2022 ANNUAL REPORT

Alkermes

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: 001-35299

ALKERMES PUBLIC LIMITED COMPANY

(Exact name of registrant as specified in its charter)

Ireland	**98-1007018**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
Connaught House **1 Burlington Road** **Dublin 4, Ireland**	
(Address of principal executive offices)	**D04 C5Y6** **(Zip code)**

+353-1-772-8000

(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
Ordinary shares, $0.01 par value	ALKS	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 Exchange 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 the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large Accelerated Filer ☒	Accelerated Filer ☐
Non-Accelerated Filer ☐	Smaller Reporting Company ☐
	Emerging Growth Company ☐

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

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

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

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

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

The aggregate market value of the registrant's ordinary shares held by non-affiliates of the registrant (without admitting that any person whose shares are not included in such calculation is an affiliate) computed by reference to the price at which the ordinary shares were last sold as of the last business day of the registrant's most recently completed second fiscal quarter was $4,838,408,388.

As of February 10, 2023, 164,389,123 ordinary shares were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the definitive proxy statement for our 2023 Annual General Meeting of Shareholders are incorporated by reference into Part III of this report.

ALKERMES PLC AND
SUBSIDIARIES
ANNUAL REPORT ON FORM 10-K
FOR THE YEAR ENDED DECEMBER 31, 2022
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CAUTIONARY NOTE CONCERNING FORWARD-LOOKING STATEMENTS

This document contains and incorporates by reference "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act"), and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). In some cases, these statements can be identified by the use of forward-looking terminology such as "may," "will," "could," "should," "would," "expect," "anticipate," "continue," "believe," "plan," "estimate," "intend," or other similar words. These statements discuss future expectations and contain projections of results of operations or of financial condition, or state trends and known uncertainties or other forward-looking information. Forward-looking statements in this Annual Report on Form 10-K (this "Annual Report") include, without limitation, statements regarding:

- our expectations regarding our financial performance, including revenues, expenses, liquidity, capital expenditures and income taxes;
- our expectations regarding our products, including expectations related to product development; regulatory filings, approvals and timelines; therapeutic and commercial value, scope and potential; and the costs and expenses related to such activities and expectations;
- our expectations regarding the initiation, timing and results of clinical trials of our products;
- our expectations regarding the competitive, payer, legislative, regulatory and policy landscape, and changes therein, related to our products, including competition from generic forms of our products or competitive products and development programs, barriers to access or coverage of our products and potential changes in reimbursement of our products, and legislation, regulations, executive orders, guidance or other measures that may impact pricing and reimbursement of, and access to, our products;
- our expectations regarding the financial impact of currency exchange rate fluctuations and valuations;
- our expectations regarding future amortization of intangible assets;
- our expectations regarding collaborations, licensing arrangements and other significant agreements with third parties relating to our products and our development programs;
- our expectations regarding the impact of new legislation, rules and regulations and the adoption of new accounting pronouncements;
- our expectations regarding near-term changes in the nature of our market risk exposures or in management's objectives and strategies with respect to managing such exposures;
- our expectations regarding our ability to comply with restrictive covenants of our indebtedness and our ability to fund our debt service obligations;
- our expectations regarding future capital requirements and expenditures for our operations and our ability to finance such capital requirements and expenditures;
- our expectations regarding the timing, outcome and impact of administrative, regulatory, legal and other proceedings related to our products and intellectual property ("IP"), including our patents;
- our expectations regarding the impact of the ongoing novel coronavirus ("COVID-19") pandemic on our business and operations;
- our expectations regarding the potential separation of our neuroscience business and oncology business, including anticipated timing, effects, costs, benefits and tax treatment; and
- other expectations discussed elsewhere in this Annual Report.

Actual results might differ materially from those expressed or implied by these forward-looking statements because these forward-looking statements are subject to risks, assumptions and uncertainties. In light of these risks, assumptions and uncertainties, the forward-looking expectations discussed in this Annual Report might not occur. You are cautioned not to place undue reliance on the forward-looking statements in this Annual Report, which speak only as of the date of this Annual Report. All subsequent written and oral forward-looking statements concerning the matters addressed in this Annual Report and attributable to us or any person acting on our behalf are expressly qualified in their entirety by the cautionary statements contained or referred to in this section. Except as required by applicable law or regulation, we do not undertake any obligation to update publicly or revise any forward-looking statements, whether as a result of new information, future events or otherwise. For information about the risks, assumptions and uncertainties of our business, see "Item 1A—Risk Factors" in this Annual Report.

This Annual Report may include data that we obtained from industry publications and third-party research, surveys and studies. Industry publications and third-party research, surveys and studies generally indicate that their information has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. While we believe

that any industry publications and third-party research, surveys and studies from which data is included in this Annual Report are reliable, we have not independently verified any such data. This Annual Report may also include data based on our own internal estimates and research. Our internal estimates and research have not been verified by any independent source and are necessarily subject to a high degree of uncertainty and risk due to a variety of factors, including those described in "Item 1A—Risk Factors" in this Annual Report. These and other factors could cause our results to differ materially from those expressed or implied in this Annual Report.

SUMMARY OF MATERIAL RISKS ASSOCIATED WITH OUR BUSINESS

Our business is subject to numerous material and other risks and uncertainties that you should be aware of. These risks and uncertainties are described more fully in "Item 1A—Risk Factors" in this Annual Report, and include, but are not limited to, the following:

- the potential separation of our neuroscience and oncology businesses, including a potential separation of our oncology business into an independent, publicly-traded company, is subject to various risks and uncertainties and may not be completed on the timeline currently contemplated or at all, and will involve significant time, effort and expense, which could disrupt or adversely affect our business and our financial condition, results of operations and cash flows;
- we may fail to realize some or all of the anticipated benefits of the potential separation of our neuroscience and oncology businesses and the market price of our ordinary shares may fluctuate significantly in connection with the potential separation;
- we continue to assess the tax consequences of potential structures for the separation of our oncology business from our neuroscience business, including a potential separation of the oncology business into an independent, publicly-traded company. If such a separation does not qualify as a transaction that is generally tax-free for U.S. federal and Irish tax purposes, we and/or our shareholders could be subject to significant tax liabilities;
- our business, financial condition and results of operations have been, and may continue to be, adversely affected by the ongoing COVID-19 pandemic or other similar outbreaks of contagious diseases;
- we receive substantial revenue from our key proprietary products, and our success depends on our ability to successfully manufacture and commercialize such products;
- we rely heavily on our licensees in the commercialization and continued development of products from which we receive revenue and, if our licensees are not effective, or if disputes arise in respect of our contractual arrangements, our revenues could be materially adversely affected;
- we face competition in the biopharmaceutical industry;
- our revenues from sales of our products may decrease or grow at a slower than expected rate due to many factors;
- revenues generated by sales of our products depend, in part, on the availability from third-party payers of reimbursement for our products and the extent of cost-sharing arrangements for patients (e.g., patient co-payment, co-insurance, deductible obligations) and cost-control measures imposed, and any reductions in payment rate or reimbursement or increases in our or in patients' financial obligation to payers could result in decreased sales of our products and/or decreased revenues;
- clinical trials for our product candidates are expensive, may take several years to complete, and their outcomes are uncertain;
- preliminary, topline or interim data from our clinical trials that we may announce, publish or report from time to time may change as more patient data become available or based on subsequent audit and verification procedures, and may not be indicative of final data from such trials, data from future trials or real-world results;
- the United States Food and Drug Administration (the "FDA") or other regulatory agencies may not agree with our regulatory approval strategies or components of our filings for our products, including our clinical trial designs, conduct and methodologies and the adequacy of the data and other information included in our submissions, and may not approve, or may delay approval of, our products;
- the FDA or other regulatory agencies may impose limitations or post-approval requirements on approvals for our products;
- we are subject to risks related to the manufacture of our products;
- we rely on third parties to provide goods and services in connection with the manufacture and distribution of the products we manufacture;
- our success largely depends upon our ability to attract, recognize and retain key personnel, and the loss of key personnel may materially impact our business;
- patent and other IP protection for our products is key to our business and our competitive position but is uncertain;

- uncertainty over IP in the biopharmaceutical industry has been the source of litigation, which is inherently costly and unpredictable, could significantly delay or prevent approval or negatively impact commercialization of our products, and could adversely affect our business;
- we or our licensees may face claims against IP rights covering our products and competition from generic drug manufacturers;
- litigation or arbitration filed against us, including securities litigation, or actions (such as citizens petitions) filed against regulatory agencies in respect of our products, may result in financial losses, harm our reputation, divert management resources, negatively impact the approval of our products, or otherwise negatively impact our business;
- if there are changes in, or we fail to comply with, the extensive legal and regulatory requirements affecting the healthcare industry, we could face costs, penalties and business losses;
- we may not become profitable on a sustained basis;
- our level of indebtedness could adversely affect our business and limit our ability to plan for or respond to changes in our business;
- the business combination of Alkermes, Inc. and the drug technology business of Elan Corporation, plc may limit our ability to use our tax attributes to offset taxable income, if any, generated from such business combination;
- the market price of our ordinary shares has been volatile and may continue to be volatile in the future, and could decline significantly;
- our business could be negatively affected as a result of the actions of activist shareholders; and
- information security breaches and other disruptions could compromise our information and expose us to liability, which could cause our business and reputation to suffer.

The material and other risks and uncertainties summarized above should be read together with the text of the full risk factors in "Item 1A—Risk Factors" in this Annual Report and the other information set forth in this Annual Report, including our consolidated financial statements and the related notes, and in other documents that we file with the United States ("U.S.") Securities and Exchange Commission ("SEC"). If any such material and other risks and uncertainties actually occur, our business, financial condition, cash flows or results of operations could be materially and adversely affected. The risks and uncertainties summarized above or described below are not the only risks and uncertainties that we face. Additional risks and uncertainties not currently known to us, or that we currently deem to be immaterial may also materially adversely affect our business, financial condition, cash flows or results of operations.

NOTE REGARDING COMPANY AND PRODUCT REFERENCES

Use of terms such as "us," "we," "our," "Alkermes" or the "Company" in this Annual Report is meant to refer to Alkermes plc and its consolidated subsidiaries. Except as otherwise suggested by the context, (a) references to "products" or "our products" in this Annual Report include our marketed products, marketed products using our proprietary technologies, our licensed products, our product candidates and product candidates using our proprietary technologies (b) references to the "biopharmaceutical industry" in this Annual Report are intended to include reference to the "biotechnology industry" and/or the "pharmaceutical industry" and (c) references to "licensees" in this Annual Report are used interchangeably with references to "partners."

NOTE REGARDING TRADEMARKS

We are the owner of various U.S. federal trademark registrations ("®") and other trademarks ("™"), including ALKERMES®, ARISTADA®, ARISTADA INITIO®, LinkeRx®, LYBALVI®, NanoCrystal®, and VIVITROL®.

The following are trademarks of the respective companies listed: ABILIFY® and ABILIFY MAINTENA®—Otsuka Pharmaceutical Co., Ltd. ("Otsuka Pharm. Co."); AMPYRA® and FAMPYRA®—Acorda Therapeutics, Inc. ("Acorda"); ANJESO®—Baudax Bio, Inc.; ANTABUSE®—Teva Women's Health, Inc.; AUBAGIO® and LEMTRADA®—Sanofi Societe Anonyme France; AVONEX®, PLEGRIDY®, TECFIDERA®, TYSABRI® and VUMERITY®—Biogen MA Inc. (together with its affiliates, "Biogen"); BETASERON®—Bayer Pharma AG; BRIUMVI™—TG Therapeutics, Inc.; BUNAVAIL™—BioDelivery Sciences; CAMPRAL®—Merck Sante; CAPLYTA®—Intra-Cellular Therapies, Inc.; COPAXONE®—Teva Pharmaceutical Industries Ltd.; EXTAVIA®, GILENYA®, and MAYZENT®—Novartis AG; BYANNLI®, INVEGA®, INVEGA HAFYERA®, INVEGA SUSTENNA®, INVEGA TRINZA®, PONVORY®, RISPERDAL CONSTA®, TREVICTA® and XEPLION®—Johnson & Johnson or its affiliated companies; KEYTRUDA®—Merck Sharp & Dohme Corp.; LATUDA®—Sumitomo Dainippon Pharma Co., Ltd.; MAVENCLAD®—Merck KGaA, REBIF®—Ares Trading S.A.; OCREVUS®—Genentech, Inc. ("Genentech"); REXULTI®—H. Lundbeck A/S plc; PERSERIS®, SUBOXONE®, SUBUTEX® and SUBLOCADE®—Indivior plc (or its affiliates); RYKINDO®—Luye Pharma Group; VRAYLAR®— Forest Laboratories, LLC; ZEPOSIA®—Bristol-Myers Squibb Company; ZUBSOLV®—Orexo US, Inc.; and ZYPREXA® and ZYPREXA RELPREVV®—Eli Lilly and Company ("Lilly"). Other trademarks, trade names and service marks appearing in this Annual Report are the property of their respective owners. Solely for convenience, the trademarks and trade names in this Annual Report are referred to without the ® and ™ symbols, but such references should not be construed as any indicator that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto.

PART I

Item 1. *Business*

The following discussion contains forward-looking statements. Actual results may differ significantly from those expressed or implied in the forward-looking statements. See "Cautionary Note Concerning Forward-Looking Statements" on page 3 of this Annual Report. Factors that might cause future results to differ materially from those expressed or implied in the forward-looking statements include, but are not limited to, those discussed in "Item 1A—Risk Factors" and elsewhere in this Annual Report.

Overview

Alkermes plc is a fully-integrated, global biopharmaceutical company that applies its scientific expertise and proprietary technologies to research, develop and commercialize, both with partners and on its own, pharmaceutical products that are designed to address unmet medical needs of patients in major therapeutic areas. Alkermes has a portfolio of proprietary commercial products focused on alcohol dependence, opioid dependence, schizophrenia and bipolar I disorder, and a pipeline of product candidates in development for neurological disorders and cancer. Headquartered in Dublin, Ireland, Alkermes has a research and development ("R&D") center in Waltham, Massachusetts; an R&D and manufacturing facility in Athlone, Ireland; and a manufacturing facility in Wilmington, Ohio.

Marketed Products

The key marketed products discussed below have generated, or are expected to generate, significant revenues for us. See "Patents and Proprietary Rights" in "Item 1—Business" in this Annual Report for information with respect to the IP protection for these marketed products.

The following provides summary information regarding our proprietary products that we commercialize:

Proprietary Products

Product	Indication(s)	Territory
	Initiation or re-initiation of ARISTADA for the treatment of Schizophrenia	U.S.
	Schizophrenia	U.S.
	Schizophrenia; Bipolar I disorder	U.S.
	Alcohol dependence; Opioid dependence	U.S.

The following provides summary information regarding our key licensed product, and certain key third-party products using our proprietary technologies under license, that are commercialized by our licensees:

Key Third-Party Products Using Our Proprietary Technologies

Product	Indication(s)	Licensee	Licensed Territory
RISPERDAL CONSTA	Schizophrenia; Bipolar I disorder	Janssen Pharmaceuticals, Inc. ("Janssen, Inc.") and Janssen Pharmaceutica International, a division of Cilag International AG ("Janssen International")	Worldwide
INVEGA SUSTENNA* / XEPLION	*INVEGA SUSTENNA*: Schizophrenia; Schizoaffective disorder *XEPLION*: Schizophrenia	Janssen Pharmaceutica N.V. (together with Janssen, Inc., Janssen International and their affiliates "Janssen")	Worldwide
INVEGA TRINZA* / TREVICTA	Schizophrenia	Janssen	Worldwide
INVEGA HAFYERA* / BYANNLI	Schizophrenia	Janssen	Worldwide

* Janssen partially terminated its license agreement related to these products, effective February 2022. See the section entitled "Products Using Our Proprietary Technologies" below and Note 17, Commitments and Contingent Liabilities in the "Notes to Consolidated Financial Statements" in this Annual Report for more information with respect to this partial termination and the arbitration proceedings related to this partial termination and other matters in respect of these products.

Our Key Licensed Product

Product	Indication(s)	Licensee	Licensed Territory
VUMERITY	Multiple sclerosis	Biogen	Worldwide

Proprietary Products

We have developed and now commercialize products designed to help address the unmet needs of people living with opioid dependence, alcohol dependence, schizophrenia and bipolar I disorder. See the "Patents and Proprietary Rights" section in "Item 1—Business" in this Annual Report for information with respect to the IP protection for our proprietary products.

ARISTADA

ARISTADA (aripiprazole lauroxil) is an extended-release intramuscular injectable suspension approved in the U.S. for the treatment of schizophrenia. ARISTADA utilizes our proprietary LinkeRx technology. ARISTADA is a prodrug; once in the body, ARISTADA is likely converted by enzyme-mediated hydrolysis to N-hydroxymethyl aripiprazole, which is then hydrolyzed to aripiprazole. ARISTADA is available in four dose strengths with once-monthly dosing options (441 mg, 662 mg and 882 mg), a six-week dosing option (882 mg) and a two-month dosing option (1064 mg). ARISTADA is packaged in a ready-to-use, pre-filled syringe product format. We exclusively manufacture and commercialize ARISTADA in the U.S.

ARISTADA INITIO

ARISTADA INITIO (aripiprazole lauroxil) leverages our proprietary LinkeRx and NanoCrystal technologies and provides an extended-release formulation of aripiprazole lauroxil in a smaller particle size compared to ARISTADA, thereby enabling faster dissolution and more rapid achievement of relevant levels of aripiprazole in the body. ARISTADA INITIO, combined with a single 30 mg dose of oral aripiprazole, is indicated for the initiation of ARISTADA when used for the treatment of schizophrenia in adults. The first ARISTADA dose may be administered on the same day as the ARISTADA INITIO regimen or up to 10 days thereafter. We exclusively manufacture and commercialize ARISTADA INITIO in the U.S.

In December 2022, U.S. Patent No. 11,518,745 relating to ARISTADA and ARISTADA INITIO was granted. The patent has claims to the synthesis of aripiprazole lauroxil and expires in 2030.

What is schizophrenia?

Schizophrenia is a serious brain disorder marked by positive symptoms (hallucinations and delusions, disorganized speech and thoughts, and agitated or repeated movements) and negative symptoms (depression, blunted emotions and social withdrawal). Schizophrenia affects approximately 1.1% of the U.S. population.

LYBALVI

LYBALVI (olanzapine and samidorphan) is a once-daily, oral atypical antipsychotic drug approved in the U.S. for the treatment of adults with schizophrenia and for the treatment of adults with bipolar I disorder, as a maintenance monotherapy or for the acute treatment of manic or mixed episodes, as monotherapy or an adjunct to lithium or valproate. LYBALVI is composed of olanzapine, an established antipsychotic agent, co-formulated with samidorphan, a new chemical entity, in a single bilayer tablet. LYBALVI was launched commercially in October 2021 and is available in fixed dosage strengths composed of 10 mg of samidorphan and 5 mg, 10 mg, 15 mg or 20 mg of olanzapine. We exclusively manufacture and commercialize LYBALVI in the U.S.

What is bipolar I disorder?

Bipolar I disorder is a brain disorder that is marked by extreme changes in a person's mood, energy and ability to function. Individuals with this brain disorder may experience debilitating changes in mood from extreme highs (mania) to extreme lows (depression). Bipolar I disorder is characterized by the occurrence of at least one manic episode, with or without the occurrence of a major depressive episode, and affects approximately 1% of the American adult population in any given year.

VIVITROL

VIVITROL (naltrexone for extended-release injectable suspension) is a once-monthly, non-narcotic, injectable medication approved in the U.S. for the treatment of alcohol dependence in patients able to abstain from alcohol in an outpatient setting prior to initiation of treatment with VIVITROL and for the prevention of relapse to opioid dependence, following opioid detoxification. VIVITROL uses our polymer-based microsphere injectable extended-release technology to deliver and maintain therapeutic medication levels in the body through one intramuscular injection every four weeks. We exclusively manufacture and commercialize VIVITROL in the U.S.

For a discussion of legal proceedings related to VIVITROL, see Note 17, *Commitments and Contingent Liabilities* in the "Notes to Consolidated Financial Statements" in this Annual Report, and for information about risks relating to such legal proceedings, see "Item 1A—Risk Factors" in this Annual Report and specifically the sections entitled "Patent and other IP protection for our products is key to our business and our competitive position but is uncertain," "Uncertainty over IP in the biopharmaceutical industry has been the source of litigation, which is inherently costly and unpredictable, could significantly delay or prevent approval or negatively impact commercialization of our products, and could adversely affect our business" and "Litigation or arbitration filed against

Alkermes, including securities litigation, or actions (such as citizens petitions) filed against regulatory agencies in respect of our products, may result in financial losses, harm our reputation, divert management resources, negatively impact the approval of our products, or otherwise negatively impact our business."

What are opioid dependence and alcohol dependence?

Opioid dependence is a serious and chronic brain disease characterized by compulsive, prolonged self-administration of opioid substances that are not used for a medical purpose. According to the 2020 U.S. National Survey on Drug Use and Health, an estimated 2.6 million people aged 18 or older in the U.S. had an opioid use disorder in the prior year. Alcohol dependence is a serious and chronic brain disease characterized by cravings for alcohol, loss of control over drinking, withdrawal symptoms and an increased tolerance for alcohol. According to the 2020 U.S. National Survey on Drug Use and Health, an estimated 27.8 million people aged 18 or older in the U.S. had an alcohol use disorder in the prior year. Adherence to medication is particularly challenging with these patient populations.

In 2013, with the publication of the Diagnostic Statistical Manual ("DSM") 5, the DSM IV diagnoses of substance use disorders as either dependence or abuse (i.e., opioid dependence or alcohol dependence), which reflects the approved indications of VIVITROL, were subsumed under a new diagnostic category of "substance use disorders" (i.e., opioid use disorder or alcohol use disorder) with three categories of disorder severity—mild, moderate or severe. In determining the applicability of treatments for DSM-IV conditions to persons diagnosed according to DSM-5, one study found agreement between the DSM-IV diagnoses of alcohol dependence and opioid dependence and moderate to severe alcohol use disorder and opioid use disorder, respectively, under DSM-5.

Licensed Products and Products Using Our Proprietary Technologies

We have licensed products to third parties for commercialization and have licensed our proprietary technologies to third parties to enable them to develop, commercialize and/or manufacture products. See the "Proprietary Technology Platforms" and "Patents and Proprietary Rights" sections in "Item 1—Business" in this Annual Report for information with respect to our proprietary technologies and the IP protection for these products. We receive royalties and/or manufacturing and other revenues from the commercialization of these products under our collaborative arrangements with these third parties. Such arrangements include the following:

Products Using Our Proprietary Technologies

INVEGA SUSTENNA/XEPLION, INVEGA TRINZA/TREVICTA and INVEGA HAFYERA/BYANNLI

In November 2021, we received notice of partial termination of an exclusive license agreement with Janssen. Under this license agreement, we provided Janssen with rights to, and know-how, training and technical assistance in respect of, our small particle pharmaceutical compound technology, known as NanoCrystal technology, which was used to develop INVEGA SUSTENNA/XEPLION, INVEGA TRINZA/TREVICTA, and INVEGA HAFYERA/BYANNLI. When the partial termination became effective in February 2022, Janssen ceased paying royalties related to sales of INVEGA SUSTENNA, INVEGA TRINZA and INVEGA HAFYERA in the U.S. In April 2022, we commenced binding arbitration proceedings related to, among other things, Janssen's partial termination of this license agreement and Janssen's royalty and other obligations under the agreement. On December 21, 2022, we received an interim award (the "Interim Award") in these proceedings from the arbitral tribunal (the "Tribunal"), in which the Tribunal agreed with our position that, while Janssen may terminate the agreement, it may not continue to sell Products (as defined in the agreement) developed during the term of the agreement without paying royalties pursuant to the terms of the agreement. This award is not yet final. We will engage with Janssen and the Tribunal in additional proceedings prior to the Tribunal's issuance of a final award. For additional information about these proceedings, see Note 17, *Commitments and Contingent Liabilities* in the "Notes to Consolidated Financial Statements" in this Annual Report and for information about risks relating to this notice of partial termination and our collaborative arrangements more broadly, see "Item 1A—Risk Factors" in this Annual Report and specifically that section entitled "We rely heavily on our licensees in the commercialization and continued development of products from which we receive revenue and, if our licensees are not effective, or if disputes arise in respect of our contractual arrangements, our revenues could be materially adversely affected".

INVEGA SUSTENNA/XEPLION (paliperidone palmitate), INVEGA TRINZA/TREVICTA (paliperidone palmitate) and INVEGA HAFYERA/BYANNLI (paliperidone palmitate) (collectively, the "long-acting INVEGA products") are long-acting atypical antipsychotics owned and commercialized worldwide by Janssen. We believe that these products incorporate our technologies.

INVEGA SUSTENNA is approved in the U.S. for the treatment of schizophrenia and for the treatment of schizoaffective disorder as either a monotherapy or adjunctive therapy. Paliperidone palmitate extended-release injectable suspension is approved in the European Union ("EU") and other countries outside of the U.S. for the treatment of schizophrenia and is marketed and sold under the trade name XEPLION. INVEGA SUSTENNA/XEPLION is manufactured by Janssen.

INVEGA TRINZA is approved in the U.S. for the treatment of schizophrenia in patients who have been adequately treated with INVEGA SUSTENNA for at least four months. TREVICTA is approved in the EU for the maintenance treatment of schizophrenia in adult patients who are clinically stable on XEPLION. INVEGA TRINZA/TREVICTA is manufactured by Janssen.

INVEGA HAFYERA is approved in the U.S. for the treatment of schizophrenia in patients who have been adequately treated with INVEGA SUSTENNA for at least four months or INVEGA TRINZA for at least three months. BYANNLI is approved in the EU for the maintenance treatment of schizophrenia in adult patients who are clinically stable on XEPLION or TREVICTA. INVEGA HAFYERA/BYANNLI is manufactured by Janssen.

