As of December 31, 2022, 9,190,956 shares of the Company's common stock remained available for future awards that may be granted under the 2020 Equity Plan. Upon the effective date of the 2020 Equity Plan, the Company no longer has shares available for issuance under the 2010 Equity Plan.

The number of shares reserved for issuance under the 2020 Equity Plan increases automatically on January 1 of each year starting with January 1, 2021, by a number of shares equal to 5% of the Company's total outstanding shares as of the immediately preceding December 31. However, the Company's Board of Directors or the LDICC retains the discretion to reduce the amount of the increase in any particular year.

2010 Employee Stock Purchase Plan

The 2010 Employee Stock Purchase Plan (2010 ESPP) is designed to enable eligible employees to purchase shares of the Company's common stock at a discount. Offering periods generally commence on each May 16 and

November 16, with each offering period lasting for one year and consisting of two six-month purchase periods. The purchase price for shares of common stock is the lesser of 85% of the fair market value of the Company's common stock on the first day of the applicable offering period or the last day of each purchase period. The number of shares reserved for issuance increases automatically on January 1 of each year, starting with January 1, 2011, by a number of shares equal to 1% of the Company's total outstanding shares as of the immediately preceding December 31. The Company's Board of Directors or the LDICC retains the discretion to reduce the amount of the increase in any particular year. In 2018, shareholders approved an amendment to the 2010 ESPP to increase the maximum number of shares of common stock that may be issued by 1 million shares. In May 2021, shareholders approved certain amendments to the 2010 ESPP, including the extension of the 2010 ESPP for another 10 years, an 800,000 share increase in the number of shares authorized for issuance, and an extension of the annual automatic increase (or evergreen) provision by nine years. No more than 2,466,666 shares of the Company's common stock may be issued under the amended and restated 2010 ESPP and no other shares may be added to this plan without the approval of the Company's stockholders.

Evergreen Shares for 2020 Equity Incentive Plan and 2010 Employee Stock Purchase Plan

In March 2021, the Board approved increases to the number of shares available for issuance under the 2020 Equity Plan and the 2010 ESPP.

The increase in shares in connection with the 2020 Equity Plan represented an automatic annual increase in the number of shares available for grant and issuance under the 2020 Equity Plan of 12,247,572 shares (Evergreen Shares). This increase was equal to 5.0% of the 244,951,446 total outstanding shares of the Company's common stock as of December 31, 2020. This automatic increase was effective as of January 1, 2021.

The increase in shares in connection with the 2010 ESPP represented an automatic annual increase in the number of shares reserved for issuance of 42,077 shares, which represents the remaining allowable under the existing 1,666,666 maximum limit for share issuance under the 2010 ESPP. This automatic increase was effective as of January 1, 2021.

Performance-based Stock Units

In May 2021, the Company's chief operating officer received performance-based restricted stock units (COO PSUs) with a per share grant date fair value of \$13.39. COO PSUs are equity awards with the final number of restricted stock units that may vest determined based on the Company's performance against pre-established performance metrics that are related to the completed construction and the successful scaling, commissioning, and transitioning of new manufacturing facilities, and the successful launching of new brands. The performance metrics are measured from the grant date through December 31, 2022. The COO PSUs vest in six tranches contingent upon the achievement of both operational performance metrics and the chief operating officer's continued employment with the Company. Over the measurement period, the number of COO PSUs that may vest and the related stock-based compensation expense that is recognized is adjusted upward or downward based upon the probability of achieving the operational performance metrics. Depending on the probability of achieving the operational performance metrics and certification by the Company's Board or Leadership, Development, Inclusion, and Compensation Committee of achievement of those operational performance metrics for each tranche, the COO PSUs vesting could be from 0 to 600,000 restricted stock units. As of December 31, 2022, the Company's management has determined that all milestones are probable of achievement. Stock-based compensation expense for this award totaled \$8.0 million on the grant date and was recognized ratably through December 31, 2022. \$5.0 million of stock-based compensation for the COO PSUs was recorded to general and administrative expense during the year ended December 31, 2022.

In August 2021, the Company's chief executive officer and chief financial officer each received performance-based restricted stock units (the CEO PSUs and the CFO PSUs) with a per share grant date fair value ranging from \$9.79 to \$12.93. The CEO PSUs and the CFO PSUs are equity awards with both a service condition and market condition. The number of CEO PSUs that may vest could be from 0 to 6,000,000 restricted stock units and the number of CFO PSUs that may vest could be from 0 to 300,000 restricted stock units, determined based on the performance of the Company's stock against pre-established Volume Weighted Average Price (VWAP) targets. The VWAP targets are measured from the grant date through July 1, 2025. Upon approval of the CEO PSUs by stockholders and immediately prior to the effectiveness of the CEO PSUs, the performance-based stock option to purchase up to 3,250,000 shares of common stock granted to the Company's chief executive officer in 2018 was automatically cancelled and forfeited. The performance metrics of the 2018 CEO PSO had not been achieved and were not probable to be achieved prior to the conclusion of its term. The Company also reversed \$1.3 million of previously recognized expense related to the unvested portion of the 2018 CEO PSO award during the year ended December 31, 2021.