For a discussion of legal proceedings related to certain of the patents covering INVEGA SUSTENNA and INVEGA TRINZA, see Note 17, *Commitments and Contingent Liabilities* in the "Notes to Consolidated Financial Statements" in this Annual Report and for information about risks relating to such legal proceedings, see "Item 1A—Risk Factors" in this Annual Report and specifically the section entitled "We or our licensees may face claims against IP rights covering our products and competition from generic drug manufacturers."

What is schizoaffective disorder?

Schizoaffective disorder is a condition in which a person experiences a combination of schizophrenia symptoms, such as delusions, hallucinations or other symptoms characteristic of schizophrenia, and mood disorder symptoms, such as mania or depression. Schizoaffective disorder is a serious mental illness that affects about one in 300 people.

RISPERDAL CONSTA

RISPERDAL CONSTA (risperidone long-acting injection) is a long-acting atypical antipsychotic owned and commercialized worldwide by Janssen that incorporates our proprietary technologies. RISPERDAL CONSTA is approved in the U.S. for the treatment of schizophrenia and as both monotherapy and adjunctive therapy to lithium or valproate in the maintenance treatment of bipolar I disorder. RISPERDAL CONSTA is approved in numerous countries outside of the U.S. for the treatment of schizophrenia and the maintenance treatment of bipolar I disorder. RISPERDAL CONSTA uses our polymer-based microsphere injectable extended-release technology to deliver and maintain therapeutic medication levels in the body through just one intramuscular injection every two weeks. RISPERDAL CONSTA microspheres are exclusively manufactured by us.

Licensed Product

VUMERITY

VUMERITY (diroximel fumarate) is a novel, oral fumarate with a distinct chemical structure that is approved in the U.S., the EU and several other countries for the treatment of relapsing forms of multiple sclerosis in adults, including clinically isolated syndrome, relapsing-remitting disease and active secondary progressive disease.

Under our license and collaboration agreement with Biogen, Biogen holds the exclusive, worldwide license to develop and commercialize VUMERITY. For more information about the license and collaboration agreement with Biogen, see "Collaborative Arrangements—Biogen" in "Item 1—Business" in this Annual Report.

What is multiple sclerosis?

Multiple sclerosis, or MS, is an unpredictable, often disabling disease of the central nervous system ("CNS"), which interrupts the flow of information within the brain, and between the brain and body. MS symptoms can vary over time and from person to person. Symptoms may include extreme fatigue, impaired vision, problems with balance and walking, numbness or pain and other sensory changes, bladder and bowel symptoms, tremors, problems with memory and concentration and mood changes, among others. Approximately 2.5 million people worldwide have MS, and most are diagnosed between the ages of 15 and 50.

Key Development Program

Our R&D is focused on the development of innovative medicines in the fields of neuroscience and oncology that are designed to address unmet patient needs. As part of our ongoing R&D efforts, we have devoted, and will continue to devote, significant resources to conducting preclinical work and clinical studies to advance the development of new pharmaceutical products. The discussion below highlights our current key development program. Drug development involves a high degree of risk and investment, and the status, timing and scope of our development programs are subject to change. Important factors that could adversely affect our drug development efforts are discussed in "Item 1A—Risk Factors" in this Annual Report. See the "Patents and Proprietary Rights" section in "Item 1—Business" in this Annual Report for information with respect to the IP protection for our key development program.

nemvaleukin alfa

Nemvaleukin alfa ("nemvaleukin") is an investigational, novel, engineered fusion protein comprised of modified interleukin-2 ("IL-2") and the high affinity IL-2 alpha receptor chain, designed to preferentially expand tumor-killing immune cells while avoiding the activation of immunosuppressive cells by selectively binding to the intermediate-affinity IL-2 receptor complex. The selectivity of nemvaleukin is designed to leverage the proven anti-tumor effects of existing IL-2 therapy while mitigating certain limitations.

ARTISTRY is our clinical development program evaluating nemvaleukin as a potential immunotherapy for cancer. The ARTISTRY program is comprised of multiple clinical trials evaluating intravenous ("IV") and subcutaneous ("SC") dosing of nemvaleukin, both as a monotherapy and in combination with the anti-PD-1 therapy KEYTRUDA (pembrolizumab) in patients with advanced solid tumors. ARTISTRY-6 is an ongoing phase 2 study evaluating the anti-tumor activity, safety and tolerability of IV nemvaleukin monotherapy in patients with mucosal melanoma and SC nemvaleukin monotherapy in patients with advanced cutaneous melanoma. ARTISTRY-7 is an ongoing phase 3 study evaluating the efficacy, safety and tolerability of IV nemvaleukin as monotherapy and in combination with pembrolizumab compared to investigator's choice chemotherapy in patients with platinum-resistant ovarian cancer.

In March 2021 and August 2021, we announced that the FDA granted Orphan Drug Designation and Fast Track designation, respectively, to nemvaleukin for the treatment of mucosal melanoma. In October 2021, we announced that the FDA granted Fast Track designation to nemvaleukin in combination with pembrolizumab for the treatment of platinum-resistant ovarian cancer. In January 2023, we announced that the Medicines and Healthcare products Regulatory Agency (MHRA), the regulatory body of the United Kingdom (UK), granted nemvaleukin an Innovation Passport for the treatment of mucosal melanoma under the Innovative Licensing and Access Pathway (ILAP).

Collaborative Arrangements

We have entered into several collaborative arrangements to develop and commercialize products and, in connection with such arrangements, to access technological, financial, marketing, manufacturing and other resources.

Janssen

INVEGA SUSTENNA/XEPLION, INVEGA TRINZA/TREVICTA and INVEGA HAFYERA/BYANNLI

In November 2021, we received notice of partial termination of an exclusive license agreement with Janssen. Under this license agreement, we provided Janssen with rights to, and know-how, training and technical assistance in respect of, our small particle pharmaceutical compound technology, known as NanoCrystal technology, which was used to develop INVEGA SUSTENNA/XEPLION, INVEGA TRINZA/TREVICTA, and INVEGA HAFYERA/BYANNLI. When the partial termination became effective in February 2022, Janssen ceased paying royalties related to sales of INVEGA SUSTENNA, INVEGA TRINZA and INVEGA HAFYERA in the U.S. and we stopped recognizing royalty revenue related to net sales of these products. In April 2022, we commenced binding arbitration proceedings related to, among other things, Janssen's partial termination of this license agreement and Janssen's royalty and other obligations under the agreement. On December 21, 2022, we received the Interim Award in these proceedings from the Tribunal, in which the Tribunal agreed with our position that, while Janssen may terminate the agreement, it may not continue to sell Products (as defined in the agreement) developed during the term of the agreement without paying royalties pursuant to the terms of the agreement. This award is not yet final. We will engage with Janssen and the Tribunal in additional proceedings prior to the Tribunal's issuance of a final award. For additional information about these proceedings, see Note 17, *Commitments and Contingent Liabilities* in the "Notes to Consolidated Financial Statements" in this Annual Report and for information about risks relating to this notice of partial termination and our collaborative arrangements more broadly, see "Item 1A—Risk Factors" in this Annual Report and specifically those sections entitled "We rely heavily on our licensees in the commercialization and continued development of products from which we receive revenue and, if our licensees are not effective, or if disputes arise in respect of our contractual arrangements, our revenues could be materially adversely affected."

Under this license agreement, we granted Janssen a worldwide exclusive license under our NanoCrystal technology to develop, commercialize and manufacture injectable pharmaceutical products containing paliperidone palmitate, which include the long-acting INVEGA products, and we received milestone payments from Janssen upon the achievement of certain development goals; there are no further milestones to be earned under this agreement. The agreement also provides for tiered royalty payments between 3.5% and 9% of net sales of products subject to the agreement in each country where the license is in effect, with the exact royalty percentage determined based on aggregate worldwide net sales. The tiered royalty payments consist of a patent royalty and a know how royalty, both of which are determined on a country-by-country basis. The patent royalty, which equals 1.5% of net sales, is payable in each country until the expiration of the last of the royalty-bearing patents with valid claims applicable to the product in such country. The know how royalty is a tiered royalty of 3.5% on calendar year net sales up to $250 million, 5.5% on calendar year net sales of between $250 million and $500 million and 7.5% on calendar year net sales exceeding $500 million. The know how royalty rate resets to 3.5% at the beginning of each calendar year and is payable until 15 years from the first commercial sale of a product in each individual country, subject to expiry of the agreement. These royalty payments may be reduced in any country based on patent litigation or on competing products achieving certain minimum sales thresholds. The license agreement, unless earlier terminated, terminates upon the expiration of the last of the patents subject to the agreement. After expiration, Janssen retains a non-exclusive, royalty free license to develop, manufacture and commercialize the products subject to certain surviving obligations.

Janssen may terminate the license agreement in whole or in part upon three months' notice to us. We and Janssen have the right to terminate the agreement upon a material breach of the other party, which is not cured within a certain time period, or upon the other party's bankruptcy or insolvency.

RISPERDAL CONSTA

Under a product development agreement, we collaborated with Janssen on the development of RISPERDAL CONSTA. Under the development agreement, Janssen provided funding to us for the development of RISPERDAL CONSTA, and Janssen is responsible for securing all necessary regulatory approvals for the product.

Under two license agreements, we granted Janssen and an affiliate of Janssen exclusive worldwide licenses to use and sell RISPERDAL CONSTA. Under our license agreements with Janssen, we receive royalty payments equal to 2.5% of Janssen's end-market net sales of RISPERDAL CONSTA in each country where the license is in effect based on the quarter when the product is sold by Janssen. This royalty may be reduced in any country based on lack of patent coverage and significant competition from generic versions of the product. Janssen can terminate the license agreements upon 30 days' prior written notice to us. Either party may terminate the license agreements by written notice following a breach which continues for 90 days after the delivery of written notice thereof or upon the other party's insolvency. The licenses granted to Janssen expire on a country-by-country basis upon the later of (i) the expiration of the last patent claiming the product in such country or (ii) 15 years after the date of the first commercial sale of the product in such country, provided that in no event will the license granted to Janssen expire later than the twentieth anniversary of the first commercial sale of the product in each such country, with the exception of Canada, France, Germany, Italy, Japan, Spain and the United Kingdom, in each case, where the fifteen-year minimum shall pertain regardless. After expiration, Janssen retains a non-exclusive, royalty-free license to manufacture, use and sell RISPERDAL CONSTA.

We exclusively manufacture RISPERDAL CONSTA for commercial sale. Under our manufacturing and supply agreement with Janssen, we receive manufacturing revenue based on a percentage of Janssen's net unit sales price for RISPERDAL CONSTA for the applicable calendar year. This percentage is determined based on Janssen's unit demand for such calendar year and varies based on the volume of units shipped, with a minimum manufacturing fee of 7.5%. Either party may terminate the manufacturing and supply agreement upon a material breach by the other party, which is not resolved within 60 days after receipt of a written notice specifying the material breach or upon written notice in the event of the other party's insolvency or bankruptcy. Janssen may terminate the agreement upon six months' written notice to us. In the event that Janssen terminates the manufacturing and supply agreement without terminating the license agreements, the royalty rate payable to us on Janssen's net sales of RISPERDAL CONSTA would increase from 2.5% to 5.0%.

Revenues from our collaborative arrangements with Janssen accounted for approximately 15%, 30% and 33% of our consolidated revenues for the years ended December 31, 2022, 2021 and 2020, respectively.

Biogen

Under a license and collaboration agreement with Biogen, we granted Biogen a worldwide, exclusive, sublicensable license to develop, manufacture and commercialize VUMERITY and other products covered by patents licensed to Biogen under that agreement.

Under this license and collaboration agreement, we received an upfront cash payment and milestone payments related to the achievement of certain milestones, including FDA approval of the NDA for VUMERITY and amendment of the license and collaboration agreement. We are also eligible to receive additional payments upon achievement of certain milestones, including milestones relating to the first two products other than VUMERITY covered by patents licensed to Biogen under the license and collaboration agreement.

In addition, we receive a 15% royalty on worldwide net sales of VUMERITY, subject to increases for VUMERITY manufactured and/or packaged by Biogen or its designees, and subject to, under certain circumstances, minimum annual payments for the first five years following FDA approval of VUMERITY. We are also entitled to receive royalties on net sales of products other than VUMERITY covered by patents licensed to Biogen under the license and collaboration agreement, at tiered royalty rates calculated as percentages of net sales ranging from high-single digits to sub-teen double digits. All royalties are payable on a product-by-product and country-by-country basis until the later of (i) the last-to-expire patent right covering the applicable product in the applicable country and (ii) a specified period of time from the first commercial sale of the applicable product in the applicable country. Royalties for all products and the minimum annual payments for VUMERITY are subject to customary reductions, as set forth in the license and collaboration agreement.

Except in limited circumstances, we were responsible for the development of VUMERITY until it was approved by the FDA. Following FDA approval of VUMERITY and except for the manufacturing responsibilities discussed below, Biogen is now responsible for all development and commercialization activities for VUMERITY and all other products covered by the patents that we licensed to Biogen.

Under the license and collaboration agreement, Biogen appointed us as the toll manufacturer of clinical and commercial supplies of VUMERITY, subject to Biogen's right to manufacture or have manufactured commercial supplies as a back-up manufacturer and subject to good faith agreement by the parties on the terms of such manufacturing arrangements. In October 2019, we entered into a commercial supply agreement with Biogen for the commercial supply of VUMERITY, an amendment to such commercial supply agreement and an amendment to the license and collaboration agreement with Biogen, pursuant to which Biogen has elected to conduct a technology transfer and, subject to agreement in respect of a manufacturing transition period, assume responsibility for the manufacture (itself or through a designee) of clinical supplies of VUMERITY and up to 100% of commercial supplies of VUMERITY in exchange for an increase in the royalty rate to be paid by Biogen to us on net sales of that portion of product that is manufactured by Biogen or its designee.

Unless earlier terminated, the license and collaboration agreement will remain in effect until the expiry of all royalty obligations. Biogen has the right to terminate the license and collaboration agreement at will, on a product-by-product basis or in its entirety upon 180 days' prior notice to us. Either party has the right to terminate the license and collaboration agreement following any governmental prohibition of the transactions effected by the agreement, or in connection with an insolvency event involving the other party. Upon termination of the license and collaboration agreement by either party, then, at our request, the VUMERITY program will revert to us.

Revenues from Biogen related to this license and collaboration agreement accounted for approximately 10%, 7% and 2% of our consolidated revenues for the years ended December 31, 2022, 2021 and 2020, respectively.

Proprietary Technology Platforms

We have used our proprietary technology platforms, which include technologies owned and exclusively licensed to us, to establish drug development, clinical development and regulatory expertise and in the development of our products.

Injectable Extended-Release Microsphere Technology

Our injectable extended-release microsphere technology allows us to encapsulate small-molecule pharmaceuticals, peptides and proteins in microspheres made of common medical polymers. The technology is designed to enable novel formulations of pharmaceuticals by providing controlled, extended release of drugs over time. Drug release from the microsphere is controlled by diffusion of the drug through the microsphere and by biodegradation of the polymer. These processes can be modulated through a number of formulation and fabrication variables, including drug substance and microsphere particle sizing and choice of polymers and excipients.

LinkeRx Technology

Our long-acting LinkeRx technology platform is designed to enable the creation of extended-release injectable versions of antipsychotic therapies and may also be useful in other disease areas in which extended duration of action may provide therapeutic benefits. The technology uses proprietary linker-tail chemistry to create new molecular entities derived from known agents.

NanoCrystal Technology

Our NanoCrystal technology is applicable to poorly water-soluble compounds and involves formulating and stabilizing drugs into particles that are nanometers in size. A drug in NanoCrystal form can be incorporated into a range of common dosage forms, including tablets, capsules, inhalation devices and sterile forms for injection, with the potential for enhanced oral bioavailability, increased therapeutic effectiveness, reduced/eliminated fed/fasted variability and sustained duration of intravenous/intramuscular release.

Oral Controlled Release Technology

Our oral controlled release ("OCR") technologies are used to formulate, develop and manufacture oral dosage forms of pharmaceutical products with varied drug release profiles.

Manufacturing and Product Supply

We own and occupy an R&D and manufacturing facility in Athlone, Ireland and a manufacturing facility in Wilmington, Ohio. We either purchase active pharmaceutical ingredient ("API") from third parties or receive it from our third-party licensees to formulate products using our technologies. The manufacture of our products for clinical trials and commercial use is subject to Current Good Manufacturing Practices ("cGMP") regulations and other regulations. Our manufacturing and development capabilities include formulation through process development, scale-up and full-scale commercial manufacturing and specialized capabilities for the development and manufacturing of controlled substances.

Although some materials and related services for our products are currently only available from a single source or a limited number of qualified sources, we attempt to acquire an adequate inventory of such materials, establish alternative sources for such materials and related services and/or negotiate long-term supply arrangements. However, we cannot be certain that we will continue to be able to obtain long-term supplies of our manufacturing materials or long-term provision of related services.

Our supply chain includes an external network of third-party service providers involved in the manufacture of our products who are subject to inspection by the FDA or comparable agencies in other jurisdictions. Any delay, interruption or other issues that arise in the acquisition of API, raw materials, or components, or in the manufacture, fill-finish, packaging, or storage of our marketed or development products, including as a result of a failure of our facilities or the facilities or operations of third parties to pass any regulatory agency inspection, could significantly impair our ability to sell our products or advance our development efforts, as the case may be. For information about risks relating to the manufacture of our marketed products and product candidates, see "Item 1A—Risk Factors" in this Annual Report and specifically those sections entitled "We rely on third parties to provide services in connection with the manufacture and distribution of the products we manufacture" and "We are subject to risks related to the manufacture of our products."

Marketed Products

We manufacture ARISTADA, ARISTADA INITIO, LYBALVI, VIVITROL and microspheres for RISPERDAL CONSTA at our Wilmington, Ohio facility. We outsource our packaging operations for ARISTADA, ARISTADA INITIO, LYBALVI and VIVITROL to third-party contractors. Janssen is responsible for packaging operations for RISPERDAL CONSTA. Our Wilmington, Ohio facility has been inspected by U.S., European (including the UK Medicines and Healthcare products Regulatory Agency), Chinese, Japanese, Brazilian, Turkish, Russian and Saudi Arabian regulatory authorities for compliance with required cGMP standards for continued commercial manufacturing.

We manufacture several products in our Athlone, Ireland facility that are marketed by third parties, including FAMPYRA and VUMERITY. This facility has been inspected by U.S., Irish, Brazilian, Turkish, Gulf Health States, including Saudi Arabia, Korean, Belarusian, Russian and Chinese regulatory authorities for compliance with required cGMP standards for continued commercial manufacturing.

For more information about our manufacturing facilities, see "Item 2—Properties" in this Annual Report.

Clinical Products

We have established, and are operating, facilities with the capability to manufacture clinical supplies of injectable extended-release products and solid dosage form products at our Wilmington, Ohio facility and solid dosage form products at our Athlone, Ireland facility. We have also contracted with third-party manufacturers to formulate certain products for clinical use. We require that our contract manufacturers adhere to cGMP in the manufacture of products for clinical use.

Research & Development

We devote significant resources to R&D programs. We focus our R&D efforts on developing novel therapeutics in areas of high unmet medical need. Our R&D efforts include, but are not limited to, areas such as pharmaceutical formulation, analytical chemistry, process development, engineering, scale-up and drug optimization/delivery. Please see "Item 7—Management's Discussion and Analysis of Financial Condition and Results of Operations" in this Annual Report for additional information relating to our R&D expenditures.

Permits and Regulatory Approvals

We hold various licenses in respect of our manufacturing activities conducted in Wilmington, Ohio and Athlone, Ireland. The primary licenses held in this regard are FDA Registrations of Drug Establishment and Drug Enforcement Administration of the U.S. Department of Justice ("DEA"). We also hold a Manufacturers Authorization (No. M1067), an Investigational Medicinal Products Manufacturers Authorization (No. IMP074) and Certificates of Good Manufacturing Practice Compliance of a Manufacturer (Ref. 2014/7828/IMP074 and 2014/7828/M1067) from the Health Products Regulatory Authority in Ireland ("HPRA") in respect of our

Athlone, Ireland facility, and a number of Controlled Substance Licenses granted by HPRA. Due to certain U.S. state law requirements, we also hold state licenses to cover distribution activities conducted in certain states and not in respect of any manufacturing activities conducted in those states.

We do not generally act as the marketing authorization holder for products incorporating our drug delivery technologies that have been developed on behalf of a licensee of such technologies. In such cases, our licensee usually holds the relevant marketing authorization from the FDA or other relevant regulatory authority, and we would support this authorization by furnishing a copy of the product's Drug Master File, or chemistry, manufacturing and controls data, to the relevant regulator. We generally update this information annually with the relevant regulator. In other cases where we have developed proprietary products, such as VIVITROL, ARISTADA, ARISTADA INITIO and LYBALVI, we hold the marketing authorization and related regulatory documentation ourselves.

Marketing, Sales and Distribution

We are responsible for the marketing of VIVITROL, ARISTADA, ARISTADA INITIO, and LYBALVI in the U.S. We focus our sales and marketing efforts on physicians in private practice and in public treatment systems. We believe that we use customary pharmaceutical company practices to market our products, including through advertisements, professional symposia, selling initiatives and other methods, and to educate individual physicians, nurses, social workers, counselors and other stakeholders involved in the treatment of opioid dependence, alcohol dependence, schizophrenia and bipolar I disorder. We provide, and contract with third-party vendors to provide, customer services and other related programs for our products, such as product-specific websites, insurance research services and order, delivery and fulfillment services.

Our sales force for VIVITROL in the U.S. consists of approximately 110 individuals. VIVITROL is primarily sold to pharmaceutical wholesalers, pharmacies, specialty distributors and treatment providers. Product sales of VIVITROL during the year ended December 31, 2022 to Cardinal Health, McKesson Corporation and AmerisourceBergen Corporation ("AmerisourceBergen") represented approximately 25%, 22% and 16%, respectively, of total VIVITROL gross sales.

Our sales force for ARISTADA, ARISTADA INITIO and LYBALVI in the U.S. consists of approximately 315 individuals. ARISTADA, ARISTADA INITIO and LYBALVI are primarily sold to pharmaceutical wholesalers. Product sales of ARISTADA and ARISTADA INITIO during the year ended December 31, 2022 to Cardinal Health, McKesson Corporation and AmerisourceBergen represented approximately 47%, 23% and 23%, respectively, of total ARISTADA and ARISTADA INITIO gross sales. Product sales of LYBALVI during the year ended December 31, 2022 to Cardinal Health, McKesson Corporation and AmerisourceBergen represented approximately 38%, 30% and 27%, respectively, of total LYBALVI gross sales.

ICS, a division of AmerisourceBergen, provides warehousing, shipping and administrative services for VIVITROL, ARISTADA, ARISTADA INITIO and LYBALVI.

Under our license agreements with Janssen, Biogen and other licensees and sublicensees, the licensees and sublicensees are typically responsible for the commercialization of any products developed under their respective agreements if and when regulatory approval is obtained.

Competition

We face intense competition in the development, manufacture, marketing and commercialization of our products from many and varied sources, such as research institutions and biopharmaceutical companies, including other companies with similar technologies. Some of these competitors are also our licensees, who control the commercialization of products from which we receive manufacturing and royalty revenues. These competitors are working to develop and market other products, systems, and other methods of preventing or reducing disease, and new small-molecule and other classes of drugs.

The biopharmaceutical industry is characterized by intensive research, development and commercialization efforts and rapid and significant technological change. In many cases, there are already products on the market that may be in direct competition with our commercial products or products in development. In addition, there are many companies developing products for use in similar indications or with similar technologies to ours with whom we and our licensees compete, many of whom are larger and have significantly greater financial and other resources than we do. Other smaller or earlier stage companies may also prove to be significant competitors, particularly through focused development programs and collaborative arrangements with large, established companies. Some of the products being developed by our competitors are being designed to work differently than our products and may turn out to be safer or more effective than our products, which may render our products or technology platforms obsolete or noncompetitive. With respect to our products, we believe that our ability to successfully compete will depend on, among other things, the existence of competing or alternative products in the marketplace, including generic competition, and the relative price of those products; the efficacy, safety and reliability of our products compared to competing or alternative products; product acceptance by, and preferences of, physicians, other healthcare providers and patients; our ability to comply with applicable laws, regulations and regulatory requirements with respect to the commercialization of our products, including any changes or increases to regulatory

restrictions; protection of our proprietary rights relating to our products; our ability to obtain reimbursement for our products; our ability to complete clinical development and obtain regulatory approvals for our products, and the timing and scope of any such regulatory approvals; our ability to successfully manufacture and provide a reliable supply of commercial quantities of a product to the market; and our ability to recruit, retain and develop skilled employees.

With respect to our proprietary injectable product platform, we are aware that there are other companies developing extended-release delivery systems for pharmaceutical products, including but not limited to, technology from MedinCell S.A., which underpins Teva Pharmaceuticals Industries Ltd.'s development of a risperidone extended-release injectable suspension for subcutaneous use, technology from Pharmathen S.A., which underpins aripiprazole formulations in development, and technology underpinning Teva Pharmaceuticals Industries Ltd.'s once every two weeks injectable microsphere formulation, each for the treatment of schizophrenia, and Teva Pharmaceuticals USA, Inc.'s Abbreviated New Drug Application ("ANDA") seeking approval to commercialize a generic version of VIVITROL (naltrexone for extended-release injectable suspension).