The CEO PSUs and the CFO PSUs both vest in four tranches contingent upon both the achievement of VWAP targets and the respective officer's continued employment with the Company through the vesting dates. Over the measurement period, the number of PSUs that may vest and the related stock-based compensation expense that is recognized is adjusted based upon the actual date of achieving the VWAP targets. Stock-based compensation expense totaled \$68.6 million for the CEO PSUs and \$3.4 million for the CFO PSUs on the grant date and will be recognized ratably through July 1, 2026. \$6.1 million of stock-based compensation for the CEO PSUs and CFO PSUs has been recorded to general and administrative expense during the year ended December 31, 2021. Stock-based compensation expense is not subject to reversal if the market condition is not achieved. The fair value of PSUs was determined using a Monte Carlo simulation with the following assumptions:

- Risk-free interest rate: 0.48%
- Expected volatility of the Company's common stock: 101%

Stock Option Activity

Stock option activity is summarized as follows:

Year ended December 31,	2022	2021	2020
Options granted	2,095,095	734,056	1,269,808
Weighted-average grant-date fair value per share	\$ 2.97	\$ 13.54	\$ 3.75
Compensation expense related to stock options (in millions)	\$ 3.5	\$ 1.8	\$ 1.7
Unrecognized compensation costs as of December 31 (in millions)	\$ 7.5	\$ 7.8	\$ 5.2

The Company expects to recognize the December 31, 2022 balance of unrecognized costs over a weighted-average period of 3.0 years. Future option grants will increase the amount of compensation expense to be recorded in these periods.

Stock-based compensation expense for stock options and employee stock purchase plan rights is estimated at the grant date and offering date based on a fair-value using the Black-Scholes-Merton option pricing model. The fair value of employee stock options is amortized on a ratable basis over the service period. The fair value of employee stock options and employee stock purchase plan rights was estimated using the following weighted-average assumptions:

Years Ended December 31,	2022	2021	2020
Expected dividend yield	—%	—%	—%
Risk-free interest rate	2.9%	1.2%	0.7%
Expected term (in years)	6.5	6.7	6.9
Expected volatility	102%	97%	89%

The expected life of options is based primarily on historical exercise experience of the employees for options granted by the Company. All options are treated as a single group in the determination of expected life, as the Company does not currently expect substantially different exercise or post-vesting termination behavior among the employee population. The risk-free interest rate is based on the U.S. Treasury yield for a term consistent with the expected life of the awards in effect at the time of grant. Expected volatility is based on the historical volatility of the Company's common stock price. The Company has no history or expectation of paying dividends on common stock.

Stock-based compensation expense associated with options is based on awards ultimately expected to vest. At the time of an option grant, the Company estimates the expected future rate of forfeitures based on historical experience. These estimates are revised, if necessary, in subsequent periods if actual forfeiture rates differ from those estimates. If the actual forfeiture rate is lower than estimated the Company will record additional expense and if the actual forfeiture is higher than estimated the Company will record a recovery of prior expense.

The Company's stock option activity and related information for the year ended December 31, 2022 was as follows:

	Number of Stock Options	Weighted-average Exercise Price	Weighted-average Remaining Contractual Life (in years)	Aggregate Intrinsic Value (in thousands)
Outstanding - December 31, 2021	3,087,225	\$ 9.91	7.1	\$2,580
Options granted	2,095,095	\$ 2.97		
Options exercised	(36,021)	\$ 2.84		
Options forfeited or expired	(641,869)	\$10.05		
Outstanding - December 31, 2022	4,504,430	\$ 6.72	7.4	\$ —
Vested or expected to vest after December 31, 2022	4,277,955	\$ 6.86	7.3	\$ 0
Exercisable at December 31, 2022	1,873,164	\$10.11	5.4	\$ 0

The total intrinsic value of options exercised under all option plans was \$0.1 million, \$6.7 million, and \$0 for the years ended December 31, 2022, 2021, and 2020.

Restricted Stock Units (Including Performance-based Stock Units) Activity and Expense

During the years ended December 31, 2022, 2021, and 2020, 8,540,083, 10,786,300, and 4,415,209 RSUs, were granted with weighted-average service-inception date fair value per unit of \$3.24, \$12.27, and \$3.72. The Company recognized RSU-related stock-based compensation expense of \$44.2 million, \$30.7 million, and \$11.4 million, for the years ended December 31, 2022, 2021, and 2020. As of December 31, 2022 and 2021, unrecognized RSU-related compensation costs totaled \$92.0 million and \$116.9 million.

Stock-based compensation expense for RSUs is measured based on the NASDAQ closing price of the Company's common stock on the date of grant.

The Company's RSU activity and related information for the year ended December 31, 2022 was as follows:

	Number of Restricted Stock Units	Weighted-average Grant-date Fair Value	Weighted-average Remaining Contractual Life (in years)
Outstanding - December 31, 2021	13,731,320	\$9.99	2.8
Awarded	8,540,083	\$3.24	
Vested	(3,877,029)	\$6.35	
Forfeited	(1,496,548)	\$6.17	
Outstanding - December 31, 2022	16,897,826	\$7.75	2.2
Vested or expected to vest after December 31, 2022	14,135,246	\$7.35	2.1

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ESPP Activity and Expense

During the years ended December 31, 2022, 2021, and 2020, 722,909, 290,063, and 357,655 shares, of the Company's common stock were purchased under the 2010 ESPP. At December 31, 2022 and 2021, 3,430,098 and 1,046,869 shares of the Company's common stock remained reserved for issuance under the 2010 ESPP.

During the years ended December 31, 2022, 2021, and 2020, the Company recognized ESPP-related stock-based compensation expense of \$1.1 million, \$0.9 million and \$0.6 million.