In the treatment of schizophrenia, ARISTADA, the long-acting INVEGA products and RISPERDAL CONSTA compete with each other and a number of other injectable products, including ZYPREXA RELPREVV ((olanzapine) For Extended Release Injectable Suspension), which is marketed and sold by Lilly; ABILIFY MAINTENA (aripiprazole for extended release injectable suspension), a once-monthly injectable formulation of ABILIFY (aripiprazole) developed by Otsuka Pharm. Co.; PERSERIS (risperidone for extended release injectable suspension), a once-monthly formulation of risperidone marketed by Indivior plc; generic versions of branded injectable products; and, once it launches in the U.S., RYKINDO (risperidone), a once-every-two-weeks injectable formulation of risperidone developed by Luye Pharma Group.

In the treatment of schizophrenia, LYBALVI competes with other oral antipsychotic products, including CAPLYTA (lumateperone) developed and marketed by Intra-Cellular Therapies, Inc.; LATUDA, which is marketed and sold by Sunovion Pharmaceuticals Inc.; REXULTI, which is co-marketed by Otsuka Pharm Co. and H. Lundbeck A/S plc; VRAYLAR, which is marketed and sold by Abbvie Inc.; other oral compounds currently on the market; and generic versions of branded oral products.

In the treatment of bipolar disorder, LYBALVI and RISPERDAL CONSTA compete with antipsychotics such as oral aripiprazole; REXULTI; LATUDA; VRAYLAR; ABILIFY MAINTENA; CAPLYTA; RYKINDO; risperidone; quetiapine; olanzapine; ziprasidone and clozapine.

In the treatment of alcohol dependence, VIVITROL competes with generic acamprosate calcium (also known as CAMPRAL) and generic disulfiram (also known as ANTABUSE) as well as currently marketed drugs, including generic drugs, also formulated from naltrexone. Other pharmaceutical companies are developing products that have shown some promise in treating alcohol dependence that, if approved by the FDA, would compete with VIVITROL.

In the treatment of opioid dependence, VIVITROL competes with SUBOXONE (buprenorphine HCl/naloxone HCl dehydrate sublingual tablets), SUBOXONE (buprenorphine/naloxone) Sublingual Film, SUBUTEX (buprenorphine HCl sublingual tablets) and SUBLOCADE (once-monthly buprenorphine extended-release injection), each of which is marketed and sold by Indivior plc; BUNAVAIL buccal film (buprenorphine and naloxone) marketed by BioDelivery Sciences; and ZUBSOLV (buprenorphine and naloxone) marketed by Orexo US, Inc. VIVITROL also competes with methadone, oral naltrexone and generic versions of SUBUTEX and SUBOXONE sublingual tablets. Other pharmaceutical companies are developing products that have shown promise in treating opioid dependence that, if approved by the FDA, would compete with VIVITROL.

In the treatment of MS, VUMERITY competes with AVONEX, TYSABRI, TECFIDERA, and PLEGRIDY from Biogen; OCREVUS from Genentech; BETASERON from Bayer HealthCare Pharmaceuticals; COPAXONE from Teva Pharmaceutical Industries Ltd.; REBIF and MAVENCLAD from EMD Serono, Inc.; GILENYA, EXTAVIA and MAYZENT from Novartis AG; AUBAGIO and LEMTRADA from Sanofi-Aventis; ZEPOSIA from Bristol-Myers Squibb Company; PONVORY from Janssen; and, once it launches in the U.S., BRIUMVI™ (ublituximab-xiiy) from TG Therapeutics, Inc.

With respect to our NanoCrystal technology, we are aware that other technology approaches similarly address poorly water-soluble drugs. These approaches include nanoparticles, cyclodextrins, lipid-based self-emulsifying drug delivery systems, dendrimers and micelles, among others, any of which could limit the potential success and growth prospects of products incorporating our NanoCrystal technology. In addition, there are many competing technologies to our OCR technology, some of which are owned by large pharmaceutical companies with drug delivery divisions and other, smaller drug-delivery-specific companies.

Patents and Proprietary Rights

Our success depends, in part, on our ability to obtain and maintain patent protection for our products, including those marketed and sold by our licensees, to maintain trade secret protection and to operate without infringing upon the proprietary rights of others. We have a proprietary portfolio of patent rights and exclusive licenses to patents and patent applications, which includes numerous patents in the U.S. and in other countries directed to compositions of matter, methods of treatment and formulations, as well as processes of preparation. In the future, we plan to file additional patent applications in the U.S. and in other countries directed to new or improved products and processes, and we intend to continue to vigorously defend our patent positions. In addition, our licensees may own additional patents that cover those products owned by such licensees that incorporate our proprietary technologies and for which we receive royalties.

ARISTADA and ARISTADA INITIO

We have several U.S. patents and patent applications, and a number of corresponding non-U.S. counterparts, that cover ARISTADA and/or ARISTADA INITIO. Our principal U.S. patents for ARISTADA and/or ARISTADA INITIO and their expiration dates are as follows:

U.S. Patent No.	Product(s) Covered	Expiration Date
8,431,576	ARISTADA; ARISTADA INITIO	2030
8,796,276	ARISTADA; ARISTADA INITIO	2030
10,112,903	ARISTADA; ARISTADA INITIO	2030
10,023,537	ARISTADA	2030
10,351,529	ARISTADA; ARISTADA INITIO	2030
11,518,745	ARISTADA; ARISTADA INITIO	2030
11,273,158	ARISTADA; ARISTADA INITIO	2039
9,034,867	ARISTADA	2032
10,226,458	ARISTADA	2032
9,193,685	ARISTADA	2033
9,861,699	ARISTADA	2033
10,342,877	ARISTADA	2033
10,639,376	ARISTADA	2033
11,097,006	ARISTADA	2033
9,452,131	ARISTADA	2035
9,526,726	ARISTADA	2035
10,064,859	ARISTADA	2035
10,238,651	ARISTADA	2035
10,478,434	ARISTADA	2035
10,813,928	ARISTADA	2035
10,973,816	ARISTADA	2035
11,406,632	ARISTADA	2035
10,016,415	ARISTADA INITIO	2035
10,688,091	ARISTADA INITIO	2035
10,849,894	ARISTADA INITIO	2035
11,115,552	ARISTADA INITIO	2035

VIVITROL and RISPERDAL CONSTA

We have a number of patents and pending patent applications covering our microsphere technology throughout the world, which, to some extent, cover VIVITROL and RISPERDAL CONSTA. The latest to expire of our patents covering RISPERDAL CONSTA expired in the U.S. in January 2023 and expired in the EU in 2021.

We own one unexpired Orange-Book listed U.S. patent covering VIVITROL, which expires in the U.S. in 2029 and expired in the EU in 2021. Under the terms of a settlement and license agreement entered into in July 2019 with Amneal Pharmaceuticals LLC ("Amneal"), we granted Amneal a non-exclusive license under certain patents covering VIVITROL, including the remaining patent covering VIVITROL in the U.S., to market and sell a generic formulation of VIVITROL in the U.S. beginning sometime in 2028 or earlier under certain circumstances. For a discussion of legal proceedings related to the U.S. patent covering VIVITROL, see Note 17, *Commitments and Contingent Liabilities*, in the "Notes to Consolidated Financial Statements" in this Annual Report.

INVEGA SUSTENNA/XEPLION, INVEGA TRINZA/TREVICTA and INVEGA HAFYERA/BYANNLI

Our NanoCrystal technology patent portfolio, licensed to Janssen, contains a number of granted patents and pending patent applications throughout the world, including in the U.S. and in countries outside of the U.S. The latest to expire of the patents subject to our license agreement expires in 2030 in the U.S., the EU and certain other countries. In addition, Janssen has other patents not subject to our license agreement, including one that covers INVEGA SUSTENNA in the U.S. and expires in 2031, one that covers INVEGA TRINZA in the U.S. and expires in 2036 and two that cover INVEGA HAFYERA in the U.S. and expire in 2041. For a discussion of legal proceedings related to patents covering INVEGA SUSTENNA, INVEGA TRINZA and INVEGA HAFYERA, see Note 17, *Commitments and Contingent Liabilities* in the "Notes to Consolidated Financial Statements" in this Annual Report.

VUMERITY

We have U.S. patents and patent applications, and a number of corresponding non-U.S. counterparts, that cover VUMERITY. U.S. Patent Nos. 8,669,281, 9,090,558 and 10,080,733, each expiring in 2033, cover compositions of, or methods of treatment for, VUMERITY.

LYBALVI

We own or have a license to U.S. and worldwide patents and patent applications that cover a class of compounds that includes the opioid modulators in LYBALVI. In addition, we own U.S. and worldwide patents and patent applications that claim formulations and methods of treatment that cover LYBALVI. The principal owned or licensed U.S. patents for LYBALVI and their expiration dates are as follows:

U.S. Patent No.	Product Covered	Expiration Date
7,262,298	LYBALVI	2025
8,680,112	LYBALVI	2030
9,119,848	LYBALVI	2031
10,005,790	LYBALVI	2031
8,778,960	LYBALVI	2032
9,126,977	LYBALVI	2031
9,517,235	LYBALVI	2031
9,943,514	LYBALVI	2031
10,300,054	LYBALVI	2031
10,716,785	LYBALVI	2031
11,185,541	LYBALVI	2031
11,241,425	LYBALVI	2031
11,351,166	LYBALVI	2031

We also have a portfolio of patents and patent applications covering our Key Development Program.

nemvaleukin alfa

We have U.S. patents and patent applications, and a number of corresponding non-U.S. counterparts, that cover nemvaleukin. U.S. Patent Nos. 9,359,415 and 10,407,481, each expiring in 2033, cover compositions of nemvaleukin. U.S. Patent No. 11,246,906, expiring in 2040, covers subcutaneous dosing regimens of nemvaleukin. U.S. Patent No. 11,248,050, expiring in 2040, covers certain combination therapies utilizing nemvaleukin.

Protection of Proprietary Rights and Competitive Position

We have exclusive rights through licensing agreements with third parties to issued U.S. patents, pending patent applications and corresponding patents or patent applications in countries outside the U.S, subject in certain instances to the rights of the U.S. government to use the technology covered by such patents and patent applications. Under certain licensing agreements, we are responsible for patent expenses, and we pay annual license fees and/or minimum annual royalties. In addition, under these licensing agreements, we are typically obligated to pay royalties on future sales of products, if any, covered by the licensed patents.

There may be patents issued to third parties that relate to our products or technologies. The manufacture, use, offer for sale, sale or import of some of our products might be found to infringe on the claims of these patents. A third party might file an infringement action against us. The cost of defending such an action is likely to be high, and we might not receive a favorable ruling. There may also be patent applications filed by third parties that relate to some of our products if issued in their present form. The patent laws of the U.S. and other countries are distinct, and decisions as to patenting, validity of patents and infringement of patents may be resolved differently in different countries.

If patents exist or are issued that cover our products or technologies, we or our licensees may not be able to manufacture, use, offer for sale, sell or import some of our products without first getting a license from the patent holder. The patent holder may not grant us a license on reasonable terms, or it may refuse to grant us a license at all. This could delay or prevent us from developing, manufacturing, selling or importing those of our products that would require the license.

We try to protect our proprietary position by filing patent applications in the U.S. and in other countries related to our proprietary technology, inventions and improvements that are important to the development of our business. Because the patent position of biopharmaceutical companies involves complex legal and factual questions, enforceability of patents cannot be predicted with certainty. The ultimate degree of patent protection that will be afforded to products and processes, including ours, in the U.S. and in other important markets, remains uncertain and is dependent upon the scope of protection decided upon by the patent offices, courts and lawmakers in these countries. Patents, if issued, may be challenged, invalidated or circumvented. Thus, any patents that we own or license from others may not provide any protection against competitors. Our pending patent applications, those we may file in the future, or those we may license from third parties, may not result in patents being issued. If issued, they may not provide us with proprietary protection or competitive advantages against competitors with similar technology. Furthermore, others may independently develop similar technologies or duplicate any technology that we have developed outside the scope of our patents. The laws of certain countries do not protect our intellectual property rights to the same extent as the laws of the U.S.

We also rely on trade secrets, know-how and inventions, which are not protected by patents, to maintain our competitive position. We try to protect this information by entering into confidentiality agreements with parties that have access to it, such as our corporate partners, collaborators, licensees, employees and consultants. However, any of these parties may breach such agreements and may disclose our confidential information or our competitors might learn of the information in some other way. If any trade secret, know-how or other invention not protected by a patent were to be disclosed to, or independently developed by, a competitor, such event could materially adversely affect our business, financial condition, cash flows and results of operations. For more information, see “Item 1A—Risk Factors” in this Annual Report.

Our trademarks, including VIVITROL, ARISTADA, ARISTADA INITIO and LYBALVI, are important to us and are generally covered by trademark applications or registrations with the U.S. Patent and Trademark Office and the patent or trademark offices of other countries. Our licensed products and products using our proprietary technologies also use trademarks that are owned by our licensees, such as the trademarks for INVEGA SUSTENNA/XEPLION, INVEGA TRINZA/TREVICTA, INVEGA HAFYERA/BYANNLI and RISPERDAL CONSTA, which are registered trademarks of Johnson & Johnson or its affiliated companies, VUMERITY, which is a registered trademark of Biogen (and used by us under license) and FAMPYRA, which is a registered trademark of Acorda. Trademark protection varies in accordance with local law and continues in some countries as long as the trademark is used and in other countries as long as the trademark is registered. Trademark registrations generally are for fixed but renewable terms.

Regulatory

Regulation of Pharmaceutical Products

United States

Our current and contemplated activities, and the products and processes that result from such activities, are subject to substantial government regulation. Before new pharmaceutical products may be sold in the U.S., preclinical studies and clinical trials of the products must be conducted and the results submitted to the FDA for approval. Clinical trial programs must determine an appropriate dose and regimen, establish substantial evidence of effectiveness and define the conditions for safe use. This is a high-risk process that requires stepwise clinical studies in which the product must successfully meet pre-specified endpoints.

Preclinical Testing: Before beginning testing of any compounds with potential therapeutic value in human subjects in the U.S., stringent government requirements for preclinical data must be satisfied. Preclinical testing includes both in vitro, or in an artificial environment outside of a living organism, and in vivo, or within a living organism, laboratory evaluation and characterization of the safety and efficacy of a drug and its formulation.

Investigational New Drug Exemption: Preclinical testing results obtained from in vivo studies in several animal species, as well as from in vitro studies, are submitted to the FDA, as part of an Investigational New Drug Application (“IND”), and are reviewed by the FDA prior to the commencement of human clinical trials. The preclinical data must provide an adequate basis for evaluating both the safety and the scientific rationale for the initial clinical studies in human volunteers.

Clinical Trials: Clinical trials involve the administration of a drug to healthy human volunteers or to patients under the supervision of a qualified investigator pursuant to an FDA-reviewed protocol. Human clinical trials are typically conducted in three sequential phases, although the phases may overlap with one another and, depending upon the nature of the clinical program, a specific phase or phases may be skipped altogether. Clinical trials must be conducted under protocols that detail the objectives of the study, the parameters to be used to monitor safety, and the efficacy criteria, if any, to be evaluated. Each protocol must be submitted to the FDA as part of the applicable IND.

- Phase 1 clinical trials—test for safety, dose tolerability, absorption, bio-distribution, metabolism, excretion and clinical pharmacology and, if possible, to gain early evidence regarding efficacy.
- Phase 2 clinical trials—involve a relatively small sample of the actual intended patient population and seek to assess the efficacy of the drug for specific targeted indications, to determine dose-response and the optimal dose range and to gather additional information relating to safety and potential adverse effects.
- Phase 3 clinical trials—consist of expanded, large-scale studies of patients with the target disease or disorder to obtain definitive statistical evidence of the efficacy and safety of the proposed product and dosing regimen.

In the U.S., the results of the preclinical and clinical testing of a product are then submitted to the FDA in the form of an NDA or a Biologics License Application ("BLA"). The NDA or BLA also include information pertaining to the preparation of the product, analytical methods, details of the manufacture of finished products and proposed product packaging and labeling. The submission of an application is not a guarantee that the FDA will find the application complete and accept it for filing. The FDA may refuse to file the application if it is not considered sufficiently complete to permit a review and will inform the applicant of the reason for the refusal. The applicant may then resubmit the application and include supplemental information.

Once an NDA or BLA is accepted for filing, the FDA has 10 months, under its standard review process, within which to review the application (for some applications, the review process is longer than 10 months). For drugs that, if approved, would represent a significant improvement in the safety or effectiveness of the treatment, diagnosis, or prevention of serious conditions when compared to standard applications, the FDA may assign "priority review" designation and review the application within six months. The FDA has additional review pathways to expedite development and review of new drugs that are intended to treat serious or life-threatening conditions and demonstrate the potential to address unmet medical needs, including: "Fast Track," "Breakthrough Therapy," and "Accelerated Approval." However, none of these expedited pathways ensure that a product will receive FDA approval in a timely manner or at all.

As part of its review, the FDA may refer the application to an advisory committee for independent advice on questions related to the development of the drug, recommendation as to whether the application should be approved or other guidance that the FDA may seek. The FDA is not bound by the recommendation of an advisory committee; however, historically, it has often followed such recommendations. The FDA may determine that a Risk Evaluation and Mitigation Strategy ("REMS") is necessary to ensure that the benefits of a new product outweigh its risks. If required, a REMS may include various elements, such as publication of a medication guide, a patient package insert, a communication plan to educate health care providers of the drug's risks, limitations on who may prescribe or dispense the drug, or other measures that the FDA deems necessary to support the safe use of the drug.

In reviewing an NDA or BLA, the FDA may grant marketing approval, or issue a complete response letter to communicate to the applicant the reasons the application cannot be approved in its then-current form and provide input on the additional information that the FDA requires and/or changes that must be made before an application can be approved. Even if such additional information is submitted to the FDA or such changes made, the FDA may ultimately decide that the NDA or BLA still does not satisfy the FDA's criteria for approval. The receipt of regulatory approval often takes a number of years, involves the expenditure of substantial resources and depends on a number of factors, including the severity of the disease in question, the availability of alternative treatments, efficacy and potential safety signals observed in preclinical tests or clinical trials, and the risks and benefits demonstrated in clinical trials. It is impossible to predict with any certainty whether and when the FDA will grant marketing approval for a given product. Even if a product is approved, the approval may be subject to limitations based on the FDA's interpretation of the data. For example, the FDA may require, as a condition of approval, restricted distribution and use, enhanced labeling, special packaging or labeling, expedited reporting of certain adverse events, pre-approval of promotional materials or restrictions on direct-to-consumer advertising, any of which could negatively impact the commercial success of a drug. The FDA may also require a sponsor to conduct additional post-marketing studies as a condition of approval to provide data on safety and effectiveness. In addition, prior to commercialization, products that may be deemed controlled substances are subject to review and scheduling by the DEA.

The FDA tracks information on side effects and adverse events reported during clinical studies and after marketing approval. Non-compliance with safety reporting requirements may result in civil or criminal penalties. Side effects or adverse events that are identified during clinical trials can delay, impede or prevent marketing approval. Based on new safety information that emerges after approval, the FDA can mandate product labeling changes, impose a REMS or the addition of elements to an existing REMS, require new post-marketing studies (including additional clinical trials), or suspend or withdraw approval of the product.

If we seek to make certain types of changes to an approved product, such as adding a new indication, making certain manufacturing changes, or changing manufacturers or suppliers of certain ingredients or components, the FDA will need to review and approve such changes in advance. In the case of adding a new indication, we would be required to demonstrate with additional clinical data that the product is safe and effective for the new intended use. Such regulatory reviews can result in denial or modification of the planned changes, or requirements to conduct additional tests or evaluations that can substantially delay or increase the cost of the planned changes.

In addition, the FDA regulates all advertising and promotional activities for products under its jurisdiction. A company can make only those claims relating to safety and efficacy that are consistent with FDA regulation and guidance. However, physicians may prescribe legally available drugs for uses that are not described in the drug's labeling. Such off-label uses are common across certain medical specialties and often reflect a physician's belief that the off-label use is the best treatment for a particular patient. The FDA does not regulate the behavior of physicians in their choice of treatments, but the FDA regulations do impose stringent restrictions on manufacturers' communications regarding off-label uses. Failure to comply with applicable FDA requirements may subject a company to adverse publicity, enforcement action by the FDA and the U.S. Department of Justice, corrective advertising and the full range of civil and criminal penalties available to the FDA and the U.S. Department of Justice.

Controlled Substances Act: The DEA regulates pharmaceutical products that are controlled substances. Controlled substances are those drugs that appear on one of the five schedules promulgated and administered by the DEA under the Controlled Substances Act (the "CSA"). The CSA governs, among other things, the inventory, distribution, recordkeeping, handling, security and disposal of controlled substances. For example, pharmaceutical products that act on the CNS are often evaluated for abuse potential; if a product is then classified as a controlled substance, it must undergo scheduling by the DEA, which is a separate process that may delay the commercial launch of such product even after FDA approval of the NDA for such product. Further, companies with a scheduled pharmaceutical product are subject to periodic and ongoing inspections by the DEA and similar state drug enforcement authorities to assess ongoing compliance with the DEA's regulations. Any failure to comply with these regulations could lead to a variety of sanctions, including the revocation, or a denial of renewal, of any DEA registration and injunctions, or civil or criminal penalties.

Outside the United States

Certain of our products are commercialized by our licensees in numerous jurisdictions outside the U.S. Most of these jurisdictions have product approval and post-approval regulatory processes that are similar in principle to those in the U.S. In Europe, there are several tracks for marketing approval, depending on the type of product for which approval is sought. Under the centralized procedure, a company submits a single application to the European Medicines Agency ("EMA"). The marketing application is similar to the NDA in the U.S. and is evaluated by the Committee for Medicinal Products for Human Use ("CHMP"), the expert scientific committee of the EMA. If the CHMP determines that the marketing application fulfills the requirements for quality, safety, and efficacy, it will submit a favorable opinion to the European Commission ("EC"). The CHMP opinion is not binding, but is typically adopted by the EC. A marketing application approved by the EC is valid in all member states.

In addition to the centralized procedure, Europe also has: (i) a nationalized procedure, which requires a separate application to, and approval determination by, each country; (ii) a decentralized procedure, whereby applicants submit identical applications to several countries and receive simultaneous approval; and (iii) a mutual recognition procedure, where applicants submit an application to one country for review and other countries may accept or reject the initial decision. Regardless of the approval process employed, various parties share responsibilities for the monitoring, detection and evaluation of adverse events post-approval, including national authorities, the EMA, the EC, other relevant regulatory authorities and the marketing authorization holder.

Good Manufacturing Practices

The FDA, the EMA, the competent authorities of the EU member states and other regulatory agencies regulate and inspect equipment, facilities and processes used in the manufacturing of pharmaceutical and biologic products prior to approving a product. Since 2020 and 2021, the COVID-19 pandemic has in some instances impacted the FDA's and other regulatory agencies' ability to conduct on-site inspections and has resulted in such agencies either delaying planned inspections or collecting the requisite information through review of written records in lieu of an on-site inspection. Once approval from a regulatory agency is obtained, if a company makes a material change in manufacturing equipment, location or process, additional regulatory review and approval may be required. Companies also must adhere to cGMP and product-specific regulations enforced by the FDA and other regulatory agencies both in the manufacture of clinical product and following product approval. The FDA, the EMA and other regulatory agencies also conduct regular, periodic visits to re-inspect equipment, facilities and processes following the initial approval of a product and may also request that certain information or records be provided in writing for review in lieu of an on-site visit. If, as a result of these inspections or records reviews, it is determined that our equipment, facilities or processes do not comply with applicable regulations and conditions of product approval, regulatory agencies may seek civil, criminal or administrative sanctions and/or remedies against us, including the suspension of our manufacturing operations.

Good Clinical Practices

The FDA, the EMA and other regulatory agencies promulgate regulations and standards, commonly referred to as Good Clinical Practices ("GCP"), for designing, conducting, monitoring, auditing and reporting the results of clinical trials to ensure that the data and results are accurate and that the trial participants are adequately protected. The FDA, the EMA and other regulatory agencies enforce GCP through periodic inspections of trial sponsors, principal investigators, trial sites, contract research organizations ("CROs") and institutional review boards. If our studies fail to comply with applicable GCP, patient safety and well-being could be impacted, the clinical data generated in our clinical trials may be deemed unreliable, and relevant regulatory agencies may require us to perform additional clinical trials before approving our marketing applications. Noncompliance can also result in civil or criminal sanctions. We rely on third parties, including CROs, to carry out many of our clinical trial-related activities. Failure of such third parties to comply with GCP can likewise result in rejection of our clinical trial data or other sanctions.

Hatch-Waxman Act

Under the U.S. Drug Price Competition and Patent Term Restoration Act of 1984 (the "Hatch-Waxman Act"), Congress created an abbreviated FDA review process for generic versions of pioneer, or brand-name, drug products. The law also provides incentives by awarding, in certain circumstances, non-patent related marketing exclusivities to pioneer drug manufacturers. Newly approved drug products and changes to the conditions of use of approved products may benefit from periods of non-patent-related marketing exclusivity in addition to any patent protection the drug product may have. The Hatch-Waxman Act provides five years of new chemical entity ("NCE") marketing exclusivity to the first applicant to gain approval of an NDA for a product that contains an active ingredient, known as the active drug moiety, not found in any other approved product. The FDA is prohibited from accepting any ANDA for a generic drug or 505(b)(2) application referencing the NCE for five years from the date of approval of the NCE, or four years in the case of an ANDA or 505(b)(2) application containing a patent challenge, and in both cases may not approve such generic drug or 505(b)(2) application until expiration of NCE marketing exclusivity. A 505(b)(2) application is an NDA in which the applicant relies, in part, on data and the FDA's findings of safety and efficacy from studies not conducted by or for the applicant and for which the applicant has not obtained a right of reference. Hatch-Waxman Act exclusivities will not prevent the submission or approval of a full NDA (e.g., under 505(b)(1)), as opposed to an ANDA or 505(b)(2) application, for any drug, including, for example, a drug with the same active ingredient, dosage form, route of administration, strength and conditions of use.