14. Income Taxes

The components of loss before income taxes and loss from investment in affiliates are as follows:

Years Ended December 31, (In thousands)	2022	2021	2020
United States	\$(506,276)	\$(268,423)	\$(324,720)
Foreign	(24,931)	(10,660)	(6,015)
Net loss before income taxes	\$(531,207)	\$(279,083)	\$(330,735)

The components of the (benefit from) provision for income taxes are as follows:

Years Ended December 31, (In thousands)	2022	2021	2020
Current:			
Federal	\$ —	\$(7,478)	\$293
State	(17)	—	—
Foreign	4	—	—
Total current (benefit) provision	(13)	(7,478)	293
Deferred:			
Federal	(467)	(326)	—
State	—	(22)	—
Foreign	(2,217)	(288)	—
Total deferred (benefit) provision	(2,684)	(636)	—
Total (benefit from) provision for income taxes	\$(2,697)	\$(8,114)	\$293

A reconciliation between the statutory federal income tax and the Company's effective tax rates as a percentage of loss before income taxes and loss from investments in affiliates is as follows:

Years Ended December 31,	2022	2021	2020
Statutory tax rate	(21.0)%	(21.0)%	(21.0)%
Change in fair value of convertible debt	(2.1)%	2.9%	5.7%
Derivative liability	(0.1)%	2.2%	4.8%
Federal R&D credit	(0.6)%	(0.9)%	(0.6)%
Foreign losses	0.3%	0.7%	0.4%
IRC Section 382 limitation	—%	(2.7)%	—%
Nondeductible interest	0.1%	0.3%	0.5%
Stock-based compensation	—%	(1.5)%	—%
Other	0.4%	1.3%	0.3%
Change in valuation allowance	22.5%	15.7%	10.0%
Effective income tax rate	(0.5)%	(3.0)%	0.1%

Temporary differences and carryforwards that gave rise to significant portions of deferred taxes are as follows:

December 31, (In thousands)	2022	2021	2020
Net operating loss carryforwards	\$ 287,519	\$ 179,921	\$ 123,638
Property, plant and equipment	6,424	6,239	6,965
Research and development credits	27,332	22,463	18,279
Foreign tax credit	—	—	—
Accruals and reserves	26,689	10,094	12,003
Stock-based compensation	2,626	3,530	4,291
Disallowed interest carryforward	15,858	12,922	10,843
Capitalized research and development costs	25,958	10,903	16,390
Intangible assets and other	—	—	1,888
Equity investments	—	—	531
Total deferred tax assets	392,406	246,072	194,828
Intangible assets and other	(6,887)	(6,611)	—
Equity investments	(229)	(515)	—
Operating lease right-of-use assets	(17,700)	(4,783)	(2,051)
Debt discounts and derivatives	—	(79,845)	(774)
Total deferred tax liabilities	(24,816)	(91,754)	(2,825)
Net deferred tax assets prior to valuation allowance	367,590	154,318	192,003
Less: deferred tax assets valuation allowance	(369,325)	(158,597)	(192,003)
Net deferred tax assets	\$ (1,735)	\$ (4,279)	\$ —

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Activity in the deferred tax assets valuation allowance is summarized as follows:

(In thousands)	Balance at Beginning of Year	Additions	Reductions / Charges	Balance at End of Year
Deferred tax assets valuation allowance:				
Year ended December 31, 2022	\$158,597	\$210,728	\$ —	\$369,325
Year ended December 31, 2021	\$192,003	\$ —	\$(33,406)	\$158,597
Year ended December 31, 2020	\$153,635	\$ 38,368	\$ —	\$192,003

Recognition of deferred tax assets is appropriate when realization of such assets is more likely than not. Based on the weight of available evidence, especially the uncertainties surrounding the realization of deferred tax assets through future taxable income, the Company believes that it is more likely than not that the net deferred tax assets will not be fully realizable. Accordingly, the Company has provided a full valuation allowance against its net deferred tax assets as of December 31, 2022, 2021, and 2020. The valuation allowance increased by \$210.7 million during the year ended December 31, 2022, decreased by \$33.4 million during the year ended December 31, 2021, and increased by \$38.4 million during the year ended December 31, 2020.

In connection with the acquisition of Onda on April 11, 2022, a net deferred tax liability of \$467,000 was established, the most significant component of which is related to book/tax basis differences associated with the acquired trademark and customer relationships. The net deferred tax liability from this acquisition created an

additional source of income to realize deferred tax assets. As the Company continues to maintain a full valuation allowance against its deferred tax assets, this additional source of income resulted in the release of the Company's previously recorded valuation allowance against deferred assets. Consistent with the applicable guidance the release of the valuation allowance of \$348,000 caused by the acquisition was recorded in the consolidated financial statements outside of acquisition accounting as a tax benefit to the consolidated statements of operations.

In connection with the acquisition of MG Empower and Beauty Labs on August 11, 2021, a net deferred tax liability of \$4.3 million was established, the most significant component of which is related to book/tax basis differences associated with the acquired technology and customer relationships. The amortization of the intangibles also contributed to the deferred tax benefit recorded in the foreign jurisdictions in the current year.

On August 16, 2022, President Biden signed the Inflation Reduction Act (IRA) into law. Notably, the IRA established a 15% Corporate Alternative Minimum Tax (CAMT) on corporations with an average annual finance statement income (AFSI) in excess of \$1 billion (based on the prior three years), and established a 1% excise tax on stock buybacks from publicly traded corporations. Both provisions are effective after December 31, 2022. As the Company's AFSI is lower than \$1 billion, the Company is not expected to be impacted by the 15% CAMT. For the excise tax, because the tax is not based on a measure of income, it is not an income tax, and therefore is not within the scope of ASC 740. The IRA also introduced a myriad of clean energy incentive tax credits that are unlikely to be applicable to the Company.