The Hatch-Waxman Act also provides three years of exclusivity for applications containing the results of new clinical investigations, other than bioavailability studies, essential to the FDA's approval of new uses of approved products, such as new indications, dosage forms, strengths, or conditions of use. However, this exclusivity only protects against the approval of ANDAs and 505(b)(2) applications for the protected use and will not prohibit the FDA from accepting or approving ANDAs or 505(b)(2) applications for other products containing the same active ingredient.

The Hatch-Waxman Act requires NDA applicants and NDA holders to provide certain information about patents related to the drug for listing in the FDA's Approved Drugs Product List, commonly referred to as the Orange Book. ANDA and 505(b)(2) applicants must then certify regarding each of the patents listed with the FDA for the reference product. A certification that a listed patent is invalid or will not be infringed by the marketing of the applicant's product is called a "Paragraph IV certification." If the ANDA or 505(b)(2) applicant provides such a notification of patent invalidity or noninfringement, then the FDA may accept the ANDA or 505(b)(2) application four years after approval of the NDA for an NCE. If a Paragraph IV certification is filed and the ANDA or 505(b)(2) application has been accepted as a reviewable filing by the FDA, the ANDA or 505(b)(2) applicant must then, within 20 days, provide notice to the NDA holder and patent owner stating that the application has been submitted and providing the factual and legal basis for the applicant's opinion that the patent is invalid or not infringed. The NDA holder or patent owner may file suit against the ANDA or 505(b)(2) applicant for patent infringement. If this is done within 45 days of receiving notice of the Paragraph IV certification, a one-time, 30-month stay of the FDA's ability to approve the ANDA or 505(b)(2) application is triggered. The 30-month stay begins at the end of the NDA holder's data exclusivity period, or, if data exclusivity has expired, on the date that the patent holder is notified. The FDA may approve the proposed product before the expiration of the 30-month stay if a court finds the patent invalid or not infringed, or if the court shortens the period because the parties have failed to cooperate in expediting the litigation.

Sales and Marketing

We are subject to various U.S. federal and state laws pertaining to healthcare fraud and abuse, including anti-kickback laws and false claims laws. Anti-kickback laws make it illegal for a prescription drug manufacturer to solicit, offer, receive, or pay any remuneration in exchange for, or to induce, the referral of business, including the purchase or prescription of a particular drug. Due to the broad scope of the U.S. statutory provisions, the general absence of guidance in the form of regulations, and few court decisions addressing industry practices, it is possible that our practices might be challenged under anti-kickback or similar laws. False claims laws prohibit anyone from knowingly and willingly presenting, or causing to be presented, for payment to third-party payers (including Medicare and Medicaid) claims for reimbursed drugs or services that are false or fraudulent, claims for items or services not provided as claimed or claims for medically unnecessary items or services. Activities relating to the sale and marketing of our

products may be subject to scrutiny under these laws. Violations of fraud and abuse laws may be punishable by criminal and/or civil sanctions, including fines and civil monetary penalties, as well as the possibility of exclusion from federal healthcare programs (including Medicare and Medicaid). In addition, federal and state authorities are paying increased attention to enforcement of these laws within the pharmaceutical industry and private individuals have been active in alleging violations of the laws and bringing suits on behalf of the U.S. government under the False Claims Act. If we were subject to allegations concerning, or were convicted of violating, these laws, our business could be harmed. See "Item 1A—Risk Factors" in this Annual Report and specifically those sections entitled "If there are changes in, or we fail to comply with, the extensive legal and regulatory requirements affecting the healthcare industry, we could face costs, penalties and business losses," "Revenues generated by sales of our products depend on the availability from third-party payers of reimbursement for our products and the extent of cost-sharing arrangements for patients (e.g., patient co-payment, co-insurance, deductible obligations) and cost-control measures imposed, and any reductions in payment rate or reimbursement or increases in our or in patients' financial obligation to payers could result in decreased sales of our products and/or decreased revenues" and "The clinical study or commercial use of our products may cause unintended side effects or adverse reactions, or incidents of misuse may occur, which could adversely affect our products, business and share price."

Laws and regulations have been enacted by the U.S. federal government and various states to regulate the sales and marketing practices of pharmaceutical manufacturers. The laws and regulations generally limit financial interactions between manufacturers and healthcare providers and require disclosure to the government and public of such interactions. The laws include federal "sunshine", or open payments, provisions enacted in 2010 as part of the comprehensive federal healthcare reform legislation and supplemented as part of the Substance Use-Disorder Prevention that Promotes Opioid Recovery and Treatment for Patients and Communities Act. Such provisions apply to pharmaceutical manufacturers with products reimbursed under certain government programs and require those manufacturers to disclose annually to the federal government (for re-disclosure to the public) certain payments made to, or at the request of, or on behalf of, physicians or to teaching hospitals and, commencing for information to be submitted as of January 1, 2022, certain payments made to physicians assistants, nurse practitioners, clinical nurse specialists, certified registered nurse anesthetists and certified nurse-midwives. Certain state laws also require disclosure of pharmaceutical pricing information and marketing expenditures. Given the ambiguity found in many of these laws and their implementation, our reporting actions could be subject to the penalty provisions of the pertinent U.S. federal and state laws and regulations.

Pricing and Reimbursement

United States

In the U.S., sales of our products, including those sold by our licensees, and our ability to generate revenues on such sales are dependent, in significant part, on the availability and level of reimbursement from third-party payers such as state and federal governments, including Medicare and Medicaid, managed care providers and private insurance plans. Third-party payers are increasingly challenging the prices charged for medical products and examining the medical necessity and cost-effectiveness of medical products, in addition to their safety and efficacy.

Medicaid is a joint federal and state program that is administered by the states for low-income and disabled beneficiaries. Under the Medicaid rebate program, we are required to pay a rebate for each unit of product reimbursed by the state Medicaid programs. The amount of the rebate for each product is set by law as the greater of 23.1% of average manufacturer price ("AMP") or the difference between AMP and the best price available from us to any commercial or non-federal governmental customer. The rebate amount must be adjusted upward where the AMP for a product's first full quarter of sales, when adjusted for increases in the Consumer Price Index—Urban, is less than the AMP for the current quarter, with this difference being the amount by which the rebate is adjusted upwards. The rebate amount is required to be recomputed each quarter based on our report of current AMP and best price for each of our products to the Centers for Medicare & Medicaid Services ("CMS"). The terms of our participation in the rebate program impose a requirement on us to report revisions to AMP or best price within a period not to exceed 12 quarters from the quarter in which the data was originally due. Any such revisions could have the impact of increasing or decreasing our rebate liability for prior quarters, depending on the direction of the revision. In addition, if we were found to have knowingly submitted false information to the government, the statute provides for civil monetary penalties per item of false information in addition to other penalties available to the government.

Medicare is a federal program that is administered by the federal government that covers individuals age 65 and over as well as those with certain disabilities. Medicare Part B pays physicians who administer our products under a payment methodology using average sales price ("ASP") information. Manufacturers, including us, are required to provide ASP information to the CMS on a quarterly basis. This information is used to compute Medicare payment rates, with rates for Medicare Part B drugs outside the hospital outpatient setting and in the hospital outpatient setting consisting of ASP plus a specified percentage. These rates are adjusted periodically. If a manufacturer is found to have made a misrepresentation in the reporting of ASP, the statute provides for civil monetary penalties for each misrepresentation and for each day in which the misrepresentation was applied.

Medicare Part D provides coverage to enrolled Medicare patients for self-administered drugs (i.e. drugs that do not need to be injected or otherwise administered by a physician) and certain physician-administered drugs reimbursed under a pharmacy benefit. Medicare Part D also covers the prescription drug benefit for dual eligible beneficiaries. Medicare Part D is administered by private prescription drug plans approved by the U.S. government and each drug plan establishes its own Medicare Part D formulary for prescription drug coverage and pricing, which the drug plan may modify from time-to-time. The prescription drug plans negotiate pricing with manufacturers and may condition formulary placement on the availability of manufacturer discounts. Except for dual eligible Medicare Part D beneficiaries who qualify for low-income subsidies, manufacturers, including us, are required to provide a seventy percent (70%) discount on our brand name prescription drugs utilized by Medicare Part D beneficiaries when those beneficiaries reach the coverage gap in their drug benefits.

Federal law also requires that any company that participates in the Medicaid Drug Rebate Program also participate in the Public Health Services' (including the Indian Health Services, "PHS") pharmaceutical pricing program (the "340B program"), in order for federal funds to be available for the manufacturer's drugs under Medicaid and Medicare Part B. The 340B program, which is administered by the Health Resources and Services Administration ("HRSA") requires participating manufacturers to agree to charge statutorily defined covered entities no more than the 340B "ceiling price" for the manufacturer's covered drugs used in an outpatient setting. These 340B covered entities include certain qualifying community health clinics, a variety of entities that receive health services grants from the Public Health Service, and multiple categories of hospitals, including children's hospitals, critical access hospitals, free standing cancer hospitals and hospitals that serve a disproportionate share of low-income patients. The 340B ceiling price is calculated using a statutory formula, which is based on the average manufacturer price and rebate amount for the covered outpatient drug as calculated under the Medicaid Drug Rebate Program. A regulation regarding the calculation of the 340B ceiling price and the imposition of civil monetary penalties on manufacturers that knowingly and intentionally overcharge covered entities became effective on January 1, 2019. The scope and implementation of the 340B program continue to be the subject of legislative and regulatory interest and ongoing litigation, the outcomes of which are difficult to predict.

We also make our products available for purchase by authorized users of the Federal Supply Schedule ("FSS") of the General Services Administration pursuant to our FSS contract with the Department of Veterans Affairs. Under the Veterans Health Care Act of 1992 (the "VHC Act"), we are required to offer deeply discounted FSS contract pricing to four federal agencies: the Department of Veterans Affairs; the Department of Defense; the Coast Guard; and the PHS, in order for federal funding to be made available for reimbursement of any of our products by such federal agencies and certain federal grantees. Coverage under Medicaid, the Medicare Part B program and the PHS pharmaceutical pricing program is also conditioned upon FSS participation. FSS pricing is negotiated periodically with the Department of Veterans Affairs. FSS pricing is intended not to exceed the price that we charge our most-favored non-federal customer for a product. In addition, prices for drugs purchased by the Department of Veterans Affairs, Department of Defense (including drugs purchased by military personnel and dependents through the Tricare Retail Pharmacy ("Tricare") program), Coast Guard and PHS are subject to a cap on pricing equal to 76% of the non-federal average manufacturer price ("non-FAMP"). An additional discount applies if non-FAMP increases more than inflation (measured by the Consumer Price Index—Urban). In addition, if we are found to have knowingly submitted false information to the government, the VHC Act provides for civil monetary penalties per false item of information in addition to other penalties available to the government.

In addition, on January 21, 2016, CMS released the final Medicaid covered outpatient drug regulation, which became effective on April 1, 2016. This regulation implements those changes made by the Patient Protection and Affordable Care Act (the "PPACA") to the Medicaid drug rebate statute in 2010 and addresses a number of other issues with respect to the Medicaid program, including, but not limited to, the eligibility and calculation methodologies for AMP and best price, and the expansion of Medicaid rebate liability to include Medicaid managed care organizations. The final Medicaid covered outpatient drug regulation established two calculation methodologies for AMP: one for drugs generally dispensed through retail community pharmacies ("RCP") and one for so-called "5i drugs" (inhaled, infused, instilled, implanted or injectable drugs) "not generally dispensed" through RCPs. The regulation further made clear that 5i drugs would qualify as "not generally dispensed" and, therefore, able to use the alternative AMP calculation, if not more than thirty percent (30%) of their sales were to RCPs or to wholesalers for RCPs. The primary difference between the two AMP calculations is the requirement to exclude from AMP, for those qualifying 5i drugs not generally dispensed through RCPs, certain payments, rebates and discounts related to sales to non-RCPs; such exclusion often leads to a lower AMP. The decision of which AMP calculation a product is eligible to use must be made and applied on a monthly basis based on the percentage of sales of such product to RCPs or to wholesalers for RCPs.

U.S. federal and state governments regularly consider reforming healthcare coverage and lessening healthcare costs. Such reforms may include price controls, value-based pricing and changes to the coverage and reimbursement of our products, which may have a significant impact on our business. In August 2022, the Inflation Reduction Act of 2022 (the "Inflation Reduction Act") was signed into law. The Inflation Reduction Act includes several provisions that will impact our business to varying degrees, including those that impose new manufacturer financial liability on all drugs in Medicare Part D beginning in 2025, allow the U.S. government to negotiate prices for some drugs covered under Medicare Part D beginning in 2026 and Medicare Part B beginning in 2028, and require companies to pay rebates to Medicare beginning in 2023 for drug prices that increase faster than inflation. In addition, emphasis on managed care in the U.S. has increased and we expect will continue to increase the pressure on drug pricing. Private insurers regularly seek to manage drug cost and utilization by implementing coverage and reimbursement limitations through means including, but not limited to, formularies, increased out of pocket obligations and various prior authorization requirements. Even if favorable coverage and reimbursement status is attained for one or more products for which we have received regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

Outside the United States

Within the EU, products are paid for by a variety of payers, with governments being the primary source of payment. Governments may determine or influence reimbursement of products. Governments may also set prices or otherwise regulate pricing. Negotiating prices with governmental authorities can delay commercialization of products. Governments may use a variety of cost-containment measures to control the cost of products, including price cuts, mandatory rebates, value-based pricing and reference pricing (i.e., referencing prices in other countries and using those reference prices to set a price). Recent budgetary pressures in many EU countries are causing governments to consider or implement various cost-containment measures, such as price freezes, increased price cuts and rebates, and expanded generic substitution and patient cost-sharing. If budget pressures continue, governments may implement additional cost-containment measures.

Other Regulations

Foreign Corrupt Practices Act: We are subject to the U.S. Foreign Corrupt Practices Act (the "FCPA"), which prohibits U.S. corporations and their representatives from paying, offering to pay, promising, authorizing, or making payments of anything of value to any foreign government official, government staff member, political party, or political candidate in an attempt to obtain or retain business or to otherwise influence a person working in an official capacity. In many countries, the healthcare professionals with whom we regularly interact may meet the FCPA's definition of a foreign government official. The FCPA also requires public companies to make and keep books and records that accurately and fairly reflect their transactions and to devise and maintain an adequate system of internal accounting controls.

Environmental, Health and Safety Laws: Our operations are subject to complex and increasingly stringent environmental, health and safety laws and regulations in the countries where we operate and, in particular, where we have manufacturing facilities, namely the U.S. and Ireland. Environmental and health and safety authorities in the relevant jurisdictions, including the Environmental Protection Agency and the Occupational Safety and Health Administration in the U.S. and the Environmental Protection Agency and the Health and Safety Authority in Ireland, administer laws which regulate, among other matters, the emission of pollutants into the air (including the workplace), the discharge of pollutants into bodies of water, the storage, use, handling and disposal of hazardous substances, the exposure of persons to hazardous substances, and the general health, safety and welfare of employees and members of the public. In certain cases, these laws and regulations may impose strict liability for pollution of the environment and contamination resulting from spills, disposals or other releases of hazardous substances or waste and/or any migration of such hazardous substances or waste. Costs, damages and/or fines may result from the presence, investigation and remediation of contamination at properties currently or formerly owned, leased or operated by us and/or off-site locations, including where we have arranged for the disposal of hazardous substances or waste. In addition, we may be subject to third-party claims, including for natural resource damages, personal injury and property damage, in connection with such contamination.

The General Data Protection Regulation ("GDPR"): The GDPR became effective on May 25, 2018 and replaced the previous EU Data Protection Directive (95/46). The GDPR, which governs the processing of personal data (including personal health data), applies to the Company and any of its subsidiaries that are established in the EU to the extent that they process personal data as well as any of its subsidiaries that are established outside the EU to the extent that they process personal data relating to EU residents for certain purposes, including any such data relating to clinical trial participants in the EU. The GDPR imposes significant obligations on controllers and processors of personal data, including high standards for obtaining consent from individuals to process their personal data, robust notification requirements to individuals about the processing of their personal data, a strong individual data rights regime, mandatory data breach notifications, limitations on the retention of personal data, stringent requirements pertaining to health data, and strict rules and restrictions on the transfer of personal data outside of the EU, including to the U.S. The GDPR also imposes additional obligations on, and required contractual provisions to be included in, contracts between companies subject to the GDPR and their third-party processors that relate to the processing of personal data. The GDPR allows EU member states to make additional laws and regulations in order to introduce further conditions, including limitations, with regard to the processing of genetic, biometric or health data.

Other Laws: We are subject to a variety of financial disclosure, securities trading regulations and governmental regulations as an Irish-incorporated company publicly-listed in the U.S., including laws relating to the oversight activities of the SEC, the Irish Companies Act 2014, and the regulations of the Nasdaq Stock Market ("Nasdaq"), on which our shares are traded. We are also subject to various laws, regulations and recommendations relating to safe working conditions, laboratory practices, the experimental use of animals, and the purchase, storage, movement, import and export and use and disposal of hazardous or potentially hazardous substances used in connection with our research work.

Human Capital Resources

As a global biopharmaceutical company focused on developing innovative medicines in the fields of neuroscience and oncology, we have built, and continue to devote significant resources to further develop and enhance, a comprehensive cross-functional infrastructure designed to support product development from discovery through commercialization and lifecycle management. We seek to attract, hire, develop, recognize and retain qualified and highly skilled employees with experience in areas such as R&D, including early discovery, translational medicine, formulation and clinical development; intellectual property prosecution, enforcement and defense; medical affairs; manufacturing operations; U.S. federal and state government affairs; sales and marketing; and market access. Competition for such personnel in our industry and the geographic regions in which we operate is intense, with numerous companies also developing, launching or marketing products, including products against which our products directly compete. We are committed to supporting our employees' well-being in a transparent, diverse, inclusive, and collaborative culture and to providing them with access to training, support and resources intended to help them succeed professionally, while appropriately balancing their professional and personal lives.

As of February 10, 2023, we had approximately 2,280 full time employees, of which approximately 1,860 were based in the U.S. and 420 were based in Ireland. Our 2022 global voluntary attrition rate of 9.5% was below industry benchmarks. None of our employees are covered by a collective bargaining agreement, and we consider our relations with our employees to be good.

We are an equal opportunity employer and we are fundamentally committed to creating and maintaining a work environment in which employees are treated with respect and dignity. All human resources policies, practices and actions related to hiring, promotion, compensation, benefits and termination are administered in accordance with the principles of equal employment opportunity and other legitimate criteria without regard to race, color, religion, sex, sexual orientation, gender expression or identity, ethnicity, national origin, ancestry, age, mental or physical disability, genetic information, any veteran status, any military status or application for military service, or membership in any other category protected under applicable laws.

Recognizing the value of our employees and their important contributions to the achievement of our business objectives, we offer market-competitive comprehensive total rewards packages, including bonus opportunities at all levels tied to individual and company performance, and for employees at certain levels, company equity opportunities. We are committed to designing and managing our pay programs and decisions to support equitable pay for all employees. We have established our compensation programs based on market and benchmark data and strive to pay all employees equitably, taking into consideration factors such as their role, skills, abilities and relevant experience. We routinely monitor our pay programs in order to respond to market trends and maintain equity within our workforce. We offer healthcare and retirement savings plan benefits, paid time off, tuition reimbursement and other benefits designed to support healthy lifestyle choices, financial well-being and work-life balance.

Across our sites, we seek to cultivate a work environment that reflects our values of collaboration at our core, respect for each voice and unwavering commitment. Over the past several years, we have continued to focus on fostering an environment that respects and celebrates Diversity, Inclusion & Belonging ("DIB") in our workplaces and our communities and have actively evolved our DIB strategy to reflect the needs of our employees and our business. We have a robust DIB governance structure, consisting of our DIB Steering Committee, Employee Resource Groups ("ERGs"), and a DIB Executive Committee. Our global cross-functional DIB Steering Committee, comprised of representatives from all of our locations, including field-based employees, is focused on creating connections, fostering conversations, helping ensure our efforts are aligned with the diverse range of perspectives within our organization and developing and advancing practices, tools and resources that can be used to strengthen the sense of belonging among our employees. Our five ERGs include: Limitless, a network to support people impacted by disability or illness; Mosaic, a multicultural network; Operation Salute, a veterans' network; Pride@Work, an LGBTQ+ network; and Women Inspired Network (WIN), a women's network. These ERGs share a common purpose of supporting and enhancing the inclusiveness of our company culture and providing opportunities for professional development, networking and building deeper connections within Alkermes. Our DIB Executive Committee, which includes our Chief Executive Officer and other senior leaders, is tasked with continuing to refine our DIB strategy and championing its implementation and impact across the business. These groups work together to set goals, establish and execute strategic initiatives, measure our progress and promote a culture of understanding and inclusion throughout our organization. In 2022, through the collaboration of these groups, we introduced an annual performance goal focused on DIB for all senior leaders (Vice President level and above) at Alkermes with an emphasis on talent management, including recruiting and development. Additionally, as part of our increased focus on social and racial justice, diversity and inclusion, we have held company-wide town hall conversations, sponsored recognition events and have enhanced our Company's diversity education and awareness training.

We remain focused on achieving greater representation of diverse talent through targeted recruitment and development efforts. In 2022, we achieved a notable increase in the percentage of our Vice Presidents/Senior Vice Presidents who are female (from 29.0% to 38.8%). We also established a Women's Mentoring Circle to provide internal resources for the continued development of our female talent pool. Additionally, we have continued to focus on increasing the representation of people of color ("POC") across our workforce and have partnered with outside organizations such as The Partnership and Connexion to support continued leadership development of POC within our organization.

We encourage active employee engagement to help ensure that employees feel part of our mission and that they have a voice in the Alkermes community. Since 2017, we have conducted periodic employee engagement surveys to understand employee sentiment regarding, and satisfaction with, their work and experience at Alkermes and have used the data collected to help inform and evolve our human capital management strategy and initiatives. In 2022, we conducted approximately 30 focus groups with more than 225 employees and managers across the organization as part of our efforts to enhance key company processes related to "employee listening" and performance management. Also in 2022, we implemented function- and site-specific mentoring programs, conducted open forums with leaders, and hosted various company events to foster connections and visibility between leadership and employees and build strong peer-to-peer connections.

We are committed to the professional growth and development of our employees. We conduct a comprehensive on-boarding experience that connects newly hired employees to our business, values, culture, and people. We encourage and support our employees in their adoption of Individual Development Plans designed to identify professional development and growth opportunities to help support their career aspirations. We frequently offer company-hosted trainings that cover topics including performance management, problem-solving, leadership development, diversity, communication and mentorship, and as appropriate, more specialized skills-based programs. We also provide all employees access to our LinkedIn Learning platform, which provides on-demand learning opportunities.

Our culture is one of collaboration and trust. We ask our employees to help us promote and sustain workplace environments that are safe and protective of the health and well-being of our people and in compliance with applicable laws, rules and regulations. We maintain extensive environmental, health, safety and security policies, adhere to all health and safety standards set by regulators in the locations in which we operate and routinely assess workplace risks, conduct employee trainings and monitor our sites to reduce the risk of workplace accidents.

In 2022, employee health, safety and wellness continued to be of particular focus and importance for the Company. Since the emergence of the COVID-19 pandemic, we have adjusted and enhanced our remote work policies and opportunities, and our communication strategies for keeping employees connected and informed. We also enhanced employee resources, including wellness and stress-reduction resources, guidance on how to effectively engage and work remotely, and increased childcare benefits. For additional information about actions taken by the Company to support its employees and other stakeholders in response to the COVID-19 pandemic, see the "COVID-19 Update" included in "Item 7—Management's Discussion and Analysis of Financial Condition and Results of Operations" of this Annual Report.

Available Information and Website Disclosure

Our principal executive offices are located at Connaught House, 1 Burlington Road, Dublin 4, Ireland D04 C5Y6. Our telephone number is +353-1-772-8000 and our website address is www.alkermes.com. Information found on, or accessible through, our website is not incorporated into, and does not form a part of, this Annual Report. We make available free of charge through the Investors section of our website our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and all amendments to those reports as soon as reasonably practicable after such material is electronically filed with, or furnished to, the SEC. We also make available on our website (i) the charters for the standing committees of our board of directors, including the audit and risk committee, compensation committee, and nominating and corporate governance committee, and (ii) our Code of Business Conduct and Ethics governing our directors, officers and employees. We intend to disclose on our website any amendments to, or waivers from, our Code of Business Conduct and Ethics that are required to be disclosed pursuant to the rules of the SEC.

From time to time, we may use our website to distribute material information. Our financial and other material information is routinely posted to and accessible on the Investors section of our website, available at www.alkermes.com. Investors are encouraged to review the Investors section of our website because we may post material information on that site that is not otherwise disseminated by us. Information that is contained in and can be accessed through our website is not incorporated into, and does not form a part of, this Annual Report.

Item 1A. Risk Factors

You should consider carefully the risks described below in addition to the financial and other information contained in this Annual Report, including our financial statements and related notes hereto and the matters addressed under the caption "Cautionary Note Concerning Forward-Looking Statements," and in our other public filings with the SEC. If any events described by the following risks actually occur, they could materially adversely affect our business, financial condition, cash flows or results of operations. This could cause the market price of our ordinary shares to decline.

Risks Related to the Potential Separation of Our Oncology Business

The potential separation of our neuroscience and oncology businesses, including a potential separation of our oncology business into an independent, publicly-traded company, is subject to various risks and uncertainties and may not be completed on the timeline currently contemplated or at all, and will involve significant time, effort and expense, which could disrupt or adversely affect our business and our financial condition, results of operations and cash flows.

In November 2022, we announced our intent, as approved by our board of directors, to explore a separation of our neuroscience business and oncology business. We are exploring a separation of the oncology business into an independent, publicly-traded company (referred to in this Annual Report as "Oncology Co.") as part of an ongoing review of strategic alternatives.

Our business may face significant risks and uncertainties as a result of the exploration and/or execution of the potential separation, including, without limitation:

- the diversion of management's attention from operating our neuroscience and oncology businesses and the overall disruption of, and impact on, our businesses;
- potential difficulty in maintaining employee morale and retaining and/or recruiting key management and other employees;
- potential difficulty in separating our oncology business from our neuroscience business, including allocation of operations, services, products and personnel;
- difficulty and/or delays in obtaining regulatory approvals related to the potential separation of the businesses, including any approvals needed to effect the separation and/or those related to ongoing clinical trials of our oncology products;
- the need to obtain third-party consents related to the potential separation of the businesses, which may be difficult to obtain and/or cause delay in our intended timelines for the separation or disrupt third-party relationships that are important to our business;
- foreseen and unforeseen dis-synergy costs, costs of restructuring transactions (including potential taxes) and other significant costs and expenses, including costs related to the capitalization of Oncology Co.; and
- potential negative reactions from the financial markets, including reactions related to the proposed structure or other details of the potential separation or any potential delay or failure in completing the potential separation.

No assurance can be given as to whether we will be successful in managing these or any other significant risks that we may encounter in the potential separation of our businesses, and any of these risks could have a material adverse effect on our businesses, financial condition, results of operations, cash flows and/or the market price of our ordinary shares. We have already incurred certain expenses, and expect to incur significant additional expenses, in connection with the exploration and potential consummation of a separation, and such costs and expenses may be greater than we anticipate, and may not yield the benefits that we or others may anticipate.

Adverse market conditions or tax consequences, litigation or other legal proceedings that may arise as a result of the potential separation, or delays or difficulties effecting the potential separation, including possible delays in obtaining any necessary stock exchange, regulatory or other approval or the failure to obtain any such approvals, possible delays in obtaining any required tax opinions or rulings or the failure to obtain any such tax opinions or rulings, changes in relevant law and other challenges, could delay, prevent or otherwise adversely impact the anticipated benefits of the potential separation.

No assurance can be given as to whether we will complete any separation on our anticipated timeline or at all. Any of the foregoing may result in our not achieving the operational, financial, strategic and other benefits we anticipate realizing as a result of the potential separation, and in each case, our business, results of operations and financial condition and/or the market price of our ordinary shares could be adversely affected.

We may fail to realize some or all of the anticipated benefits of the potential separation of our neuroscience and oncology businesses and the market price of our ordinary shares may fluctuate significantly in connection with the potential separation.

Even if a separation of our neuroscience and oncology businesses is completed, the anticipated operational, financial, strategic and other benefits of a potential separation may not be achieved. These anticipated benefits are based on a number of assumptions and uncertainties, which may prove to be incorrect or incomplete. Furthermore, if separated, the two independent businesses will be smaller and less diversified than the combined company, with a narrower business focus, and may be more vulnerable to changing market conditions.

In addition, the market price of our ordinary shares may experience volatility around the time of announcements of plans for the potential separation, consummation of the potential separation and thereafter. We also cannot predict the effect of a completed separation on the market price of our ordinary shares, which, following a separation, may be less than, equal to or greater than the market price of our ordinary shares prior to the separation. Further, the combined value of our ordinary shares and those of Oncology Co. may not be equal to or greater than what the value of our ordinary shares would have been had the separation not occurred. The combined value of the ordinary shares of the two companies could be lower than anticipated for a variety of reasons, including, but not limited to, a failure of Oncology Co. to operate and compete effectively as an independent company.

We continue to assess the tax consequences of potential structures for the separation of our oncology business from our neuroscience business, including a potential separation of the oncology business into an independent, publicly-traded company. If such a separation does not qualify as a transaction that is generally tax-free for U.S. federal and Irish tax purposes, we and/or our shareholders could be subject to significant tax liabilities.

In connection with the potential separation, we may seek a private letter ruling from the IRS (the "IRS Ruling") and/or an opinion from our U.S. tax advisor (the "U.S. Tax Opinion") regarding U.S. federal and state income tax consequences of the separation, including that, among other things, the separation would generally qualify as tax-free for U.S. federal income tax purposes under Sections 368(a)(1)(D) and 355 of the U.S. Internal Revenue Code of 1986, as amended (the "Code"). The IRS Ruling and/or the U.S. Tax Opinion would be based on and rely on, among other things, certain facts, assumptions, representations, and undertakings from us and Oncology Co., including those relating to past and future conduct of the companies' respective business operations and other matters. If any of these facts, assumptions, representations, statements or undertakings are, or become, inaccurate or incomplete, or if we or Oncology Co. breach any of our respective covenants in the separation documents, the IRS Ruling and/or the U.S. Tax Opinion may be invalid and the conclusions reached therein could be jeopardized. Notwithstanding a U.S. Tax Opinion or IRS Ruling, the U.S. Internal Revenue Service, or the IRS, could determine that a distribution or any related transaction is taxable for U.S. federal income tax purposes if it determines that any of these facts, assumptions, representations or undertakings are not correct or have been violated, or that the distribution should be taxable for other reasons, including if the IRS were to disagree with the conclusions in the U.S. Tax Opinion. The U.S. Tax Opinion will not be binding on the IRS or the courts. Accordingly, the IRS or the courts may challenge the conclusions stated in the U.S. Tax Opinion and such challenge could prevail. If the potential separation transaction is ultimately determined to be taxable, we and/or our shareholders that are subject to U.S. federal income tax could incur significant tax liabilities.

Furthermore, in connection with the potential separation, we may seek an opinion from our Irish tax advisor (the "Irish Tax Opinion") regarding the Irish tax consequences of the separation. The Irish Tax Opinion would be based on and rely on, among other things, certain facts, assumptions, representations, and undertakings from us, including those relating to past and future conduct of our business operations and other matters. If any of these facts, assumptions, representations, statements or undertakings are, or become, inaccurate or incomplete the Irish Tax Opinion may be invalid and the conclusions reached therein could be jeopardized. The Irish Tax Opinion will not be binding on the Irish Tax Authority or the Irish courts. Accordingly, the Irish Tax Authority or the Irish courts may challenge the conclusions stated in the Irish Tax Opinion and such challenge could prevail. In such an event, we and/or our shareholders could incur significant tax liabilities.

Risks Related to Our Business and Our Industry

Our business, financial condition and results of operations have been, and may continue to be, adversely affected by the ongoing COVID-19 pandemic or other similar outbreaks of contagious diseases.

Outbreaks of contagious diseases and other adverse public health developments affecting us and/or the third parties on which we rely, could have a material and adverse effect on our business, financial condition and results of operations. The COVID-19 pandemic has impacted, and may continue to impact, many aspects of society, including the operation of healthcare systems, global travel, supply and labor markets and other business and economic activity worldwide. Ireland, all U.S. states, and many local jurisdictions and countries around the world have, at times during the pandemic, issued and implemented quarantines, vaccine and masking mandates, executive orders and other similar government orders, restrictions and recommendations for their residents to help control the spread of COVID-19. Such orders, mandates, restrictions and/or recommendations have, at times during the pandemic, resulted in widespread interruptions and closures of businesses, including healthcare systems that serve people living with addiction and serious mental illness, work stoppages, slowdowns and/or delays, remote work policies and travel restrictions, among other effects.

The COVID-19 pandemic has had, and may continue to have, an adverse impact on our financial condition and results of operations. For example, commercial sales of the medicines from which we derive revenue— including injectable medications administered by healthcare professionals—have been, and we expect may continue to be, adversely impacted as a result of COVID-19-related restrictions, labor shortages and other developments that have transpired, and may continue to transpire, many of which have contributed to limited access to, or reduced willingness to access, healthcare providers and locations where injectable medications may be administered. Further, this pandemic has had, and may continue to have, an adverse effect on global economic conditions, which could have an adverse effect on the demand for, and ability of patients to access, our and our licensees' medicines, reimbursement for our products and for services related to the use of our products, or our ability to obtain financing, if needed, on favorable terms or at all.

The COVID-19 pandemic has caused, and may continue to cause, varying degrees of disruption to our employees, our communities and our business operations. While we have continued to operate our manufacturing facilities and to supply our medicines without interruption throughout the pandemic, we have, at times during the pandemic, experienced labor or supply chain delays or disruptions at our manufacturing facilities, and may continue to experience such delays or disruptions while the pandemic persists, which could impact our ability to manufacture our products and the third-party products from which we receive revenue in a timely matter or at all. In addition, while we have continued to conduct our R&D activities, including our ongoing clinical trials, the COVID-19 pandemic has, at times, impacted the timelines of certain of our early-stage discovery efforts and clinical trials, and may continue to impact such timelines while the pandemic persists. We work with our internal teams, our clinical investigators, R&D vendors and critical supply chain vendors to continually assess, and endeavor to mitigate, potential adverse impacts of COVID-19 on our manufacturing operations and R&D activities.

In addition, we rely upon third parties for many aspects of our business, including the provision of goods and services related to the manufacture of our clinical products and our and our partners' marketed products, the conduct of our clinical trials, and the sale of our proprietary marketed products and the marketed products of our licensees from which we receive manufacturing and/or royalty revenue. The COVID-19 pandemic has, to varying degrees, disrupted the business operations of the third parties on which we rely, including our suppliers, packagers, distributors, contract research organizations, customers, clinical site investigators, community advocacy partners, and others, and may continue to do so for so long as the pandemic and its impacts persist. For example, the third-party sites and investigators involved in our clinical trials have experienced, and may continue to experience, interruptions which have impacted, and may continue to impact, the conduct of our clinical trials, including with respect to enrollment rates, availability of investigators and clinical trial sites, and monitoring of data, and our ability to complete them in a timely manner or at all. If our clinical programs are significantly delayed as a result of such impacts, there could be adverse effects on our expected timelines for regulatory review and potential approval of our product candidates. Any prolonged material disruption to these or other third parties on which we rely could negatively impact our ability to conduct business in the manner and on the timelines presently planned, which could have a material adverse impact on our business, results of operations and financial condition.

The COVID-19 pandemic has also impacted, and may continue to impact, the regulatory agencies with which we interact in the development, manufacture, regulatory review and commercialization of our medicines, including the FDA, the HPRA and other regulatory agencies, which may, in turn, negatively impact expected timelines for regulatory interactions related to, and/or review and approval of, our product candidates, which could have an adverse effect on our business and the market price of our ordinary shares.

The degree to which the ongoing COVID-19 pandemic may continue to impact our employees, business, financial condition and results of operations will depend on the ultimate severity and duration of the pandemic and the manner in which it continues to evolve, including the emergence, prevalence and severity of new COVID-19 variants, and future developments in response thereto, including developments in the labor market and market practices related to remote work and our ability to attract and retain employees, which are highly uncertain and cannot be predicted as of the date of this Annual Report.

We receive substantial revenue from our key proprietary products and our success depends on our ability to successfully manufacture and commercialize such products.

Sales of our proprietary products comprise an increasingly significant portion of our revenues. We developed and exclusively manufacture VIVITROL for the treatment of adults with alcohol dependence and opioid dependence, ARISTADA for the treatment of adults with schizophrenia, ARISTADA INITIO for initiation onto ARISTADA for the treatment of adults with schizophrenia, and LYBALVI for the treatment of adults with schizophrenia and for the treatment of adults with bipolar I disorder, and we exclusively commercialize these products in the U.S. Our success depends in large part on our ability to continue to successfully manufacture and commercialize such products in the complex markets into which they are sold. Any significant negative developments relating to these products could have a material adverse effect on our revenues from these products and, in turn, on our business, financial condition, cash flows and results of operations and the market price of our ordinary shares.

We rely heavily on our licensees in the commercialization and continued development of products from which we receive revenue and, if our licensees are not effective, or if disputes arise in respect of our contractual arrangements, our revenues could be materially adversely affected.

Our arrangements with licensees are critical to bringing to market and/or successfully commercializing products using our proprietary technologies and from which we receive manufacturing and/or royalty revenue. We rely on these licensees in various respects, including commercializing such products, conducting development activities with respect to new formulations or new indications for such products, and/or managing the regulatory approval process for such products.

We earn significant royalty and/or manufacturing revenue from sales by our licensees of our licensed products and third-party products incorporating our proprietary technologies. The revenues we receive from such products depend primarily upon the success of our licensees in commercializing such products. For example, we receive substantial revenue from Janssen's sales of the long-acting INVEGA products and RISPERDAL CONSTA and from Biogen's sales of VUMERITY and FAMPYRA. We have no involvement in the commercialization efforts for these and other products sold by third parties from which we receive revenue and cannot control the extent or effectiveness of such commercialization efforts.

Disputes may also arise between us and a licensee involving the ownership of technology developed under a license, the use of our technology, including know-how, in third-party products, the terms and amounts of royalty payments to be paid under a license, or other issues arising out of any licenses or other collaborative agreements. Such disputes may delay related development programs, impact commercialization or manufacturing activities for the related products, impact the timing or amount of revenue that we receive in respect of such products, or result in expensive arbitration, litigation or other dispute resolution, which may not be resolved in our favor and may adversely impact our financial condition.

Further, certain of our license agreements may be terminated, with or without cause, or assigned in connection with a change in control or other event, and we cannot guarantee that any of these relationships will continue or that our licensees will be able or willing to continue to perform their obligations, including development, commercialization or payment obligations, under such agreements. Any significant negative developments relating to our relationships with our licensees or our collaborative arrangements could have a material adverse effect on our business, financial condition, cash flows and results of operations and on the market price of our ordinary shares.

For example, in November 2021 we received notice of partial termination of an exclusive license agreement with Janssen. Under this license agreement, we provided Janssen with rights to, and know-how, training and technical assistance in respect of, our small particle pharmaceutical compound technology, known as NanoCrystal technology, which was used to develop INVEGA SUSTENNA/XEPLION, INVEGA TRINZA/TREVICTA, and INVEGA HAFYERA/BYANNLI. When the partial termination became effective in February 2022, Janssen ceased paying royalties related to sales of INVEGA SUSTENNA, INVEGA TRINZA and INVEGA HAFYERA in the U.S. The announcement of Janssen's partial termination, expectations regarding the loss of royalty revenues from U.S. sales of such products resulting from such termination, and actual losses of royalty revenues that have resulted from such termination, caused the market price of our ordinary shares to decline significantly. In April 2022, we commenced binding arbitration proceedings related to, among other things, Janssen's partial termination of this license agreement and Janssen's royalty and other obligations under the agreement. On December 21, 2022, we received an Interim Award in these proceedings from the Tribunal, in which the Tribunal agreed with our position that, while Janssen may terminate the agreement, it may not continue to sell Products (as defined in the agreement) developed during the term of the agreement without paying royalties pursuant to the term of the agreement. This award is not yet final. We will engage with Janssen and the Tribunal in additional proceedings prior to the Tribunal's issuance of a final award and cannot be certain of the outcome of the final award or the impact that such final award may have on our business, financial condition, cash flows and results of operations.

For these and other reasons that may be outside of our control, our revenues from products sold by our licensees, and related commercial milestone payments, may fall below our expectations, the expectations of our licensees or those of our shareholders, which could have a material adverse effect on our results of operations and the market price of our ordinary shares.

We face competition in the biopharmaceutical industry.

We face intense competition in the development, manufacture, marketing and commercialization of our products from many and varied sources, such as research institutions and other biopharmaceutical companies, including companies with similar technologies or medicines, and manufacturers of generic drugs. Some of these competitors are also our licensees, who control the commercialization of products from which we receive manufacturing and/or royalty revenues. For example, our proprietary products ARISTADA and LYBALVI compete with the long-acting INVEGA products and RISPERDAL CONSTA, products from which we receive manufacturing and/or royalty revenues.

The biopharmaceutical industry is characterized by intensive research, development and commercialization efforts and rapid and significant technological change. In many cases, there are already products on the market that may be in direct competition with our commercial products or products in development. In addition, there are many companies developing generic versions of our products, or products with similar technologies to ours or for use in similar indications with whom we and our licensees compete, many of whom are larger and have significantly greater financial and other resources than we do. Other smaller or earlier stage companies may

also prove to be significant competitors, particularly through focused development programs and collaborative arrangements with large, established companies. Some of the products being developed by our competitors are being designed to work differently than our products and may turn out to be safer or more effective than our products, which may render our products or technology platforms obsolete or noncompetitive. For a detailed discussion of the competition that we face with respect to our current marketed products, technology platforms and product indications, please see the section entitled "*Competition*" in "Item 1—Business" in this Annual Report. If we are unable to compete successfully in this highly competitive biopharmaceutical industry, our business, financial condition, cash flows and results of operations could be materially adversely affected.

Our revenues from sales of our products may decrease or grow at a slower than expected rate due to many factors.

We cannot be assured that our products will be, or will continue to be, accepted in the U.S. or markets outside the U.S. or that we will be able to maintain or increase sales of our products. Factors that may cause revenues from our products to grow at a slower than expected rate, decrease or cease all together, include, among others:

- the perception of physicians and other members of the healthcare community as to our products' safety and efficacy relative to that of competing products and the willingness or ability of physicians and other members of the healthcare community to prescribe, dispense and/or administer, and patients to use, our products;
- unfavorable publicity concerning us, our licensees, our products, similar classes of drugs or the industry generally;
- the cost-effectiveness of our products and reimbursement policies of government and third-party payers that may impact use of our products;
- the cost and availability of raw materials necessary for the manufacture of our products;
- the successful manufacture of our products on a timely and cost-effective basis;
- the size of the markets for our products, and patient and physician satisfaction with our products;
- significant changes in the competitive landscape for our products, including any approval of generic versions of our products or other branded products that may compete with our products;
- adverse event information relating to our products or to similar classes of drugs;
- changes to the product labels of our products, or of products within the same drug classes, to add significant warnings or restrictions on use;
- our continued ability to engage third parties to package and/or distribute our products on acceptable terms;
- the unfavorable outcome of investigations, arbitrations, litigation or other legal proceedings, including government requests for information regarding VIVITROL, securities litigation, IP litigation, including so-called "Paragraph IV" litigation relating to VIVITROL and other products from which we receive revenue, litigation or other proceedings before the U.S. Patent and Trademark Office's (the "USPTO") Patent Trial and Appeal Board (the "PTAB") or its equivalent in other jurisdictions outside of the U.S., including opposition proceedings in the EU and any other litigation or arbitration related to any of our products;
- regulatory developments and actions related to the manufacture, commercialization or continued use of our products, including FDA actions such as the issuance of a REMS or warning letter, or conduct of an audit by the FDA or another regulatory authority in which a manufacturing or quality deficiency is identified;
- the extent and effectiveness of the sales, marketing and distribution support for our products, including our licensees' decisions as to the timing and volume of product orders and shipments, the timing of product launches, and product pricing and discounting;
- disputes with our licensees relating to the use of our technology in, and marketing and sale of, products from which we received, or currently receive, manufacturing and/or royalty revenue and the amounts to be paid with respect to such products, including the dispute relating to our license agreement with Janssen described above;
- exchange rate valuations and fluctuations;
- U.S. and global political changes and/or instability, and any related changes in applicable laws and regulations, that may impact resources and markets for our products;
- the impacts that the ongoing COVID-19 pandemic may have on the development, manufacture and commercialization of our products; and
- any other material adverse developments with respect to the commercialization of our products.

Revenues generated by sales of our products depend, in part, on the availability from third-party payers of reimbursement for our products and the extent of cost-sharing arrangements for patients (e.g., patient co-payment, co-insurance, deductible obligations) and cost-control measures imposed, and any reductions in payment rate or reimbursement or increases in our or in patients' financial obligation to payers could result in decreased sales of our products and/or decreased revenues.

In both U.S. and non-U.S. markets, sales of our products depend, in part, on adequate coverage, pricing and reimbursement from third-party payers such as state and federal governments, including Medicare and Medicaid in the U.S. and similar programs in other countries, managed care providers and private insurance plans. Deterioration in the timeliness, certainty and amount of reimbursement for our products, the existence of barriers to coverage of our products (such as prior authorization, criteria for use or other requirements), increases in our financial obligation to payers, including government payers, limitations by healthcare providers on how much, or under what circumstances, they will prescribe or administer our products or unwillingness by patients to pay any required co-payments, or deductible amounts, could reduce the use of, and revenues generated from, our products and could have a material adverse effect on our business, financial condition, cash flows and results of operations.

The availability of government and private reimbursement for our products and coverage restrictions that may be imposed for our products are uncertain, as is the amount for which our products will be reimbursed. Pricing and reimbursement for our products may be adversely affected by a number of factors, including: changes in, and implementation of, federal or state government regulations or private third-party payors' reimbursement policies; pressure by employers on private health insurance plans to reduce costs; and consolidation and increasing assertiveness of payors seeking price discounts or rebates in connection with the placement of our products on their formularies and, in some cases, the imposition of restrictions on access or coverage of particular drugs or pricing determined based on perceived value. We cannot predict the availability, amount, or consistency of reimbursement for, or the prevalence and extent of other access barriers to, our products.

In the U.S., federal and state legislatures, health agencies and third-party payers continue to focus on containing the cost of healthcare. In August 2022, the Inflation Reduction Act was signed into law. The Inflation Reduction Act includes several provisions that will impact our business to varying degrees, including those that impose new manufacturer financial liability on all drugs in Medicare Part D beginning in 2025, allow the U.S. government to negotiate prices for some drugs covered under Medicare Part D beginning in 2026 and Medicare Part B in 2028, and require companies to pay rebates to Medicare beginning in 2023 for drug prices that increase faster than inflation.

In addition, economic pressure on state budgets may result in states increasingly seeking to achieve budget savings through mechanisms that limit coverage or payment for drugs, including but not limited to price control initiatives, discounts and other pricing-related actions. State Medicaid programs are increasingly requesting that manufacturers pay supplemental rebates and are requiring prior authorization by the state program for use of any drug. Managed care organizations continue to seek price discounts and, in some cases, to impose restrictions on the coverage of particular drugs. U.S. government efforts to reduce Medicaid expenses may lead to increased use of managed care organizations by Medicaid programs. This may result in managed care organizations influencing prescription decisions for a larger segment of the population and a corresponding constraint on prices and reimbursement for our products.

Furthermore, we may face uncertainties as a result of efforts to repeal, substantially modify or invalidate some or all of the provisions of the PPACA, whether by legislative means or through litigation, and further potential reforms to government negotiation or regulation of drug pricing. The PPACA significantly expanded coverage of mental health and substance use disorders and provided federal parity protections to such coverage benefits. If successful, such efforts and proposed legislation or other future federal or state legislative or administrative changes relating to healthcare reform and drug pricing could adversely affect our business and financial results. Additional discounts, rebates, coverage or plan changes, restrictions or exclusions as described above could have a material adverse effect on sales of our affected products. Our failure to obtain or maintain adequate coverage, pricing or reimbursement for our products could have an adverse effect on our business, reputation, revenue and results of operations.

Many payors continue to adopt benefit plan changes that shift a greater portion of prescription costs to patients, including more limited benefit plan designs, higher patient co-pay or co-insurance obligations and limitations on patients' use of commercial manufacturer co-pay payment assistance programs (including through co-pay accumulator adjustment or maximization programs). Significant consolidation in the health insurance industry has resulted in a few large insurers and pharmacy benefit managers exerting greater pressure in pricing and usage negotiations with drug manufacturers, significantly increasing discounts and rebates required of manufacturers and limiting patient access and usage. In addition, pharmacy benefit managers have combined with specialty and mail order pharmacies and provider groups. Further consolidation among insurers, pharmacy benefit managers, other entities in the pharmaceutical supply chain and other payors would increase the negotiating leverage such entities have over us and other drug manufacturers.

In the U.S., to help patients afford our approved products, we may utilize programs to assist them, including patient assistance programs and co-pay programs for eligible patients. Government enforcement agencies have shown increased interest in pharmaceutical companies' product and patient assistance programs, including reimbursement support services, and a number of investigations into these programs have resulted in significant civil and criminal settlements. Our co-pay programs could become the target of similar insurer actions. In addition, in November 2013, CMS issued guidance to the issuers of qualified health plans sold through the PPACA's marketplaces encouraging such plans to reject patient cost-sharing support from third parties and indicating that

CMS intends to monitor the provision of such support and may take regulatory action to limit it in the future. CMS subsequently issued a rule requiring individual market qualified health plans to accept third-party premium and cost-sharing payments from certain government-related entities. In September 2014, the Office of Inspector General of the U.S. Department of Health and Human Services issued a Special Advisory Bulletin warning manufacturers that they may be subject to sanctions under the federal anti-kickback statute and/or civil monetary penalty laws if they do not take appropriate steps to exclude Part D beneficiaries from using co-pay programs. It is possible that changes in insurer policies regarding co-pay programs and/or the introduction and enactment of new legislation or regulatory action could restrict or otherwise negatively affect these patient support programs, which could result in fewer patients using affected products, and therefore could have a material adverse effect on our sales, business, and financial condition.

Clinical trials for our products are expensive, may take several years to complete, and their outcomes are uncertain.

In order to obtain regulatory approvals for the commercial sale of any product, we or our licensees must demonstrate, through preclinical testing and clinical trials, that such product is safe and effective for use in humans. Designing, conducting and completing a clinical development program is often a lengthy, time-consuming and expensive process. We have incurred, and we will continue to incur, substantial expenses for preclinical testing, clinical trials and other activities related to our clinical development programs.

Our preclinical and clinical development efforts may take several years or more, varying substantially with the type, complexity, novelty and intended use of the product and the clinical study designs and methodologies employed, and may not be successfully completed in a timely manner or at all. Timelines for the initiation, conduct and completion of clinical trials may be delayed by many factors, including:

- issues with the opening, operation or inspection of a new or ongoing clinical trial site;
- delays or failures of third-party CROs and other third-party service providers and clinical investigators to manage and conduct the trials, perform oversight of the trials, including data audit and verification procedures, or to meet expected deadlines;
- an inability to recruit clinical trial participants at the expected rate or at all, or to adequately follow participants following treatment;
- unforeseen safety or tolerability issues;
- an inability to manufacture or obtain sufficient quantities of materials used for clinical trials;
- unforeseen governmental or regulatory issues or concerns, including those of the FDA and other regulatory agencies;
- impacts of the potential separation of our neuroscience and oncology businesses; and
- global instability, including instability relating to political events or a global pandemic or other contagious disease, such as COVID-19, in or near the countries in which we conduct our clinical trials.