As of December 31, 2022, the Company had federal net operating loss carryforwards of \$1.2 billion and state net operating loss carryforwards of \$291 million available to reduce future taxable income, if any. The Internal Revenue Code of 1986, as amended, imposes restrictions on the utilization of net operating losses in the event of an "ownership change" of a corporation. Accordingly, a company's ability to use net operating losses may be limited as prescribed under Internal Revenue Code Section 382 (IRC Section 382). Events that may cause limitations in the amount of net operating losses that the Company may use in any one year include, but are not limited to, a cumulative ownership change of more than 50% over a three-year period. During the year ended December 31, 2021, the Company experienced a greater than 50% ownership shift on March 31, 2021. Per the Section 382 analysis, this 2021 ownership change did not result in a limitation such that there would be any permanent loss of NOL or research tax credit carryovers. Any NOLs and other tax attributes generated by the Company subsequent to March 31, 2021 are currently not subject to any IRC Section 382 limitations. Federal net operating losses generated during 2018 through 2022 have an indefinite carryover life and NOL utilization is limited to 80% of taxable income. As of December 31, 2022, the Company had foreign net operating loss carryovers of \$70 million.

As of December 31, 2022, the Company had federal research and development credit carryforwards of \$11 million and California research and development credit carryforwards of \$21 million.

If not utilized, the federal net operating loss carryforward will begin expiring in 2034, and the California net operating loss carryforward will begin expiring in 2031. The federal research and development credit carryforwards will expire starting in 2037 if not utilized. The California research and development credit carryforwards can be carried forward indefinitely.

A reconciliation of the beginning and ending amounts of unrecognized tax benefits is as follows:

(In thousands)	
Balance as of December 31, 2019	\$31,538
Increases in tax positions for prior period	—
Increases in tax positions during current period	1,556
Balance as of December 31, 2020	\$33,094
Lapse of statute	(6,564)
Increases in tax positions for prior period	—
Increases in tax positions during current period	1,979
Balance as of December 31, 2021	\$28,509
Lapse of statute	(17)
Increases in tax positions for prior period	—
Increases in tax positions during current period	2,296
Balance as of December 31, 2022	\$30,788

The Company's policy is to include interest and penalties related to unrecognized tax benefits within the provision for income taxes. The Company accrued \$0, \$0 and \$0.3 million for such interest for the years ended December 31, 2022, 2021 and 2020.

None of the unrecognized tax benefits, if recognized, would affect the effective income tax rate for any of the above years due to the valuation allowance that currently offsets deferred tax assets.

The Company's primary tax jurisdiction is the United States. For U.S. federal and state income tax purposes, returns for tax years from 2008 through the current year remain open and subject to examination by the appropriate federal or state taxing authorities. Brazil tax years from 2013 through the current year remain open and subject to examination.

As of December 31, 2022, the U.S. Internal Revenue Service (the IRS) has completed its audit of the Company for tax year 2008 and concluded that there were no adjustments resulting from the audit. While the statutes are closed for tax year 2008, the U.S. federal tax carryforwards (net operating losses and tax credits) may be adjusted by the IRS in the year in which the carryforward is utilized.

15. Geographical Information

The chief operating decision maker is the Company's Chief Executive Officer, who makes resource allocation decisions and assesses business performance based on financial information presented on a consolidated basis. There are no segment managers who are held accountable by the chief operating decision maker, or anyone else, for operations, operating results, and planning for levels or components below the consolidated unit level. Accordingly, the Company has determined that it has a single reportable segment and operating segment structure.

Revenue

Revenue by geography, based on each customer's location, is shown in Note 10, "Revenue Recognition".

Property, Plant and Equipment

December 31, (In thousands)	2022	2021
United States	\$ 30,840	\$18,537
Brazil	148,108	54,247
Europe	3,276	51
	\$182,224	\$72,835

16. Subsequent Events

Amendment to Share Purchase Agreement

On February 13, 2023, Amyris entered into an amendment to the agreement to purchase 49% of Aprinova, LLC ("Aprinova"). The parties agreed to extend the closing until March 17, 2023, upon which closing Amyris will own 99% of Aprinova. Amyris agreed to pay interest on the purchase consideration and certain other amounts from February 14, 2023 through the closing date.

Asset Purchase Agreement

On February 21, 2023, Amyris and Givaudan SA ("Givaudan") entered into an agreement where Amyris will sell, assign, or license certain of its cosmetic ingredients businesses to Givaudan, including an assignment of certain distribution agreements, a sale of certain trademarks, and a grant of an exclusive, worldwide, irrevocable license to distribute, market and sell Neossance® Squalane emollient, Neossance® Hemisqualane silicone alternative, and CleanScreen™ sun protector in cosmetics actives for \$200.0 million in cash at closing and up to \$150.0 million in earn-out payments over three years. The companies also entered into a long-term partnership agreement for the manufacturing of cosmetic ingredients by Amyris for Givaudan.

Perrara Bridge Loan

On March 10, 2023, Amyris and Perrara Ventures, LLC, a Foris affiliate, entered into an agreement to make available to Amyris a secured term bridge loan of \$50 million, to be funded in one or more advances, which will become due when the Givaudan transaction closes or within 90 days, whichever is earlier. Foris is a shareholder of the Company and is affiliated with John Doerr, a member of the Company's Board of Directors.

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

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (“Exchange Act”)) are designed to provide reasonable assurance that information required to be disclosed in reports we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the rules and forms of the SEC and that such information is accumulated and communicated to our management, including the Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosures.

Under the supervision and with the participation of our management, including the Chief Executive Officer and the Chief Financial Officer, we carried out an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures as of the end of the period covered by this Annual Report on Form 10-K. Based on this evaluation, the Company’s Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective at the reasonable assurance level as of December 31, 2022.