In addition, we are currently conducting and enrolling patients in clinical studies in a number of countries where our experience is more limited. In these instances, we must depend on third parties, including independent clinical investigators, CROs and other third-party service providers, to successfully conduct our clinical trials and to audit, verify and accurately report results from such trials. Though we do not have much control over many aspects of such third-party activities, we are responsible for ensuring that each of our clinical trials is conducted in accordance with the general investigational plan and protocols for the trial. Third parties may not complete planned activities on schedule or conduct our trials in accordance with regulatory requirements or our stated protocols.

The outcome of our clinical trials is uncertain. The results from preclinical testing and early clinical trials often have not predicted results of later clinical trials. A number of products have shown promising results in early clinical trials but subsequently failed to establish sufficient safety and efficacy data in later clinical trials to obtain necessary regulatory approvals.

If a product fails to demonstrate safety and efficacy in clinical trials, or if we and/or third parties fail to manage or conduct clinical trials in a timely manner or in accordance with study protocols or obligations, the development, approval and commercialization of our products may be delayed or prevented, and such events could materially adversely affect our business, financial condition, cash flows and results of operations.

Preliminary, topline or interim data from our clinical trials that we may announce, publish or report from time to time may change as more patient data become available or based on subsequent audit and verification procedures, and may not be indicative of final data from such trials, data from future trials or real-world results.

From time to time, we may announce, publish or report preliminary, topline or interim data from our clinical trials, including those we are conducting in oncology. Such data are subject to the risk that one or more of the clinical outcomes may materially change as patients continue progressing through the study (for example, in oncology studies, a patient may progress from a complete or partial response to progressive disease), as patient enrollment continues and/or as more patient data become available, and such data may not

be indicative of final data from such trials, data from future trials or real-world results. In addition, such data may remain subject to audit confirmation and verification procedures that may result in the final data being materially different from the preliminary, topline or interim data disclosed. As a result, all preliminary, topline and interim data should be viewed with caution until the final data are available. Material adverse differences between preliminary, topline or interim data and final data could significantly harm our business, financial condition, cash flows and results of operations.

The FDA or other regulatory agencies may not agree with our regulatory approval strategies or components of our filings for our products and may not approve, or may delay approval of, our products.

We must obtain government approvals before marketing or selling our products. The FDA in the U.S., and comparable regulatory agencies in other jurisdictions, impose substantial and rigorous requirements for the development, manufacture and commercialization of medicines, the satisfaction of which can take a significant number of years and can vary substantially based upon the type, complexity and novelty of the product.

In addition, regulation is not static, and regulatory agencies, including the FDA, evolve in their staff, interpretations and practices and may impose more stringent requirements than currently in effect, which may adversely affect our plans for product development, manufacture and/or commercialization. The approval procedure and the time required to obtain approval also varies among countries. Regulatory agencies may have varying interpretations of the same data, and approval by one regulatory agency does not ensure approval by regulatory agencies in other jurisdictions. In addition, the FDA or other regulatory agencies may choose not to communicate with or update us during clinical testing and regulatory review periods and the ultimate decision by the FDA or other regulatory agencies regarding drug approval may not be consistent with prior communications.

The product approval process can last many years, be very costly and still be unsuccessful. Regulatory approval by the FDA or other regulatory agencies can be delayed, limited or not granted at all for many reasons, including:

- a product may not demonstrate safety and efficacy for each target indication in accordance with applicable regulatory agencies' standards;
- data from preclinical testing and clinical trials may be interpreted by applicable regulatory agencies in different ways than we or our licensees interpret it;
- regulatory agencies may not agree with our or our licensees' regulatory approval strategies, plans for accelerated development timelines, components of our or our licensees' filings such as clinical trial designs, conduct and methodologies, or the sufficiency of our or our licensees' submitted data to meet their requirements for product approval;
- regulatory agencies might not approve our or our licensees' manufacturing processes or facilities, or those of the CROs and contract manufacturing organizations who conduct research or manufacturing work on our or our licensees' behalf;
- failure by our clinical investigational sites and the records kept at such sites, including any clinical trial data, to be in compliance with the FDA's GCP, or EU legislation governing GCP, or to pass FDA, EMA or EU member state inspections of clinical trials;
- regulatory agencies may change their requirements for approval or post-approval marketing; and
- adverse medical events during the trials could lead to requirements that trials be repeated or extended, or that a program be terminated or placed on clinical hold, even if other studies or trials relating to the program are successful.

In addition, disruptions at the FDA and other regulatory agencies that are unrelated to our company or our products, including those relating to COVID-19, a prolonged U.S. government shutdown, or other political or economic conditions, could cause delays to the regulatory approval process for our products.

Any failure to obtain, or delay in obtaining, regulatory approval for our products will prevent or delay their commercialization and could have a material adverse effect on our business, financial condition, cash flows and results of operations. In addition, any failure to obtain, or delay in obtaining, approval for our products could have a material impact on our shareholders' confidence in the strength of our development capabilities and/or our ability to generate significant revenue from our development programs and could result in a significant decline in our share price.

The FDA or other regulatory agencies may impose limitations or post-approval requirements on approvals for our products.

Even if regulatory approval to market a product is granted by the FDA or other regulatory agencies, the approved label for the product may not be consistent with our initial expectations or commercial plans. For example, the FDA or other regulatory agencies may impose limitations on the clinical data that may be included in the label for the product or the indicated uses for which, or the manner in which, the product may be marketed, or may impose additional post-approval requirements, such as a REMS, with which we would need to comply in order to maintain the approval of such product. Our business could be seriously harmed if we do not complete these post-approval requirements and, as a result, the FDA or other regulatory agencies require us to change the label for such product, or if such post-approval requirements significantly restrict the marketing, sale or use of such product.

In addition, legislation and regulatory policies relating to post-approval requirements and restrictions on promotional activities for pharmaceutical products, or FDA or other regulatory agency regulations, guidance or interpretations with respect to such legislation or regulatory policy may change, which may impact the development and commercialization of our products.

We are subject to risks related to the manufacture of our products.

The manufacture of pharmaceutical products is a highly complex process in which a variety of difficulties may arise from time to time. We have in the past, and may in the future, face unanticipated interruptions or delays in manufacturing through our internal or external supply chain and resources. Such disruptions can occur for many reasons, including, but not limited to, the supply and quality of API, drug product and other product components and any potential shortages of such materials; regulatory actions; failures relating to materials, manufacturing equipment or processes, quality deviations or safety issues, vendor error, operator error, labor shortages or disputes, utility or transportation disruptions, or physical or electronic security breaches; site-specific incidents (such as fires), environmental incidents, natural disasters and other severe weather events, including those that may occur as a result of climate change, or global disruptions such as the current global pandemic and the ongoing war in Ukraine; and many other factors.

Any such problems with manufacturing processes, whether at our facilities or those of our licensees or other third parties that manufacture or package products or components of products on our behalf, could result in product defects or shortages, manufacturing failures or products not being manufactured to their applicable specifications, which could require us to delay shipment of products or recall products previously shipped, or could impair our or our licensees' ability to receive regulatory approval for a product, commercially launch a product, expand into new markets or supply products in existing markets. We may not be able to resolve any such issues in a timely manner, or at all, which could result in declines in sales and reputational damage as well as significant remediation costs to address any issues that arise.

We rely solely on our manufacturing facility in Wilmington, Ohio for the manufacture of RISPERDAL CONSTA, VIVITROL, ARISTADA, ARISTADA INITIO and LYBALVI and on our manufacturing facility in Athlone, Ireland for the manufacture of FAMPYRA, VUMERITY, other products using our NanoCrystal or OCR technologies and certain of our other products in development. Due to regulatory and technical requirements, we have limited ability to shift production among our facilities or to outsource any portions of our manufacturing to third parties in the event of an interruption in manufacturing or demand for manufacturing that exceeds our capacity at the applicable facility. Any need to shift production among our facilities or transition our manufacturing processes, or portions thereof, to a third party, whether due to an interruption in our manufacturing or to demand for a product that exceeds our manufacturing capacity, could take a significant amount of time and money, may not be successful, and could cause significant interruption or delay in our ability to supply product.

Any interruption or delay in supply, whether resulting from issues with equipment, materials, personnel, manufacturing processes, or internal or external quality audits or reviews, could result in delays in meeting our contractual obligations and could damage our reputation and relationships with our licensees, including the loss of manufacturing and supply rights and/or revenues.

Our manufacturing facilities also require specialized personnel and are expensive to operate and maintain. Any interruption in manufacturing, delay in a regulatory approval or commercial launch, or recall or suspension of sales of products manufactured in our facilities, may cause operating losses as we continue to operate these facilities and retain the required specialized personnel. In addition, any significant personnel shortages at our manufacturing facilities, whether temporary or prolonged, including shortages resulting from impacts of the COVID-19 pandemic or related to the labor market more broadly, may cause significant interruptions to our manufacturing facilities and to our supply of products.

We are also dependent in certain cases on third parties who manufacture or distribute certain products from which we receive revenue. Supply or manufacturing issues related to such products could materially and adversely affect sales of such products, and in turn our revenue from such products.

We rely on third parties to provide goods and services in connection with the manufacture and distribution of the products we manufacture.

We rely on third parties for the timely supply of goods and services that play a role in our manufacturing activities, including, among others, specified raw materials, equipment, contract manufacturing, formulation and packaging services, storage and product distribution services, customer service activities and product returns processing, and some of these goods and services for our products are currently only available from a single source or a limited number of qualified sources. Although we actively manage these third-party relationships to ensure continuity, quality and compliance with applicable regulations, events beyond our control, including natural disasters and other severe weather events, including those that may occur as a result of climate change, or global disruptions such as the current global pandemic and the ongoing war in Ukraine, could negatively impact the continuity of supply of such materials and/or services, their quality and their compliance with applicable standards. Any such failure could materially adversely affect our business, financial condition, cash flows and results of operations.

The manufacture of products and product components, including the procurement of bulk drug product and other materials used in the manufacture, packaging, storage and distribution of our products, requires successful coordination among us and multiple third-party providers. Lack of capacity available at such third-party providers or any other issues with the quality or operations of these

third-party providers, including any issues related to regulatory permits, audits or requirements, could require us to delay shipment of saleable products, recall products previously shipped or impair our ability to supply products at all.

We endeavor to qualify and register new vendors and to develop contingency plans so that production is not materially impacted by third-party provider issues. Nonetheless, any such third-party provider issues could increase our costs, cause us to lose revenue or market share and damage our reputation, and may have a material adverse effect on our business, financial condition, cash flows and results of operations.

In addition, we rely heavily on the three largest pharmaceutical wholesalers in the U.S. market—Cardinal Health Inc., AmerisourceBergen Corp. and McKesson Corp—in the distribution of the products that we market and sell in the U.S. If we are unable to maintain our business relationships with these wholesalers on commercially acceptable terms, if the buying patterns of these wholesalers fluctuate due to seasonality or any other reason or if wholesaler buying decisions or other factors outside of our control change, our business, financial condition, cash flows and results of operations could be materially adversely affected.

If we or our third-party providers fail to meet the stringent requirements of governmental regulation in the manufacture of our products, we could incur substantial remedial costs and a reduction in sales and/or revenues.

We and the third-party providers that play a role in our manufacturing activities are generally required to comply with cGMP regulations and other applicable non-U.S. standards in the manufacture of our products or components of our products. If any of our products or components of our products in the U.S. are scheduled by the DEA as controlled substances, we would also be subject to DEA regulations. We and our third-party providers are subject to unannounced inspections by the FDA and other agencies to confirm compliance with all applicable laws. Any changes to our suppliers or modifications of methods of manufacturing require submission of amendments to our NDAs or other marketing applications to the FDA or other applicable regulatory agencies, and ultimate acceptance by such agencies of such amendments, prior to release of product to the applicable marketplace. Our inability or the inability of our third-party providers to demonstrate ongoing compliance with cGMP or other regulatory requirements could require us to withdraw or recall products and interrupt clinical and commercial supply of our products. Any delay, interruption or other issues that may arise in the manufacture, formulation, packaging or storage of our products as a result of a failure of our facilities or operations or the facilities or operations of third-party providers to pass any regulatory agency inspection could significantly impair our ability to develop, obtain and maintain regulatory approval of, and commercialize or supply, products. This could increase our costs, cause us to lose revenue or market share and damage our reputation with our collaboration partners or in the market generally.

In March 2020, in response to the COVID-19 pandemic, the Coronavirus Aid, Relief, and Economic Security ("CARES") Act was signed into law in the U.S., and served to increase the FDA's existing authority with respect to drug shortage measures. Under the CARES Act, for each facility where marketed products for certain serious diseases or conditions are manufactured, or where components of such products are manufactured, we are required to have a risk management plan in place that identifies and evaluates risks to the supply of such products or product components, which plans may be subject to review during any FDA inspection. Each of our facilities operates in accordance with a comprehensive quality management system, which includes risk assessment, preventive actions and regular review of inventory levels for each of the marketed products that we manufacture; however, there is no guarantee that the FDA will consider our risk management program to be sufficient upon inspection or that we will not experience shortages in the supply of marketed products that we manufacture, which could materially adversely affect the patients who rely on such marketed products and our business, financial condition, cash flows and results of operations. The FDA and various regulatory agencies outside the U.S. have inspected and approved our commercial manufacturing facilities. However, we cannot guarantee that the FDA or any other regulatory agencies will approve any other facility that we or our third-party providers may operate or, once approved, that any of these facilities will remain in compliance with cGMP and other regulations. Any third party we use to manufacture bulk drug product for use in the U.S. must be licensed by the FDA. Failure by us or our third-party providers to gain or maintain regulatory compliance with and approvals from the FDA or other regulatory agencies could materially adversely affect our business, financial condition, cash flows and results of operations.

Adverse market conditions may exacerbate certain risks inherent to our business, including risk of non-payment from licensees and customers and reimbursement for our products.

Adverse market conditions or other business developments may cause disruptions, delays or significant financial impact to our business or to the businesses of third parties from which we receive revenues, or reductions in the availability or extent of reimbursement available to us. For example, we depend on our licensees and customers for substantial portions of our revenue, and the contracts with our licensees and customers pursuant to which we supply product, or under which we are eligible for certain development or sales milestones or royalties related to products that incorporate our proprietary technologies, may not be secured by collateral or other security. Accordingly, we bear the risk that our licensees may not be able to pay amounts due to us under such contracts.

In addition, as a result of adverse market conditions, organizations that provide reimbursement for use of our products, such as government health administration authorities and private health insurers, may be unable to satisfy such reimbursement obligations or may delay payment. In addition, U.S. federal and state health authorities may reduce the extent of their reimbursements (including Medicare and Medicaid reimbursements in the U.S.) or payments, and private insurers may increase their scrutiny of claims. If such

licensees or other third parties are unable or unwilling to pay amounts owed to us or satisfy their commitments to us, or if there are reductions to such payments or commitments, our business, financial condition, cash flows and results of operations may be materially adversely affected.

Our success largely depends upon our ability to attract, recognize and retain key personnel.

Our ability to compete and succeed in the highly competitive biopharmaceutical industry and in the disease states in which we market and sell products depends largely upon our ability to attract, recognize and retain highly skilled technical, scientific, manufacturing, management, regulatory, compliance and selling and marketing personnel. Each of our executive officers and all of our employees are employed "at will," meaning we or each officer or employee may terminate the employment relationship at any time. We face intense competition for employees, due, among many factors, to the geographic locations in which we operate and the competitive benefits and compensation practices in our industry, and in recent years, new competition as employees are increasingly able to work remotely. The loss of key personnel due to any of these factors or our inability to hire and retain personnel who have technical, scientific, manufacturing, management, regulatory, compliance or commercial backgrounds could materially adversely impact our business, including the achievement of our manufacturing, research and development, commercial, financial and other operational and strategic business objectives.

The increasing use of social media platforms presents new risks and challenges.

Social media is increasingly being used as a means of corporate communications and for purposes of social networking and commentary. We are increasingly using social media tools to communicate certain information about our business, our employees, our company values and corporate responsibility initiatives, to support disease state education in our areas of focus, and to provide information about our products or development programs. Despite our efforts to monitor evolving social media guidance and to comply with applicable rules, regulations and regulatory guidance relating to social media, such practices are evolving and not always clear. There is a risk that the use of social media by us or our employees to communicate about our products or business may cause us to be found in violation of applicable requirements and could result in regulatory actions or legal claims against us related to off-label marketing or other prohibited activities. In addition, our employees may knowingly or inadvertently engage on social media in ways that may not comply with our social media policy or other legal, contractual or regulatory requirements, which may give rise to liability, lead to the loss of trade secrets and other intellectual property, or result in public disclosure of personal information of our employees, clinical trial patients, customers, and others. In addition, negative or inaccurate posts or comments about us or our products on any social media platforms could damage our reputation, brand image and goodwill. If such disclosures were to occur, there is a risk that we fail to monitor and comply with applicable adverse event reporting obligations or that we may not be able to defend the Company or the public's legitimate interests due to restrictions on what we may say about our products or our business. Any of these events, if they were to occur, could cause us to incur liability, face overly restrictive regulatory actions or suffer reputational or other harm to our business.

Risks Related to Intellectual Property

Patent and other IP protection for our products is key to our business and our competitive position but is uncertain.

Receiving and maintaining patent and/or trademark protection for our products and technologies, including those that are subject to our licensing arrangements, maintaining our trade secrets, not infringing the proprietary rights of others, and preventing others from infringing our proprietary rights are each key to our success and our competitive position.

Patent protection provides rights of exclusivity for the term of the patent. We are able to protect our proprietary rights from unauthorized use by third parties only to the extent that our proprietary rights are covered by valid and enforceable patents or are effectively maintained as trade secrets. In this regard, we try to protect our proprietary position by filing patent applications in the U.S. and elsewhere related to our proprietary product inventions and improvements that are important to our business and products. Our pending patent applications, together with those we may file in the future, or those we may license to or from third parties, may not result in patents being issued. Even if issued, such patents may not provide us with sufficient proprietary protection or competitive advantages against competitors with similar products or technology. Because the patent positions of biopharmaceutical companies involve complex legal and factual questions, enforceability of patents cannot be predicted with certainty. The ultimate degree of patent protection that will be afforded to products and processes, including ours, and those of our licensees, in the U.S. and in other important markets, remains uncertain and is dependent upon the scope of protection decided upon by the patent offices, courts and lawmakers in these countries. The development of new technologies or products may take a number of years, and there can be no assurance that any patents which may be granted in respect of such technologies or products will not have expired or be due to expire by the time such products are commercialized, or that such patents will successfully withstand any challenges during their respective terms.

Although we make reasonable efforts to protect our IP rights and to ensure that our proprietary technology does not infringe the rights of third parties, we cannot ascertain the existence of all potentially conflicting IP claims. Therefore, there is a risk that third parties may make claims of infringement against our products or technologies. If patents exist or are issued that cover our products or technologies, we may not be able to manufacture, use, offer for sale, sell or import such products without first getting a license from the patent holder. The patent holder may not grant us a license on reasonable terms, or it may refuse to grant us a license at all. This

could delay or prevent us from developing, manufacturing, selling or importing those of our products that would require the license. Claims of IP infringement may also require that we redesign affected products, enter into costly settlement or license agreements, pay costly damage awards, or face a temporary or permanent injunction prohibiting us from marketing or selling certain of our products. Even if we have an agreement that may serve to indemnify us against such costs, the indemnifying party may be unable to uphold its contractual obligations. If we cannot, or do not, license the infringed technology on reasonable terms or at all, or substitute similar technology from another source, our business, financial condition, cash flows and results of operations could be materially adversely affected.

Patents, if issued, may be challenged, invalidated or circumvented. As our products achieve greater commercial sales, potential competitors are more likely to seek to challenge our patents. The laws of certain countries may not protect our IP rights to the same extent as the laws of the U.S., and any patents that we own or license from others may not provide any protection against competitors. In addition, in the case of certain of our licensed products or products incorporating our licensed technology, our licensees are responsible for prosecuting, maintaining, enforcing and defending the IP related to the product(s) from which we derive revenue. Their failure to secure, maintain, enforce and defend this IP could materially and adversely affect our business, financial condition, cash flows, and results of operations.

We also rely on trade secrets, know-how and inventions, which are not protected by patents, to maintain our competitive position. We try to protect this information by entering into confidentiality agreements with parties that have access to it, such as our licensees, licensors, contract manufacturers, potential business partners, employees and consultants. However, any of these parties may breach such agreements and may disclose our confidential information, or our competitors might learn of the information in some other way. To the extent that our employees, consultants or contractors use IP owned by others in their work for us, disputes may arise as to the rights in related or resulting know-how and inventions. If any trade secret, know-how or other invention not protected by a patent were to be disclosed to, or independently developed by, a competitor, such event could materially and adversely affect our business, financial condition, cash flows and results of operations.

Uncertainty over IP in the biopharmaceutical industry has been the source of litigation, which is inherently costly and unpredictable, could significantly delay or prevent approval or negatively impact commercialization of our products, and could adversely affect our business.

There is considerable uncertainty within the biopharmaceutical industry about the validity, scope and enforceability of many issued patents in the U.S. and elsewhere in the world. We cannot currently determine the ultimate scope, validity and enforceability of patents which may be granted to third parties in the future or which patents third parties may assert are infringed by the manufacture, use or sale of our products.

Stemming in part from this uncertainty, there has been, and we expect that there may continue to be, significant litigation and an increasing number of *inter partes* reviews ("IPRs") and administrative proceedings in the pharmaceutical industry regarding patents and other IP rights. A patent holder might file an IPR, interference and/or infringement action against us, including in response to patent certifications required under the Hatch-Waxman Act, claiming that certain claims of one or more of our issued patents are invalid or that the manufacture, use, offer for sale, sale or import of our products infringed one or more of such party's patents. We may have to expend considerable time, effort and resources to defend such actions, and litigation may be necessary in some instances to determine the validity and scope of certain of our proprietary rights.

In addition, we may need to enforce our IP rights against third parties who infringe on our patents and other IP or challenge our patents, patent applications or trademark applications. Litigation and trial proceedings, such as so-called Paragraph IV litigation and IPRs, concerning patents and other IP rights may be expensive, protracted and distracting to management, with no certainty of success. As a result, we may at times give up certain rights with respect to our IP in order to avoid or resolve timely and costly IP litigation or IPR proceedings. For example, in July 2019, in order to resolve an IPR instituted by Amneal with the PTAB, we granted Amneal a non-exclusive license under certain patents covering VIVITROL, including the latest to expire patent covering VIVITROL in the U.S., to market and sell a generic formulation of VIVITROL in the U.S. beginning sometime in 2028 or earlier under certain circumstances. Ultimately, the outcome of such litigation and proceedings, or any settlement arrangement with respect thereto, could adversely affect our business and the validity and scope of our patents or other proprietary rights or delay or prevent us from manufacturing and marketing our products.

We or our licensees may face claims against IP rights covering our products and competition from generic drug manufacturers.

In the U.S., generic manufacturers of innovator drug products may file ANDAs and, in connection with such filings, certify that their products do not infringe the innovator's patents or that the innovator's patents are invalid. This often results in litigation between the innovator and the ANDA applicant. This type of litigation is commonly known in the U.S. as "Paragraph IV" litigation.

For example, Teva entities filed an ANDA seeking approval to engage in the commercial manufacture, use or sale of a generic version of VIVITROL and alleging that one of our Orange-Book patents related to VIVITROL is invalid, unenforceable and/or will not be infringed by Teva's proposed product. In September 2020, we initiated a Paragraph IV lawsuit against Teva to dispute such claims. A trial is scheduled to begin on February 16, 2023.

Although we intend to vigorously defend our IP rights, and we expect our licensees to do the same, there can be no assurance that we or our licensees will prevail. Our and our licensees' existing patents could be invalidated, found unenforceable or found not to cover generic forms of our or our licensees' products. If Teva or other ANDA filers were to receive FDA approval to sell generic versions of our products or the products from which we receive revenue and/or prevail in any patent litigation with respect to such products, such products would become subject to increased competition, and our business, financial condition, cash flows and results of operations could be materially adversely affected.

Risks Related to Regulatory or Legal Matters

Litigation or arbitration filed against Alkermes, including securities litigation, or actions (such as citizens petitions) filed against regulatory agencies in respect of our products, may result in financial losses, harm our reputation, divert management resources, negatively impact the approval of our products, or otherwise negatively impact our business.

We are, and may in the future become, involved in various legal proceedings, including those asserting violations of securities and/or fraud and abuse laws and those asserting claims related to product liability, intellectual property and/or contractual arrangements. Such proceedings may include claims for, or the possibility of, damages or fines and penalties involving substantial amounts of money or other relief, including but not limited to civil or criminal fines and penalties. Such legal proceedings and the preparation therefor may result in substantial costs to us and diversion of management's attention and resources, which in turn could harm our business. Moreover, if any of such legal proceedings were to result in an adverse outcome, such outcome could have a material adverse effect on our business, financial condition, cash flows and results of operations.

Further, our liability insurance coverage may not be sufficient to satisfy, or may not cover, any expenses or liabilities that may arise. Additionally, regardless of whether or not there is merit to the claims underlying any legal proceedings to which we are subject, or whether or not we are found as a result of such lawsuits to have violated any applicable laws, such lawsuits and inquiries can be expensive to defend or respond to, may divert the attention of our management and other resources that would otherwise be engaged in managing our business, and may further cause significant and potentially irreparable harm to our public reputation.