Management’s Report on Internal Control over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Securities Exchange Act Rule 13a-15(f). 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, 2022 based on the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) *Internal Control-Integrated Framework* (2013). Our internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external reporting purposes in accordance with U.S. generally accepted accounting principles. Based on our assessment and those criteria, management concluded that the Company maintained effective internal control over financial reporting as of December 31, 2022.

Under guidelines established by the SEC, companies are allowed to exclude an acquired business from management’s report on internal control over financial reporting for the first year subsequent to the acquisition while integrating the acquired operations. Accordingly, management has excluded EcoFab LLC, MenoLabs, LLC, Onda Beauty Inc., and Interfaces Indústria e Comércio de Cosméticos Ltda. from its annual report on internal control over financial reporting as of December 31, 2022. These acquired businesses collectively represented approximately 2% and 3% of the Company’s consolidated total assets and total revenue, respectively, for the year ended December 31, 2022.

The effectiveness of the Company’s internal control over financial reporting as of December 31, 2022 has been audited by Macias, Gini & O’Connell LLP, an independent registered public accounting firm, as stated in their report. Macias Gini & O’Connell, LLP’s report on the consolidated financial statements appears under Part II, Item 8 of this Annual Report on Form 10-K.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting during the year ended December 31, 2022.

Inherent Limitations on the Effectiveness of Controls

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

Item 9B. Other Information

Item 8.01. Other Events.

None.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

Not applicable.

Part III

Certain information required by Part III is omitted from this Form 10-K because the registrant will file with the U.S. Securities and Exchange Commission a definitive proxy statement pursuant to Regulation 14A of the Exchange Act in connection with the solicitation of proxies for the Company's 2023 Annual Meeting of Stockholders (the 2023 Proxy Statement) within 120 days after the end of the fiscal year covered by this Form 10-K, and certain information included therein is incorporated herein by reference.

Item 10. Directors, Executive Officers and Corporate Governance

The information required under this Item 10 is incorporated by reference to the 2023 Proxy Statement.

Item 11. Executive Compensation

The information required under this Item 11 is incorporated by reference to the 2023 Proxy Statement.

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

The information required under this Item 12 is incorporated by reference to the 2023 Proxy Statement.

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

The information required under this Item 13 is incorporated by reference to the 2023 Proxy Statement.

Item 14. Principal Accounting Fees and Services

The information required under this Item 14 is incorporated by reference to the 2023 Proxy Statement.

Part IV

Item 15. Exhibits and Financial Statement Schedule

We have filed the following documents as part of this Annual Report on Form 10-K:

1. Financial Statements: See “Index to Consolidated Financial Statements” in Part II, Item 8 of this Annual Report on Form 10-K.
2. Financial Statement Schedule:
 - a. Allowance for doubtful accounts: see Note 2, “Balance Sheet Details” in Part II, Item 8 of this Annual Report on Form 10-K.
 - b. Deferred tax assets valuation allowance: see Note 14, “Income Taxes” in Part II, Item 8 of this Annual Report on Form 10-K.
3. Exhibits: See “Index to Exhibits” below.

Item 16. Form 10-K Summary

None.

INDEX TO EXHIBITS

Exhibit No.	Description
2.01 ^a *	Quota Purchase Agreement, dated November 17, 2017, among registrant, AB Technologies LLC and DSM Produtos Nutricionais Brasil S.A.
2.02 *	Amendment No. 1, dated December 28, 2017, to the Quota Purchase Agreement, dated November 17, 2017, among registrant, AB Technologies LLC and DSM Produtos Nutricionais Brasil S.A.
2.03 *	Amendment No. 2, dated April 16, 2019, to the Quota Purchase Agreement, dated November 17, 2017, among registrant, AB Technologies LLC and DSM Produtos Nutricionais Brasil S.A.
2.04 *	Amendment No. 3, dated February 24, 2020, to the Quota Purchase Agreement, dated November 17, 2017, among registrant, AB Technologies LLC and DSM Produtos Nutricionais Brasil S.A.
2.05 *	Amendment No. 4, dated as of March 30, 2020, to the Quota Purchase Agreement, dated November 17, 2017, among registrant, AB Technologies LLC and DSM Produtos Nutricionais Brasil S.A.
2.06 *	Amendment No. 5, dated May 22, 2020, to the Quota Purchase Agreement, dated November 17, 2017, among registrant, AB Technologies LLC and DSM Produtos Nutricionais Brasil S.A.
2.07 ^b *	Equity Purchase Agreement, dated October 31, 2019, between registrant and Cosan US, Inc.
3.01 *	Restated Certificate of Incorporation
3.02 *	Certificate of Amendment, dated May 9, 2013, to Restated Certificate of Incorporation
3.03 *	Certificate of Amendment, dated May 12, 2014, to Restated Certificate of Incorporation
3.04 *	Certificate of Amendment, dated September 18, 2015, to Restated Certificate of Incorporation
3.05 *	Certificate of Amendment, dated May 18, 2016, to Restated Certificate of Incorporation
3.06 *	Certificate of Amendment, dated June 5, 2017, to Restated Certificate of Incorporation
3.07 *	Certificate of Amendment of the Restated Certificate of Incorporation dated May 29, 2020
3.08 *	Certificate of Amendment of the Restated Certificate of Incorporation dated May 28, 2021
3.09 *	Certificate of Amendment of the Restated Certificate of Incorporation dated June 10, 2022
3.10 *	Amended and Restated Bylaws
4.01 *	Specimen of Common Stock Certificate
4.02 ^a *	Agreement, dated February 23, 2012, among registrant, Maxwell (Mauritius) Pte Ltd, Naxyris SA, Bolding Investment S.A., and Sualk Capital Ltd.
4.03 *	Exchange Agreement, dated July 26, 2015, between registrant and the investors listed therein
4.04 *	Letter Agreement dated as of July 29, 2015 among registrant and registrant's security holders listed therein
4.05 *	Warrant to Purchase Stock issued July 29, 2015 by registrant to Maxwell (Mauritius) Pte Ltd
4.06 *	Warrant to Purchase Stock issued July 29, 2015 by registrant to Maxwell (Mauritius) Pte Ltd
4.07 *	Securities Purchase Agreement, dated April 8, 2016, between registrant and Bill & Melinda Gates Foundation
4.08 *	Letter Agreement re Charitable Purposes and Use of Funds, dated April 8, 2016, between registrant and the Bill & Melinda Gates Foundation