We have been, and may again be, the subject of citizen petitions that request that the FDA refuse to approve, delay approval of, or impose additional approval requirements on our NDAs. If successful, such petitions can significantly delay, or even prevent, the approval of the NDA in question. Even if the FDA ultimately denies such a petition, the FDA may substantially delay approval while it considers and responds to the petition, or may impose additional approval requirements as a result of such petition. These outcomes and others could adversely affect our share price as well as our ability to generate revenues from the commercialization and sale of our products and products using our proprietary technologies.

The clinical study or commercial use of our products may cause unintended side effects or adverse reactions, or incidents of misuse may occur, which could adversely affect our products, business and share price.

We cannot predict whether the clinical or commercial use of our products will produce undesirable or unintended side effects that have not been evident in the use of, or in clinical trials conducted for, such products to date. The administration of drugs in humans carries the inherent risk of product liability claims whether or not the drugs are actually the cause of an injury. Our products may cause, or may appear to have caused, injury or dangerous drug interactions, and we may not learn about or understand those effects until the products have been administered to study participants or patients for a prolonged period of time. Additionally, incidents of product misuse may occur.

These events, among others, could result in product recalls or additional regulatory controls (including additional regulatory scrutiny, REMS programs, and/or requirements for additional labeling) or product liability actions. As our development activities progress and we continue to have commercial sales, our product liability insurance coverage may be inadequate to satisfy liabilities that arise, we may be unable to obtain adequate coverage at an acceptable cost or at all, or our insurer may disclaim coverage as to a future claim. This could prevent or limit the development or commercialization of our products. In addition, the reporting of adverse safety events involving our products, including instances of product misuse, and public perceptions about such events could cause our product sales or share price to decline or experience periods of volatility. These types of events could have a material adverse effect on our business, financial condition, cash flows and results of operations.

If there are changes in, or we fail to comply with, the extensive legal and regulatory requirements affecting the healthcare industry, we could face litigation, costs, penalties and business losses.

Our activities, and the activities of our licensees and third-party providers, are subject to extensive government regulation. Government regulation by various national, state and local agencies includes detailed inspections of, and controls over, research and laboratory procedures, clinical investigations, product approvals and manufacturing, marketing and promotion, adverse event reporting, sampling, distribution, recordkeeping, storage, and disposal practices. Achieving compliance with these regulations substantially increases the time, difficulty and costs incurred in obtaining and maintaining approvals to market newly developed and existing products. Government regulatory actions, including audits, records requests and inspections of manufacturing facilities, can result in delay in the release of products, seizure or recall of products, suspension or revocation of the authority necessary for the manufacture and sale of products, and other regulatory enforcement actions, including the levying of civil fines or criminal penalties, the issuance of a warning letter, or the imposition of an injunction.

Biopharmaceutical companies also have been the target of government lawsuits and investigations alleging violations of government regulation, including claims asserting submission of incorrect pricing information, impermissible promotion of pharmaceutical products, payments intended to influence the referral of healthcare business, submission of false claims for government reimbursement, antitrust violations and violations related to environmental matters. We have been, and may continue to be, the subject of certain government inquiries or requests for documentation. For example, we have received a subpoena and civil investigative demands from U.S. state and federal authorities for documents related to VIVITROL. We are cooperating with the government in each instance. If, as a result of government requests, proceedings are initiated, including under the U.S. federal anti-kickback statute and False Claims Act and state False Claims Acts or other laws, and we are found to have violated one or more applicable laws, we may be subject to significant liability, including without limitation, civil fines, criminal fines and penalties, civil damages and exclusion from U.S. federal funded healthcare programs such as Medicare and Medicaid, any of which could materially affect our reputation, business, financial condition, cash flows and results of operations. Conduct giving rise to such liability could also form the basis for private civil litigation by third-party payers or other persons allegedly harmed by such conduct. Additionally, regardless of whether or not there is merit to claims underlying any investigation or legal proceedings to which we are subject, or whether or not we are found as a result of such investigations or lawsuits to have violated any applicable laws, such lawsuits and inquiries can be expensive to defend or respond to, may divert the attention of our management and other resources that would otherwise be engaged in managing our business, and may further cause significant and potentially irreparable harm to our public reputation. While we have implemented numerous risk mitigation measures, we cannot guarantee that we, our employees, our licensees, our consultants or our contractors are, or will be, in compliance with all applicable laws, regulations or interpretations of the applicability of these laws to our products, operations and marketing practices. If we or our agents fail to comply with any of those laws, regulations or interpretations, a range of actions could result, including the suspension or termination of clinical trials, the failure to approve a product, restrictions on sales of our products or our manufacturing processes, withdrawal of our products from the market, significant fines, exclusion from government healthcare programs or other sanctions or litigation.

Changes affecting the healthcare industry, including new laws, regulations or judicial decisions, or new interpretations of existing laws, regulations or decisions, related to patent protection and enforcement, access to healthcare, environmental issues or product pricing and marketing, could also adversely affect our revenues, our public reputation or our potential to be profitable. For example, and as discussed above, the Inflation Reduction Act, signed into law in August 2022, includes several provisions that will impact our business to varying degrees, including those that impose new manufacturer financial liability on all drugs in Medicare Part D beginning in 2025, allow the U.S. government to negotiate prices for some drugs covered under Medicare Part B and Part D beginning in 2026, and require companies to pay rebates to Medicare beginning in 2023 for drug prices that increase faster than inflation. This law and any further changes in laws, regulations or decisions or in the interpretation of existing laws, regulations and decisions could have a material adverse effect on our business, financial condition, cash flows and results of operations.

If we fail to comply with our reporting and payment obligations under the Medicaid Drug Rebate Program or other governmental pricing programs, we could be subject to additional reimbursement requirements, penalties, sanctions and fines, which could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

We participate in the Medicaid Drug Rebate Program, the 340B program, the U.S. Department of Veterans Affairs, FSS pricing program, and the Tricare program, and have obligations to report the average sales price for certain of our drugs to the Medicare program. For calendar quarters beginning January 1, 2022, manufacturers will need to start reporting the average sales price for drugs under the Medicare program regardless of whether they are enrolled in the Medicaid Drug Rebate Program. Currently, only manufacturers participating in the Medicaid Drug Rebate Program are obligated to do so.

Pricing and rebate calculations vary across products and programs, are complex, and are often subject to interpretation by us, governmental or regulatory agencies and the courts, which can change and evolve over time. In the case of our Medicaid pricing data, if we become aware that our reporting for a prior quarter was incorrect, or has changed as a result of recalculation of the pricing data, we are generally obligated to resubmit the corrected data for up to three years after those data originally were due. Such restatements and recalculations increase our costs for complying with the laws and regulations governing the Medicaid Drug Rebate Program and could result in an overage or underage in our rebate liability for past quarters. Price recalculations also may affect the ceiling price at which we are required to offer our products under the 340B program and give rise to an obligation to refund entities participating in the 340B program for overcharges during past quarters impacted by a price recalculation.

Civil monetary penalties can be applied if we are found to have knowingly submitted any false price or product information to the government, if we are found to have made a misrepresentation in the reporting of our average sales price, if we fail to submit the required price data on a timely basis, or if we are found to have charged 340B covered entities more than the statutorily mandated ceiling price. The CMS could also decide to terminate our Medicaid drug rebate agreement, in which case federal payments may not be available under Medicaid or Medicare Part B for our covered outpatient drugs. We cannot assure you that our submissions will not be found by CMS to be incomplete or incorrect.

Our failure to comply with our reporting and payment obligations under the Medicaid Drug Rebate Program and other governmental programs could negatively impact our financial results. CMS issued a final regulation, which became effective in April 2016, to implement the changes to the Medicaid Drug Rebate Program under the Affordable Care Act. In December 2020, CMS issued a final regulation that modified prior Medicaid Drug Rebate Program regulations to permit reporting multiple best price figures with regard to value-based purchasing arrangements (beginning in 2022); and provided definitions for "line extension," "new formulation," and related terms, with the practical effect of expanding the scope of drugs considered to be line extensions that are subject to an alternative rebate formula (beginning in 2022). Regulatory and legislative changes, and judicial rulings relating to the Medicaid Drug Rebate Program and related policies (including coverage expansion), have increased and will continue to increase our costs and the complexity of compliance, have been and will continue to be time-consuming to implement, and could have a material adverse effect on our results of operations, particularly if CMS or another agency challenges the approach we take in our implementation.

The HRSA issued a final regulation regarding the calculation of the 340B ceiling price and the imposition of civil monetary penalties on manufacturers that knowingly and intentionally overcharge covered entities, which became effective in January 2019. Implementation of this regulation could affect our obligations and potential liability under the 340B program in ways we cannot anticipate. We are also required to report the 340B ceiling prices for our covered outpatient drugs to HRSA, which then publishes them to 340B covered entities. Any charge by HRSA that we have violated this regulation or other requirements of the program could negatively impact our financial results. Moreover, HRSA newly established an administrative dispute resolution ("ADR") process under a final regulation effective January 2021, for claims by covered entities that a manufacturer engaged in overcharging, including claims that a manufacturer limited the ability of a covered entity to purchase the manufacturer's drugs at the 340B ceiling price, and by manufacturers that a covered entity violated the prohibitions against diversion or duplicate discounts. Such claims are to be resolved through an ADR panel of government officials rendering a decision that could be appealed only in federal court. This ADR regulation has been challenged in separate litigation instituted by PhRMA and by pharmaceutical manufacturers in multiple federal courts. Under the ADR final rule which became effective in January 2021, an ADR proceeding could potentially subject us to discovery by covered entities and other onerous procedural requirements and could result in additional liability. HRSA could also decide to terminate a manufacturer's agreement to participate in the 340B program for a violation of that agreement or other good cause shown, in which case the manufacturer's covered outpatient drugs may no longer be eligible for federal payment under the Medicaid or Medicare Part B program. In November 2022, HRSA issued a proposed rule to revise the ADR procedures contained in its January 2021 final regulation for disputes arising under the 340B drug pricing program between covered entities and manufacturers.

Further, legislation may be introduced that, if passed, would, among other things, further expand the 340B program to additional covered entities or would require participating manufacturers to agree to provide 340B discounted pricing on drugs used in an inpatient setting, and any additional future changes to the definition of average manufacturer price or the Medicaid rebate amount could affect our 340B ceiling price calculations and negatively impact our results of operations. Additionally, certain pharmaceutical manufacturers are involved in ongoing litigation regarding contract pharmacy arrangements under the 340B Program. The outcome of those judicial proceedings and the potential impact on the way in which manufacturers extend discounts to covered entities through contract pharmacies remain uncertain.

We have obligations to report the average sales price for certain of our drugs to the Medicare program. Statutory or regulatory changes or CMS guidance could affect the average sales price calculations for our products and the resulting Medicare payment rate, and could negatively impact our results of operations.

Pursuant to applicable law, knowing provision of false information in connection with price reporting under the U.S. Department of Veterans Affairs, FSS or Tricare programs can subject a manufacturer to civil monetary penalties. These program obligations also contain extensive disclosure and certification requirements. If we overcharge the government in connection with our arrangements with FSS or Tricare, we are required to refund the difference to the government. Failure to make necessary disclosures and/or to identify contract overcharges can result in allegations against us under the False Claims Act and other laws and regulations. Unexpected refunds to the government, and responding to a government investigation or enforcement action, would be expensive and time-consuming, and could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

Our business involves environmental, health and safety risks.

Our business involves the use of hazardous materials and chemicals and is subject to numerous environmental, health and safety laws and regulations and to periodic inspections for possible violations of these laws and regulations. Under certain of these laws and regulations, we could be liable for any contamination at our current or former properties or third-party waste disposal sites. In addition to significant remediation costs, contamination can give rise to third-party claims for fines, penalties, natural resource damages, personal injury and damage (including property damage). The costs of compliance with environmental, health and safety laws and regulations are significant. We have developed and implemented a proprietary risk mitigation program to preemptively identify and address environmental, health, safety and security risks; however, there can be no assurance that a violation of current or future environmental, health or safety laws or regulations will not occur. Any violations, even if inadvertent or accidental, or the cost of compliance with any resulting order, fine or liability that may be imposed, could materially adversely affect our business, financial condition, cash flows and results of operations.

Risks Related to our Financial Condition and Tax Matters

We may not become profitable on a sustained basis.

At December 31, 2022, our accumulated deficit was $1.7 billion, which was primarily the result of net losses incurred from 1987, the year Alkermes, Inc., was founded, through December 31, 2022, partially offset by net income over certain fiscal periods.

Our ability to achieve sustained profitability in the future will depend on our ability to grow and diversify our revenue and effectively and efficiently manage our costs. Factors that may impact our future revenue, and in turn our future profitability, include our or our licensees' (as applicable) ability to:

- successfully commercialize VIVITROL, the ARISTADA product family, LYBALVI, VUMERITY, RISPERDAL CONSTA, the long-acting INVEGA products, FAMPYRA and any other marketed products for which we earn revenue in the countries in which such products are approved;
- successfully develop, and obtain and maintain regulatory approval for, products both in the U.S. and in other countries;
- successfully manufacture our products and third-party products efficiently and in a cost-effective manner;
- obtain adequate reimbursement coverage for our products and third-party products from insurance companies, government programs and other third-party payers;
- achieve certain product development and sales milestones under our collaborative arrangements; and
- resolve favorably any commercial disputes that may arise in respect of collaborative arrangements from which we receive revenues.

Factors that may impact our future spend, and in turn our future profitability, include:

- the scope of our research and development activities, including the number of products, indications or new technologies that we may pursue, and our ability, if sought, to share development costs through potential collaborations;
- the time and expense required to pursue FDA and/or other regulatory approvals for our products;
- the time and expense required to prosecute, enforce, defend and/or challenge patent and other IP rights;
- the costs of operating and maintaining our manufacturing and research facilities;
- the costs of doing business with third-party vendors, including suppliers, manufacturers, packagers and distributors;
- the cost of possible licenses or acquisitions of technologies, compounds or product rights or the potential acquisition of other assets, including equipment, facilities or businesses;
- the costs related to potential litigation, arbitration or other legal proceedings or government requests for information;
- the costs of defending against potential or actual proxy contests or other activist shareholder actions;
- the costs associated with the planning for and/or execution of the potential separation of our neuroscience and oncology businesses; and
- the costs associated with recruiting, compensating and retaining a highly-skilled workforce in an environment where competition for highly-skilled employees is intense.

Certain U.S. holders of our ordinary shares may suffer adverse tax consequences if any of our non-U.S. subsidiaries are characterized as a "controlled foreign corporation".

In December 2017, the Tax Cuts and Jobs Act was signed into law. This legislation significantly changed U.S. tax law by, among other things, changing the rules which determine whether a foreign corporation is treated for U.S. tax purposes as a controlled foreign corporation ("CFC") for taxable years ended December 31, 2017 and onwards. The impact of this change on certain holders of our ordinary shares is uncertain and could be adverse, including potential income inclusions and reporting requirements for U.S. persons (as defined in the Code) who are treated as owning (directly or indirectly) at least 10% of the value or voting power of our shares. The determination of CFC status is complex and includes attribution rules, the application of which are not entirely certain. These changes to the attribution rules relating to the determination of CFC status make it possible that one or more of our non-U.S. subsidiaries will be classified as a CFC. Existing and prospective investors should consult their tax advisers regarding the potential application of these rules to their investments in our securities.

See "*Certain Irish and United States Federal Income Tax Considerations – United States Federal Income Tax Considerations*" in our Form S-1/A, filed with the SEC on February 29, 2012, for additional discussion with respect to other potential U.S. federal income tax consequences of investments in us.

If goodwill or other intangible assets become impaired, we could have to take significant charges against earnings.

At December 31, 2022, we had $37.7 million of amortizable intangible assets and $92.9 million of goodwill. Under accounting principles generally accepted in the U.S. ("GAAP"), we must assess, at least annually and potentially more frequently, whether the value of goodwill and other indefinite-lived intangible assets have been impaired. Amortizing intangible assets will be assessed for impairment in the event of an impairment indicator. Any reduction or impairment of the value of goodwill or other intangible assets will result in a charge against earnings, which could materially adversely affect our results of operations and shareholders' equity in future periods.

Our effective tax rate may increase.

As a global biopharmaceutical company, we are subject to taxation in a number of different jurisdictions. As a result, our effective tax rate is derived from a combination of applicable tax rates in the various places that we operate. In preparing our financial statements, we estimate the amount of tax that will become payable in each of these places. Our effective tax rate may fluctuate depending on a number of factors, including, but not limited to, the distribution of our profits or losses between the jurisdictions where we operate and differences in interpretation of tax laws. In addition, the tax laws of any jurisdiction in which we operate may change in the future, which could impact our effective tax rate. Tax authorities in the jurisdictions in which we operate may audit us. If we are unsuccessful in defending any tax positions adopted in our submitted tax returns, we may be required to pay taxes for prior periods, interest, fines or penalties, and may be obligated to pay increased taxes in the future, any of which could have a material adverse effect on our business, financial condition, cash flows and results of operations.

Changes in tax rules and regulations, or interpretations thereof, may adversely affect our financial condition.

Effective January 2022, the Tax Cuts and Jobs Act of 2017 eliminated the option to deduct R&D expenses in the year incurred and instead requires taxpayers to capitalize, and subsequently amortize such expenses over five years for research activities conducted in the U.S., and over fifteen years for research activities conducted outside of the U.S. As such, we expect a material decrease in cash flows provided from operations and a material increase in our net deferred tax assets over the next number of years.

Unless the U.S. Department of the Treasury issues regulations that narrow the application of this provision to a smaller subset of our R&D expenses or the provision is deferred, modified or repealed by the U.S. Congress, there will be a material increase in our U.S. income tax liability over the next number of years.

Our deferred tax assets may not be realized.

As of December 31, 2022, we had $115.6 million of net deferred tax assets in the U.S. It is possible that some or all of the deferred tax assets will not be realized, especially if we incur losses in the U.S. in the future. Losses may arise from unforeseen operating events, an enlarged foreign derived intangible income deduction due to the capitalization of R&D expenses, or the occurrence of significant excess tax benefits arising from the exercise of stock options and/or the vesting of restricted stock units. Unless we are able to generate sufficient taxable income in the future, a substantial valuation allowance to reduce the carrying value of our U.S. deferred tax assets may be required, which would materially increase our expenses in the period the valuation allowance is recognized and materially adversely affect our financial condition and results of operations.

Furthermore, we have included within our U.S. net deferred tax assets of $115.6 million an amount of $36.4 million relating to employee share-based compensation expense. It is possible that a material portion of this deferred tax asset will not be realized, especially if the price of our ordinary shares remains at its current level (refer to "Item 5—Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities" in this Annual Report for details of the price of our ordinary shares). Unless the price of our ordinary shares increases, we will incur a deferred tax expense as our U.S.-based employees exercise or forfeit their stock options and their restricted stock unit awards vest. This could materially increase our tax expense and may materially adversely affect our financial condition and results of operations.

The business combination in 2011 of Alkermes, Inc. and the drug technology business ("EDT") of Elan Corporation, plc may limit our ability to use our tax attributes to offset taxable income, if any, generated from such business combination.

On September 16, 2011, the businesses of Alkermes, Inc. and EDT were combined under Alkermes plc (this combination is referred to as the "Business Combination"). For U.S. federal income tax purposes, a corporation is generally considered tax resident in the place of its incorporation. Because we are incorporated in Ireland, we should be deemed an Irish corporation under these general rules. However, Section 7874 of the Code generally provides that a corporation organized outside the U.S. that acquires substantially all of the assets of a corporation organized in the U.S. will be treated as a U.S. corporation (and, therefore, a U.S. tax resident) for U.S. federal income tax purposes if shareholders of the acquired U.S. corporation own at least 80% (of either the voting power or the value) of the stock of the acquiring foreign corporation after the acquisition by reason of holding stock in the domestic corporation, and the "expanded affiliated group" (as defined in Section 7874) that includes the acquiring corporation does not have substantial business activities in the country in which it is organized.

In addition, Section 7874 provides that if a corporation organized outside the U.S. acquires substantially all of the assets of a corporation organized in the U.S., the taxable income of the U.S. corporation during the period beginning on the date the first assets are acquired as part of the acquisition, through the date which is ten years after the last date assets are acquired as part of the acquisition, shall be no less than the income or gain recognized by reason of the transfer during such period or by reason of a license of property by the expatriated entity after such acquisition to a foreign affiliate during such period, which is referred to as the "inversion gain," if shareholders of the acquired U.S. corporation own at least 60% (of either the voting power or the value) of the stock of the acquiring foreign corporation after the acquisition by reason of holding stock in the domestic corporation, and the "expanded affiliated group" of the acquiring corporation does not have substantial business activities in the country in which it is organized. If this rule was to apply to the Business Combination, among other things, Alkermes, Inc. would have been restricted in its ability to use the approximately $274.0 million of U.S. federal NOL carryforwards and $38.0 million of U.S. state NOL carryforwards that it had as of March 31, 2011. We do not believe that either of these limitations should apply as a result of the Business Combination. However, the IRS could assert a contrary position, in which case we could become involved in tax controversy with the IRS regarding possible additional U.S. tax liability. If we were to be unsuccessful in resolving any such tax controversy in our favor, we could be liable for significantly greater U.S. federal and state income tax than we anticipate being liable for as a result of the Business Combination, which would place further demands on our cash needs.

Our level of indebtedness could adversely affect our business and limit our ability to plan for or respond to changes in our business.

In March 2021, we amended and refinanced our then-existing term loan (the "2023 Term Loans"), in order to, among other things, provide for a new class of replacement term loans equal to $300.0 million; extend the due date of the loan from March 26, 2023 to March 12, 2026; amend the interest payable from LIBOR plus 2.25% with no LIBOR floor to LIBOR plus 2.50% with a LIBOR floor of 0.5%; and increase covenant flexibility (such refinancing, the "Term Loan Refinancing" and the 2023 Term Loans as so amended and refinanced, the "2026 Term Loans"). The 2026 Term Loans were also amended to include customary Alternative Reference Rates Committee ("ARRC") hardwired benchmark replacement language. As of December 31, 2022, our borrowings consisted of $294.8 million outstanding under the 2026 Term Loans.

The 2026 Term Loans are secured by a first priority lien on substantially all of the combined company assets and properties of Alkermes plc and most of its subsidiaries, which serve as guarantors. The agreements governing the 2026 Term Loans include a number of restrictive covenants that, among other things, and subject to certain exceptions and baskets, impose operating and financial restrictions on us.

Our failure to comply with these restrictions or to make these payments could lead to an event of default that could result in an acceleration of the indebtedness. Our future operating results may not be sufficient to ensure our ability to make our debt payments or to remedy any such default. In the event of an acceleration of this indebtedness, we may not have, or be able to obtain, sufficient funds to make any accelerated payments.

Discontinuation, reform or replacement of LIBOR, or uncertainty related to the potential for any of the foregoing, may adversely affect us.

In 2017, the U.K. Financial Conduct Authority announced its intention to phase out LIBOR after 2023. Currently, it is anticipated that LIBOR will be completely phased out by June 30, 2023. The U.S. Federal Reserve, in conjunction with the ARRC, a steering committee comprised of large U.S. financial institutions, has proposed a new index calculated by short term repurchase agreements, backed by U.S. Treasury securities, called the Secured Overnight Financing Rate ("SOFR") as an alternative to LIBOR for use in contracts that are currently indexed to U.S. dollar LIBOR and has proposed a paced market transition plan to SOFR. On July 29, 2021, the ARRC formally recommended SOFR as its preferred alternative replacement rate for U.S. dollar LIBOR. The 2026 Term Loans contain customary ARRC hardwired benchmark replacement language to transition from LIBOR to SOFR. The discontinuation, reform or replacement of LIBOR or any other benchmark rates may have an unpredictable impact on contractual mechanics in the credit markets or cause disruption to the broader financial markets. Uncertainty as to the nature of such potential discontinuation, reform or replacement may negatively impact the volatility of LIBOR rates, liquidity, or our access to funding required to operate our business. In addition, SOFR is a relatively new reference rate and its composition and characteristics are not the same as LIBOR. Given SOFR's very limited history and potential volatility as compared to other benchmark or market rates, the future performance of SOFR cannot be predicted based on historical performance. The consequences of using SOFR could include an increase in the cost of our variable rate indebtedness. We are monitoring these transition efforts and, although the 2026 Term Loans contain provisions designed to accommodate an alternate reference rate, we may need to amend these and other contracts to accommodate any replacement rate.

Our business strategy may involve future transactions which may harm the market price of our ordinary shares or require us to seek additional funds, and such funding may not be available on commercially favorable terms or at all and may cause dilution to our existing shareholders.

In order to achieve our business strategy, we regularly review potential transactions related to technologies, products or product rights, and businesses that are complementary to our business, including mergers and acquisitions, licenses and collaborations, and development and supply, commercialization or co-promotion arrangements, among others. We may choose to enter into one or more of these or other transactions at any time, which may cause substantial fluctuations in the market price of our ordinary shares. Moreover, depending upon the nature of any transaction, we may experience a charge to earnings, which could also materially adversely affect our results of operations and could harm the market price of our ordinary shares.