Index to Exhibits

Exhibit No.	Description
4.09	* Form of Securities Purchase Agreement, dated May 8, 2017, between registrant and the other parties thereto
4.10	* Amendment No. 1, dated May 30, 2017 to Securities Purchase Agreement, dated May 8, 2017, between registrant and the other parties thereto
4.11	* Form of Common Stock Purchase Warrant (Cash Warrant) issued May 11, 2017 by registrant to the purchasers thereof (found at Exhibit C-1, herein)
4.12	* Form of Common Stock Purchase Warrant (Dilution Warrant) issued May 11, 2017 by registrant to the purchasers thereof (found at Exhibit C-2, herein)
4.13	* Stockholder Agreement, dated May 11, 2017, between registrant and DSM International B.V.
4.14 ^a	* Amended and Restated Stockholder Agreement, dated August 7, 2017, between registrant and DSM International B.V.
4.15	* Common Stock Purchase Warrant (Cash Warrant), issued May 31, 2017, by registrant to the investor named therein
4.16	* Securities Purchase Agreement, dated August 2, 2017, between registrant and DSM International B.V.
4.17	± Form of Stockholder Agreement, dated August 3, 2017, between registrant and affiliates of Vivo Capital LLC (found at Exhibit C, herein)
4.18	± Common Stock Purchase Warrant issued May 10, 2019 by registrant to Silverback Opportunistic Credit Master Fund Limited
4.19	* Form of Security Purchase Agreement, dated January 31, 2020, between registrant and certain investors
4.20	* Form of Right to Purchase Shares of Common Stock issued January 31, 2020 by registrant to certain investors (found at Exhibit A, herein)
4.21	* Form of Warrant Amendment Agreement, dated January 31, 2020, between registrant and certain investors
4.22	* Warrant Amendment Agreement, dated May 1, 2020, between registrant and LMAP Kappa Limited
4.23	* Rights Amendment Agreement, dated May 1, 2020, between registrant and Silverback Opportunistic Credit Master Fund Limited
4.24	* Form of Security Purchase Agreement, dated June 1, 2020 or June 4, 2020, between registrant and certain accredited investors
4.25	* Form of Amendment to Warrants to Purchase Shares of Common Stock, dated October 23, 2020, between registrant and certain investors
4.26	* Indenture, dated as of November 15, 2021, by and between registrant and U.S. Bank National Association, as trustee
4.27	* Description of Registrant's Securities Registered Under Section 12 of the Exchange Act
4.28	* Common Stock Purchase Warrant issued September 13, 2022 by the Company to Foris Ventures, LLC
4.29	* Form of Registered Warrant
4.30	* Form of Unregistered Warrant
10.01	* Lease, dated August 22, 2007, between registrant and ES East Associates, LLC
10.02	* First Amendment, dated March 10, 2008, to Lease, dated August 22, 2007, between registrant and ES East Associates, LLC

Exhibit No.	Description
10.03	* Second Amendment, dated April 25, 2008, to Lease, dated August 22, 2007, between registrant and ES East Associates, LLC
10.04	* Third Amendment, dated July 31, 2008, to Lease, dated August 22, 2007, between registrant and ES East Associates, LLC
10.05	* Fourth Amendment, dated November 14, 2009, to Lease, dated August 22, 2007, between registrant and ES East Associates, LLC
10.06	* Fifth Amendment, dated October 15, 2010, to Lease, dated August 22, 2007, between registrant and ES East, LLC
10.07	* Sixth Amendment, dated April 30, 2013, to Lease, dated August 22, 2007, between registrant and ES East, LLC
10.08	* Seventh Amendment, dated June 27, 2022, to Lease, dated August 22, 2007, between registrant and ES East, LLC
10.09	* Fourth Amendment, dated June 27, 2022, to Lease, dated April 25, 2008, between registrant and EmeryStation Triangle, LLC
10.10	* Lease dated April 25, 2008 between registrant and EmeryStation Triangle, LLC
10.11	* Letter, dated April 25, 2008, amending Lease between registrant and EmeryStation Triangle, LLC
10.12	* Second Amendment, dated February 5, 2010, to Lease, dated April 25, 2008, between registrant and EmeryStation Triangle, LLC
10.13	* Third Amendment, dated May 1, 2013, to Lease, dated April 25, 2008, between registrant and EmeryStation Triangle, LLC
10.14	* Pilot Plant Expansion Right Letter dated December 22, 2008 between registrant and EmeryStation Triangle, LLC
10.15 ^{a c}	* Lease Agreement, dated August 10, 2011, between Amyris Brasil Ltda. And Techno Park Empreendimentos e Administração Imobiliária Ltda.
10.16 ^{a c}	* First Amendment, dated July 31, 2013, to Lease Agreement, dated August 10, 2011, between Amyris Brasil Ltda. And Techno Park Empreendimentos e Administração Imobiliária Ltda.
10.17 ^c	* Second Amendment, dated October 31, 2015, to Lease Agreement, dated August 10, 2011, between Amyris Brasil Ltda. And Techno Park Empreendimentos e Administração Imobiliária Ltda.
10.18 ^c	* Third Amendment, dated March 30, 2016, to Lease Agreement, dated August 10, 2011, between Amyris Brasil Ltda. And Techno Park Empreendimentos e Administração Imobiliária Ltda.
10.19 ^c	* Fourth Amendment, dated May 7, 2019, to Lease Agreement, dated August 10, 2011, between Amyris Brasil Ltda. And Techno Park Empreendimentos e Administração Imobiliária Ltda.
10.20 ^c	* Private Instrument of Non-Residential Real Estate Lease Agreement, dated March 31, 2008, between Lucio Tomasiello and Amyris Brasil S.A. (including Amendment No. 1, dated July 5, 2008, and Amendment No. 2, dated October 30, 2008)
10.21 ^{a c}	* Third Amendment, dated October 1, 2012, to the Private Instrument of Non Residential Real Estate Lease Agreement, dated March 31, 2008, between Lucio Tomasiello and Amyris Brasil Ltda.
10.22 ^{a c}	* Fourth Amendment, dated March 3, 2015, to the Private Instrument of Non-Residential Real Estate Lease Agreement, dated March 31, 2008, among Amyris Brasil Ltda., Lucius Tomasiello and Mauricio Tomasiello
10.23 ^c	* Fifth Amendment, dated September 22, 2015, to the Private Instrument of Non-Residential Real Estate Lease Agreement, dated March 31, 2008, among Amyris Brasil Ltda., Lucius Tomasiello and Mauricio Tomasiello

Index to Exhibits

Exhibit No.	Description
10.24 ^c *	Sixth Amendment, dated October 17, 2016, to the Private Instrument of Non-Residential Real Estate Lease Agreement, dated March 31, 2008, among Amyris Brasil Ltda., Lucius Tomasiello and Mauricio Tomasiello
10.25 ^c *	Seventh Amendment, dated September 25, 2017, to the Private Instrument of Non-Residential Real Estate Lease Agreement, dated March 31, 2008, among Amyris Brasil Ltda., Lucius Tomasiello and Mauricio Tomasiello
10.26 ^c *	Eight Amendment, dated December 9, 2019, to the Private Instrument of Non-Residential Real Estate Lease Agreement, dated March 31, 2008, among Amyris Brasil Ltda., Lucius Tomasiello and Mauricio Tomasiello
10.27	* Lease Agreement, dated May 10, 2019, between Amyris Brotas Fermentação de Performance Ltda. and Raízen Energia S.A.
10.28	* 1st Amendment to the Lease Agreement, dated August 13, 2020, between Amyris Brotas Fermentação de Performance Ltda. and Raízen Energia S.A.
10.29	* Guaranty of Lease, dated October 13, 2021, by Amyris, Inc. for the benefit of CP Logistics NVCC IV, LLC
10.30 ^a *	Joint Venture Agreement, dated December 6, 2016, among registrant, Nikko Chemicals Co. Ltd., and Nippon Surfactant Industries Co., Ltd.
10.31 ^a *	First Amended and Restated LLC Operating Agreement of Aprinnova, LLC (f/k/a Neossance, LLC) dated December 6, 2016
10.32 ^b *	Supply Agreement, dated December 28, 2017, between registrant and DSM Produtos Nutricionais Brasil S.A.
10.33 ^b *	Amendment No. 1, dated November 19, 2018, to Supply Agreement, dated December 28, 2017, between registrant and DSM Nutritional Products AG, as assignee of DSM Produtos Nutricionais Brasil S.A.
10.34 ^b *	Amendment No. 2, dated April 16, 2019, to Supply Agreement, dated December 28, 2017 between registrant and DSM Nutritional Products AG, as assignee of DSM Produtos Nutricionais Brasil S.A.
10.35	* Amendment No. 3, dated October 3, 2019, to Supply Agreement, dated December 28, 2017, between registrant and DSM Nutritional Products AG, as assignee of DSM Produtos Nutricionais Brasil S.A.
10.36 ^a *	Amendment No. 4, dated December 18, 2020, to Supply Agreement, dated December 21, 2020, between registrant and DSM Nutritional Products AG, as assignee of DSM Produtos Nutricionais Brasil S.A.
10.37	* Amendment No. 5, dated March 31, 2021, to Supply Agreement, dated December 28, 2017, between us and DSM Nutritional Products AG, as assignee of DSM Produtos Nutricionais Brasil S.A.
10.38	* Assignment Agreement, dated December 31, 2018, between registrant and Hangzhou Xinfu Science & Tech Co. Ltd
10.39 ^b *	Assignment and Assumption Agreement, dated April 16, 2019, among registrant, DSM Nutritional Products AG and DSM Nutritional Products Europe Ltd.
10.40	* Amended and Restated Loan and Security Agreement, dated October 28, 2019, by and among the Company, the Subsidiary Guarantors and Foris Ventures, LLC
10.41	* Amendment No. 1 to Amended and Restated Loan And Security Agreement, dated June 1, 2020, between registrant and Foris Ventures, LLC
10.42	* Amendment to Amended and Restated Loan and Security Agreement, dated November 9, 2021, between registrant and Foris Ventures, LLC

Exhibit No.	Description
10.43 *	Amendment to Amended and Restated Loan and Security Agreement, dated June 30, 2022, between registrant and Foris Ventures, LLC
10.44 *	Loan and Security Agreement dated September 13, 2022, by and among the Company, the Subsidiary Guarantors and Foris Ventures, LLC
10.45 *	Amendment and Restatement Agreement, dated September 27, 2022, by and among the Company, the Subsidiary Guarantors and Foris Ventures, LLC
10.46 *	Loan and Security Agreement dated October 11, 2022, by and among the Company, the Subsidiary Guarantors and DSM Finance B.V.
10.47 *	Amended and Restated Loan and Security Agreement, dated December 12, 2022, between registrant and DSM Finance B.V.
10.48 ^b *	Aprinova, LLC Share Purchase Agreement, dated December 15, 2022, between registrant, Nikko Co., Ltd., Nippon Surfactant Industries Co., Ltd., and Aprinova, LLC
10.49 *	Form of RDO Securities Purchase Agreement
10.50 *	Form of PIPE Security Purchase Agreement
10.51 ^a *	Farnesene Framework Agreement, dated December 18, 2020, between registrant and DSM Nutritional Products Ltd.
10.52 *	Asset Purchase Agreement, dated March 31, 2021, between us and DSM Nutritional Products Ltd.
10.53 *†	Offer Letter dated September 27, 2006 between registrant and John Melo
10.54 *†	Amendment, dated December 18, 2008, to Offer Letter, dated September 27, 2006, between registrant and John Melo
10.55 *†	Amendment #1, dated May 30, 2018, to Executive Severance Plan Participation Agreement, dated December 18, 2013, between the registrant and John Melo
10.56 *†	Offer Letter, dated June 5, 2017, between registrant and Nicole Kelsey
10.57 *†	Amendment, dated September 18, 2017, to Offer Letter, dated June 5, 2017, between registrant and Nicole Kelsey
10.58 *†	Offer Letter, dated October 5, 2017, between registrant and Eduardo Alvarez
10.59 *†	Offer Letter, dated February 6, 2020, between registrant and Han Kieftenbeld
10.60 *†	2010 Equity Incentive Plan, as amended on May 22, 2018, and forms of award agreements thereunder
10.61 *†	Amended and Restated 2010 Employee Stock Purchase Plan
10.62 *†	2020 Equity Incentive Plan
10.63 *†	Form of Restricted Stock Unit Agreement for 2020 Equity Incentive Plan, as amended
10.64 *†	Form of Stock Option Agreement for 2020 Equity Incentive Plan, as amended
10.65 *†	Performance-vesting restricted stock unit award, dated August 2, 2021, between the registrant and John Melo (found at Addendum A, herein)
10.66 **†	Executive Severance Plan, effective May 17, 2022
10.67 *†	Compensation arrangements between registrant and its non-employee directors
10.68 *†	Compensation arrangements between registrant and its executive officers
10.69 *†	Form of Indemnity Agreement between registrant and its directors and executive officers
21.01 **	List of subsidiaries

Index to Exhibits

Exhibit No.	Description
23.01	** Consent of Macias Gini & O'Connell LLP, independent registered public accounting firm
24.01	** Power of Attorney (included on signature page to this Form 10-K)
31.01	** Certification of Chief Executive Officer pursuant to Securities Exchange Act Rules 13a-14(c) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.02	** Certification of Chief Financial Officer pursuant to Securities Exchange Act Rules 13a-14(c) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.01	*** Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.02	*** Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS	** XBRL Instance Document
101.SCH	** XBRL Taxonomy Extension Schema Document
101.CAL	** XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	** XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	** XBRL Taxonomy Extension Label Linkbase Document
101.PRE	** XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)
	a Portions of this exhibit, which have been granted confidential treatment by the Securities and Exchange Commission, have been omitted.
	b Portions of this exhibit have been omitted pursuant to Item 601(b)(10)(iv) of Regulation S-K promulgated under the Exchange Act.
	c Translation to English from Portuguese in accordance with Rule 12b-12(d) of the regulations promulgated by the Securities and Exchange Commission under the Exchange Act.
	† Management contract or compensatory plan or arrangement.
	* Incorporated by reference as an exhibit to this Report.
	** Filed with this Report.
	*** Furnished with this Report

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.

AMYRIS, INC.

By: /s/ John G. Melo

John G. Melo
President and Chief Executive Officer
March 16, 2023

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints John G. Melo and Han Kieftenbeld, and each of them, as his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign 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 U.S. 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 requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming that all said attorneys-in-fact and agents, or any of them or their or his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this Annual Report on Form 10-K has been signed by the following persons on behalf of the registrant, in the capacities and on the dates indicated.

Signatures

Signature	Title	Date
<u>/s/ John G. Melo</u> John G. Melo	Director, President and Chief Executive Officer (Principal Executive Officer)	March 16, 2023
<u>/s/ Han Kieftenbeld</u> Han Kieftenbeld	Chief Financial Officer (Principal Financial Officer)	March 16, 2023
<u>/s/ Elizabeth E. Dreyer</u> Elizabeth E. Dreyer	Chief Accounting Officer (Principal Accounting Officer)	March 16, 2023
<u>/s/ John Doerr</u> John Doerr	Director	March 16, 2023
<u>/s/ Ana Dutra</u> Ana Dutra	Director	March 16, 2023
<u>/s/ Geoffrey Duyk</u> Geoffrey Duyk	Director	March 16, 2023
<u>/s/ Philip Eykerman</u> Philip Eykerman	Director	March 16, 2023
<u>/s/ Frank Kung</u> Frank Kung	Director	March 16, 2023
<u>/s/ James McCann</u> James McCann	Director	March 16, 2023
<u>/s/ Steve Mills</u> Steve Mills	Director	March 16, 2023
<u>/s/ Ryan Panchadsaram</u> Ryan Panchadsaram	Director	March 16, 2023
<u>/s/ Lisa Qi</u> Lisa Qi	Director	March 16, 2023
<u>/s/ Julie Washington</u> Julie Washington	Director	March 16, 2023



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