In order to finance such transactions, we may require additional funds, and we may seek such funds through various sources, including debt and equity offerings, corporate collaborations, bank borrowings, arrangements relating to assets, monetization of royalty streams or other financing methods or structures. The source, timing and availability of any financings will depend on global economic conditions, credit and financial market conditions, interest rates and other factors. If we issue additional equity securities or securities convertible into equity securities, our shareholders would suffer dilution of their investment, and it may adversely affect the market price of our ordinary shares. In addition, under Irish law, the directors of an Irish public limited company must have specific authority, as approved by the company's shareholders, to allot and issue any ordinary shares (other than pursuant to employee equity plans) and, if such directors desire to allot and issue ordinary shares for cash, such shares must first be offered on the same or more favorable terms to the company's existing shareholders on a pro-rata basis, unless this statutory pre-emption right is disapplied by approval of the company's shareholders. In July 2022, our shareholders authorized our board of directors to allot and issue ordinary shares in an amount equal to approximately 33% of our issued share capital (at the date of such authorization), and to issue ordinary shares for cash on a non-pre-emptive basis in an amount equal to approximately 5% of our issued share capital (at the date of such authorization) or in an amount equal to approximately 10% of our issued share capital (at the date of such authorization) under certain specified circumstances; however, these share issuance authorities were granted for eighteen months only, at which point they lapse unless renewed by our shareholders. If we are unable to obtain renewal of share issuance authorities from our shareholders, or are otherwise limited by the terms of new share issuance authorities approved by our shareholders, our ability to use our authorized but unissued share capital to effect or to fund acquisition or other transaction opportunities, or to otherwise raise capital, could be adversely affected.

In addition, future investors or lenders may demand, and may be granted, rights superior to those of existing shareholders. If we issue additional debt securities, our existing debt service obligations will increase further. If we are unable to generate sufficient cash to meet these obligations and need to use existing cash or liquidate investments in order to fund our debt service obligations or to repay our debt, we may be forced to curtail our operations. We cannot be certain that additional financing will be available from any of these sources when needed or, if available, will be on acceptable terms. If we fail to obtain additional capital when we need it, we may not be able to execute our business strategy successfully and may have to give up rights to our product platforms, and/or products, or grant licenses on terms that may not be favorable to us.

Currency exchange rates may affect revenues and expenses.

We conduct a large portion of our business in international markets. For example, we derive a majority of our RISPERDAL CONSTA revenues and all of our FAMPYRA, XEPLION, TREVICTA and BYANNLI revenues from sales in countries other than the U.S., and these sales are denominated in non-U.S. dollar ("USD") currencies. We also incur substantial operating costs in Ireland and face exposure to changes in the exchange ratio of the USD and the euro arising from expenses and payables at our Irish operations that are settled in Euro. Our efforts to mitigate the impact of fluctuating currency exchange rates may not be successful. As a result, currency fluctuations among our reporting currency, USD, and the currencies in which we do business will affect our results of operations, often in unpredictable ways. See "Item 7A—Quantitative and Qualitative Disclosures about Market Risk" in this Annual Report for additional information relating to our foreign currency exchange rate risk.

Risks Related to our Ordinary Shares

The market price of our ordinary shares has been volatile and may continue to be volatile in the future, and could decline significantly.

The market price of our ordinary shares has fluctuated significantly from time to time. During the year ended December 31, 2022, the closing price of our ordinary shares on the Nasdaq Global Select Market ranged from $21.94 to $31.87 per share. The market price of our ordinary shares is likely to continue to be volatile and subject to significant price and volume fluctuations in response to market and industry factors, our results of operations, our ability to maintain and increase sales of our products, the success of our key development programs, our ability to achieve profitability, and other factors, including the risk factors described in this Annual Report. We have also experienced significant volatility in the market price of our ordinary shares based on our business performance, including in relation to our commercial sales and the financial guidance that we issue for such sales, results from our clinical development programs, and events relating to regulatory actions and interactions related to our product candidates and commercial products. For example, a series of adverse actions by the FDA in 2018 relating to our NDA for ALKS 5461, our investigational product for the treatment of major depressive disorder, caused the market price of our ordinary shares to decline significantly.

In addition, the stock market in general, including the market for biopharmaceutical companies, has experienced extreme price and trading volume fluctuations that have often been unrelated or disproportionate to the operating performance of those companies. In particular, negative publicity regarding pricing and price increases by pharmaceutical companies, and potential legislation to regulate drug pricing, has negatively impacted, and may continue to negatively impact, the market for biopharmaceutical companies. These broad market and industry factors have harmed, and in the future may harm, the market price of our ordinary shares, regardless of our operating performance.

Our business could be negatively affected as a result of the actions of activist shareholders.

Proxy contests and other actions by activist shareholders have been waged against many companies in our industry over the last several years. Activist shareholders may agitate, either publicly or privately, for changes to a company's board of directors, management, structure, spend or strategic direction, among other things.

Since 2021, we have engaged in extensive dialogue with principals of Sarissa Capital Offshore Master Fund LP and its affiliates. These engagements and activities related to these engagements required the expenditure of significant time and energy by management and our board of directors.

Proxy contests and other actions by activist shareholders can be costly and time-consuming, disrupting operations and diverting the attention of management and employees, and can lead to perceived uncertainties as to the future direction of the Company or its business that may result in the loss of potential acquisitions, collaborations or in-licensing opportunities and make it more difficult to attract and retain qualified personnel and business partners.

In addition, if individuals are elected to our board of directors with a specific agenda, it may adversely affect our ability to effectively implement our strategic plan in a timely manner and create additional value for our shareholders.

Any such activist shareholder contests, actions or requests, or the mere public presence of activist shareholders among our shareholder base, could cause the market price of our ordinary shares to experience periods of significant volatility.

Risks Related to Information Security and Data Privacy

Information security breaches and other disruptions could compromise our information and expose us to liability, which would cause our business and reputation to suffer.

In the ordinary course of our business, we collect and store sensitive data, including IP, our proprietary business information and that of our suppliers and partners, as well as personally identifiable information of patients, clinical trial participants and employees. In recent years, we have implemented additional remote work flexibility for certain of our employees who are able to work remotely. Our partners and third-party providers also possess certain of our sensitive data. The secure maintenance of all such information and the secure performance of our information technology ("IT") systems are critical to our operations and business strategy.

As our dependency on, and the complexity of, our IT systems increases, the confidentiality, integrity and availability of our IT systems and the data that they store is critical to managing our business. While we take prudent measures to secure our IT systems, the risk still exists that such systems may become compromised by successful breaches, malfeasance, human error or technological fault. Moreover, the prevalent use of mobile devices to access confidential information increases the risk of security breaches. Cyber-attacks have increased in frequency, persistence, sophistication and intensity, often conducted by sophisticated and organized groups and individuals with a wide range of motives (including, but not limited to, industrial espionage, hactivists and organized come). In addition to the extraction of important information, such attacks could include the deployment of harmful malware, ransomware, denial-of-service attacks, social engineering and other means to affect service reliability and threaten the confidentiality, integrity and availability of our information. Certain types of attacks or breaches on our IT systems or infrastructure may go undetected for a prolonged period. Although to our knowledge we have not experienced any material incident or interruption to date, any breakdown, invasion, corruption, destruction or breach of our, our partners' or our third-party providers' technology systems could compromise such IT systems and the information stored there could be accessed, modified, publicly disclosed, lost or stolen, which could result in legal claims or proceedings and liability under laws that protect the privacy of personal information, demands for ransom or other forms of blackmail, disruptions to our development programs or commercial operations, damage to our reputation and adverse effects on our business. We retain cybersecurity insurance to cover costs and expenses related to a breach or similar event; however, there is no guarantee that such costs and expenses would not exceed the insurance that we retain.

We may be subject to numerous and varying privacy and security laws, and our failure to comply could result in penalties and reputational damage.

We are subject to laws and regulations covering data privacy and the protection of personal information, including health information. The legislative and regulatory landscape for privacy and data protection continues to evolve, and there has been an increasing focus on privacy and data protection issues which may affect our business. In the U.S., numerous federal and state laws and regulations, including state security breach notification laws, state health information privacy laws, and federal and state consumer protection laws, govern the collection, use, disclosure, and protection of personal information. Each of these laws is subject to varying interpretations by courts and government agencies, creating complex compliance issues for us. If we fail to comply with applicable laws and regulations, we could be subject to penalties or sanctions, including criminal penalties if we knowingly obtain or disclose individually identifiable health information from a covered entity in a manner that is not authorized or permitted by the Health Insurance Portability and Accountability Act of 1996, as amended by the Health Information Technology for Economic and Clinical Health Act, or HIPAA.

Numerous other countries have, or are developing, laws governing the collection, use and transmission of personal information as well. The EU and other jurisdictions have adopted data protection laws and regulations, which impose significant compliance obligations. In the EU, for example, the GDPR governs the processing of personal data. The GDPR imposes significant obligations on controllers and processors of personal data, including, high standards for obtaining consent from individuals to process their personal data, robust notification requirements to individuals about the processing of their personal data, a strong individual data rights regime, mandatory data breach notifications, limitations on the retention of personal data and stringent requirements pertaining to health data, and strict rules and restrictions on the transfer of personal data outside of the EU, including to the U.S. The GDPR also imposes additional obligations on, and required contractual provisions to be included in, contracts between companies subject to the GDPR and their third-party processors that relate to the processing of personal data. The GDPR allows EU member states to make additional laws and regulations in order to introduce further conditions, including limitations, with regard to the processing of genetic, biometric or health data.

Adoption of the GDPR increased our responsibility and liability in relation to personal data that we process and may require us to put in place additional mechanisms to ensure compliance. Any failure to comply with the requirements of GDPR and applicable national data protection laws of EU member states could lead to regulatory enforcement actions and significant administrative and/or financial penalties against us (fines of up to €20,000,000 or up to 4% of the total worldwide annual turnover of the preceding financial year, whichever is higher), and could adversely affect our business, financial condition, cash flows and results of operations.

General Risk Factors

If we identify a material weakness in our internal control over financial reporting, our ability to meet our reporting obligations and the trading price of our ordinary shares could be negatively affected.

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our financial statements will not be prevented or detected on a timely basis. Accordingly, a material weakness increases the risk that the financial information we report contains material errors.

We regularly review and update our internal controls, disclosure controls and procedures, and corporate governance policies. In addition, we are required under the Sarbanes-Oxley Act of 2002 to report annually on our internal control over financial reporting. Any system of internal controls, however well designed and operated, is based in part on certain assumptions and can provide only reasonable, not absolute, assurances that the objectives of the system are met. If we, or our independent registered public accounting firm, determine that our internal controls over financial reporting are not effective, or we discover areas that need improvement in the future, these shortcomings could have an adverse effect on our business and financial results, and the price of our ordinary shares could be negatively affected.

If we cannot conclude that we have effective internal control over our financial reporting, or if our independent registered public accounting firm is unable to provide an unqualified opinion regarding the effectiveness of our internal control over financial reporting, investors could lose confidence in the reliability of our financial statements, which could lead to a decline in the trading price of our ordinary shares. Failure to comply with reporting requirements could also subject us to sanctions and/or investigations by Nasdaq or the SEC or other regulatory authorities.

Item 1B. *Unresolved Staff Comments*

None.

Item 2. *Properties*

We lease approximately 14,600 square feet of corporate office space in Dublin, Ireland, which houses our corporate headquarters. In 2023, we exercised our option to extend the lease term for a four-year period. This extended lease expires in 2027 and does not include an additional tenant option to further extend the term.

We lease two properties in Waltham, Massachusetts. One facility has approximately 180,000 square feet of space and houses corporate offices, administrative areas and laboratories. This lease expires in 2026 and includes a tenant option to extend the term for an additional five-year period. The second property has approximately 231,000 square feet of office space and laboratory space. This lease, which commenced in January 2020, expires in 2035 and includes a tenant option to extend the term for an additional ten-year period.

We lease approximately 7,000 square feet of corporate office and administrative space in Washington, DC. This lease expires in 2029 and includes a tenant option to extend the term for an additional five-year period.

We own an R&D and manufacturing facility in Athlone, Ireland (approximately 400,000 square feet) and a manufacturing facility in Wilmington, Ohio (approximately 375,000 square feet).

We believe that our current facilities are suitable and adequate for our current and near-term preclinical, clinical and commercial requirements.

Item 3. *Legal Proceedings*

For information regarding legal proceedings, refer to the discussion under the heading "Litigation" in Note 17, *Commitments and Contingent Liabilities* in the "Notes to Consolidated Financial Statements" in this Annual Report, which discussion is incorporated into this Item 3 by reference.

Item 4. *Mine Safety Disclosures*

Not Applicable.

PART II

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

Market and shareholder information

Our ordinary shares are traded on the Nasdaq Global Select Market under the symbol "ALKS." There were 103 shareholders of record of our ordinary shares on February 10, 2023. In addition, the last reported sale price of our ordinary shares as reported on the Nasdaq Global Select Market on February 10, 2023 was $27.09.

Dividends

No dividends have been paid on our ordinary shares to date, and we do not expect to pay cash dividends thereon in the foreseeable future. We anticipate that we will retain all earnings, if any, to support our operations and our proprietary drug development programs. Any future determination as to the payment of dividends will be at the sole discretion of our board of directors and will depend on our financial condition, results of operations, capital requirements and other factors that our board of directors deems relevant.

Repurchase of equity securities

On September 16, 2011, our board of directors authorized the continuation of the Alkermes, Inc. program to repurchase up to $215.0 million of our ordinary shares at the discretion of management from time to time in the open market or through privately negotiated transactions. We did not purchase any shares under this program during the year ended December 31, 2022. As of December 31, 2022, we had purchased a total of 8,866,342 shares under this program at a cost of $114.0 million. The 2026 Term Loans include restrictive covenants that impose certain limitations on our ability to repurchase our ordinary shares.

During the three months ended December 31, 2022, we acquired 12,609 of our ordinary shares, at an average price of $23.85 per share, related to the vesting of employee equity awards to satisfy withholding tax obligations.

Irish taxes applicable to U.S. holders

The following is a general summary of the main Irish tax considerations applicable to the purchase, ownership and disposition of our ordinary shares by U.S. holders. It is based on existing Irish law and practices in effect on February 2, 2023, and on discussions and correspondence with the Irish Revenue Commissioners. Legislative, administrative or judicial changes may modify the tax consequences described below.

The statements do not constitute tax advice and are intended only as a general guide. Furthermore, this information applies only to our ordinary shares held as capital assets and does not apply to all categories of shareholders, such as dealers in securities, trustees, insurance companies, collective investment schemes and shareholders who acquire, or who are deemed to acquire, their ordinary shares by virtue of an office or employment. The statements are in reference to individuals who are considered non-resident and non-ordinarily resident of Ireland for tax purposes. This summary is not exhaustive and shareholders should consult their own tax advisers as to the tax consequences in Ireland, or other relevant jurisdictions where we operate, including the acquisition, ownership and disposition of ordinary shares.

Withholding tax on dividends

While we have no current plans to pay dividends, dividends on our ordinary shares would generally be subject to Irish dividend withholding tax ("DWT") at 25%, unless an exemption applies. Dividends on our ordinary shares that are owned by residents of the U.S. and held beneficially through the Depositary Trust Company ("DTC") will not be subject to DWT provided that the address of the beneficial owner of the ordinary shares in the records of the broker is in the U.S.

Dividends on our ordinary shares that are owned by residents of the U.S. and held directly (outside of DTC) will not be subject to DWT provided that the shareholder has completed the appropriate Irish DWT form and this form remains valid. Such shareholders must provide the appropriate Irish DWT form to our transfer agent at least seven business days before the record date for the first dividend payment to which they are entitled.

If any shareholder who is resident in the U.S. receives a dividend subject to DWT, they should generally be able to make an application for a refund from the Irish Revenue Commissioners on the prescribed form.

Income tax on dividends

Irish income tax, if any, may arise in respect of dividends paid by us. However, a shareholder who is neither resident nor ordinarily resident in Ireland and who is entitled to an exemption from DWT, generally has no liability for Irish income tax or to the universal social charge on a dividend from us, unless he or she holds his or her ordinary shares through a branch or agency in Ireland which carries out a trade on his or her behalf.

Irish tax on capital gains

A shareholder who is neither resident nor ordinarily resident in Ireland and does not hold our ordinary shares in connection with a trade or business carried on by such shareholder in Ireland through a branch or agency, should not be within the scope of the charge to Irish tax on capital gains on a disposal of our ordinary shares.

Capital acquisitions tax

Irish capital acquisitions tax ("CAT") is comprised principally of gift tax and inheritance tax. CAT could apply to a gift or inheritance of our ordinary shares irrespective of the place of residence, ordinary residence or domicile of the parties. This is because our ordinary shares are regarded as property situated in Ireland as our share register must be held in Ireland. The person who receives the gift or inheritance has primary liability for CAT.

CAT is levied at a rate of 33% above certain tax-free thresholds. The appropriate tax-free threshold is dependent upon (i) the relationship between the donor and the recipient, and (ii) the aggregation of the values of previous gifts and inheritances received by the recipient from persons within the same category of relationship for CAT purposes. Gifts and inheritances passing between spouses are exempt from CAT. Our shareholders should consult their own tax advisers as to whether CAT is creditable or deductible in computing any domestic tax liabilities.

Stamp duty

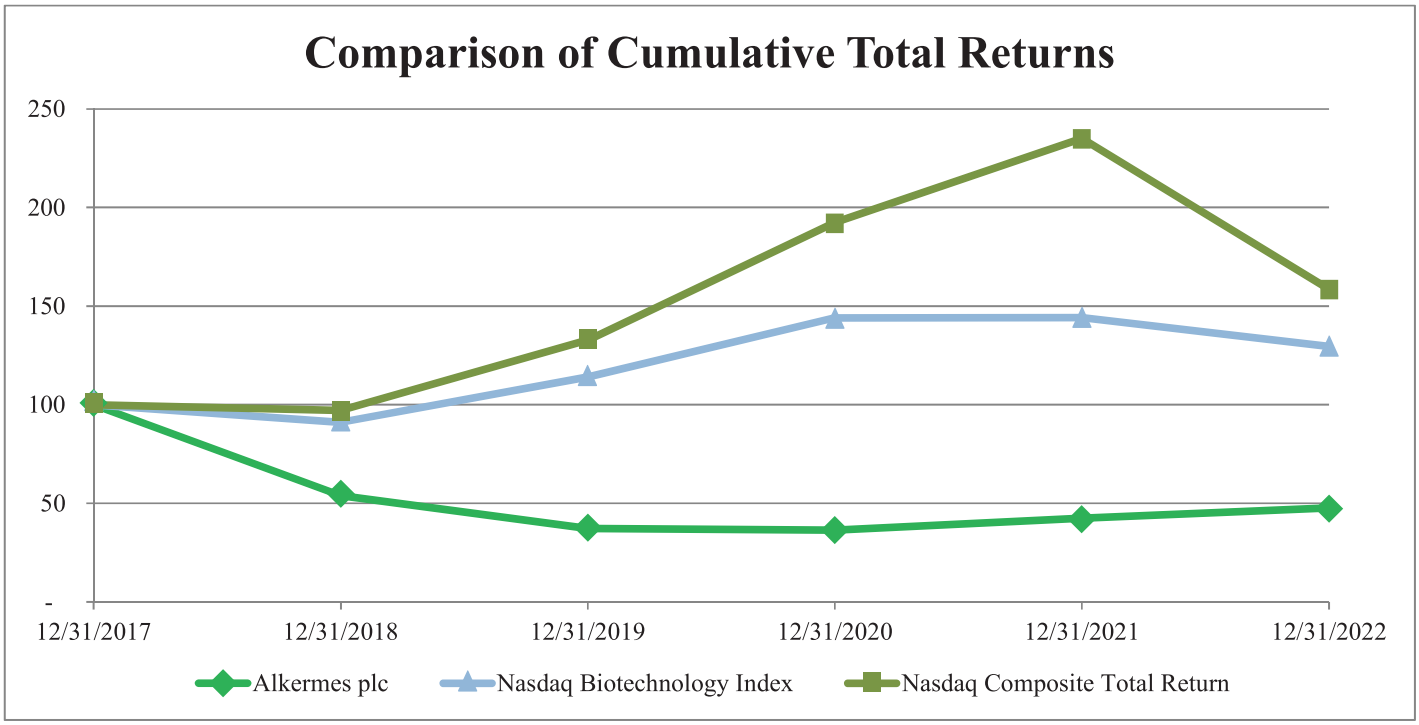
Irish stamp duty, if any, may become payable in respect of ordinary share transfers. However, a transfer of our ordinary shares from a seller who holds shares through DTC to a buyer who holds the acquired shares through DTC should not be subject to Irish stamp duty. A transfer of our ordinary shares (i) by a seller who holds ordinary shares outside of DTC to any buyer, or (ii) by a seller who holds the ordinary shares through DTC to a buyer who holds the acquired ordinary shares outside of DTC, may be subject to Irish stamp duty, which is currently at the rate of 1% of the price paid or the market value of the ordinary shares acquired, if greater. The person accountable for payment of stamp duty is the buyer or, in the case of a transfer by way of a gift or for less than market value, all parties to the transfer.

A shareholder who holds ordinary shares outside of DTC may transfer those ordinary shares into DTC without giving rise to Irish stamp duty provided that the shareholder would be the beneficial owner of the related book-entry interest in those ordinary shares recorded in the systems of DTC, and in exactly the same proportions, as a result of the transfer and at the time of the transfer into DTC there is no sale of those book-entry interests to a third party being contemplated by the shareholder. Similarly, a shareholder who holds ordinary shares through DTC may transfer those ordinary shares out of DTC without giving rise to Irish stamp duty provided that the shareholder would be the beneficial owner of the ordinary shares, and in exactly the same proportions, as a result of the transfer, and at the time of the transfer out of DTC there is no sale of those ordinary shares to a third party being contemplated by the shareholder. In order for the share registrar to be satisfied as to the application of this Irish stamp duty treatment where relevant, the shareholder must confirm to us that the shareholder would be the beneficial owner of the related book-entry interest in those ordinary shares recorded in the systems of DTC, and in exactly the same proportions or vice-versa, as a result of the transfer and there is no agreement for the sale of the related book-entry interest or the ordinary shares or an interest in the ordinary shares, as the case may be, by the shareholder to a third party being contemplated.

Stock performance graph

The information contained in the performance graph below shall not be deemed to be "soliciting material" or to be "filed" with the SEC, and such information shall not be incorporated by reference into any future filing under the Securities Act or the Exchange Act, except to the extent that we specifically incorporate it by reference into such filing.

The following graph compares the cumulative total shareholder return on our ordinary shares from December 31, 2017 through December 31, 2022 with the cumulative returns of the Nasdaq Composite Total Return Index and the Nasdaq Biotechnology Index. The comparison assumes $100 was invested on December 31, 2017 in our ordinary shares and in each of the foregoing indices and further assumes reinvestment of any dividends. We did not declare or pay any dividends on our ordinary shares during the comparison period.



	Year Ended December 31,					
	2017	2018	2019	2020	2021	2022
Alkermes	100	54	37	36	42	48
Nasdaq Composite Total Return	100	97	133	192	235	159
Nasdaq Biotechnology Index	100	91	114	144	144	130

Item 6. *[Reserved]*

Not applicable.

Item 7. *Management's Discussion and Analysis of Financial Condition and Results of Operations*

The following should be read in conjunction with our consolidated financial statements and related notes beginning on page F-1 of this Annual Report. The following discussion contains forward-looking statements. Actual results may differ significantly from those projected in the forward-looking statements. See "Cautionary Note Concerning Forward-Looking Statements" on page 3 of this Annual Report. Factors that might cause future results to differ materially from those projected in the forward-looking statements also include, but are not limited to, those discussed in "Item 1A—Risk Factors" and elsewhere in this Annual Report. A detailed discussion of our 2020 financial condition and results of operations, and of 2021 year-over-year changes as compared to 2020, can be found in "Item 7—Management's Discussion and Analysis of Financial Condition and Results of Operations" in the Company's Annual Report on Form 10-K for the year ended December 31, 2021, which was filed with the SEC on February 16, 2022.

Overview

We have a portfolio of proprietary products that we manufacture, market and sell in the U.S.—VIVITROL, ARISTADA, ARISTADA INITIO and most recently, LYBALVI, which we launched commercially in October 2021. We also earn manufacturing and/or royalty revenues on net sales of products commercialized by our licensees, the most significant of which in 2022 were the long-acting INVEGA products and VUMERITY. We expect VIVITROL, ARISTADA, ARISTADA INITIO, LYBALVI and VUMERITY to generate significant revenues for us in the near- and medium-term as we believe these products are singular or competitively advantaged products in their classes.

In 2022, we incurred an operating loss of $142.3 million, as compared to an operating loss of $29.3 million in 2021. The increase in the operating loss was primarily due to an increase in operating expenses of $51.0 million and a decrease in revenues of $62.0 million. These items are discussed in further detail within the "Results of Operations" section below.

In November 2022, we announced our intent, as approved by our board of directors, to separate our neuroscience business and oncology business. We are exploring a separation of the oncology business into an independent, publicly-traded company as part of an ongoing review of strategic alternatives for the oncology business. Following the planned separation, we would focus on driving growth of our proprietary commercial products: LYBALVI, ARISTADA, ARISTADA INITIO and VIVITROL and on advancing the development of pipeline programs focused on neurological disorders. We also expect to retain manufacturing and royalty revenues related to our licensed products and third-party products using our proprietary technologies under license. Oncology Co. would focus on the discovery and development of cancer therapies, including the continued development of nemvaleukin alfa and our portfolio of novel, preclinical, engineered cytokines. The separation, if consummated, is expected to be completed in the second half of 2023 and is subject to customary closing conditions, including final approval by our board of directors and, if sought, receipt of a private letter ruling from the IRS and/or tax opinion from our tax advisors.

COVID-19 Update

The COVID-19 pandemic has impacted, and may continue to impact, many aspects of society, including the operation of healthcare systems, global travel, supply and labor markets and other business and economic activity worldwide. A number of the marketed products from which we derive revenue, including manufacturing and royalty revenue, are injectable medications administered by healthcare professionals, which have been, and may continue to be, adversely impacted to varying degrees as a result of COVID-19 related closures, restrictions, labor shortages and other disruptions that have transpired, and may continue to transpire, while the pandemic persists.

The COVID-19 pandemic has caused, and may continue to cause, varying degrees of disruption to our employees and our business operations. While we have continued to operate our manufacturing facilities and supply our medicines throughout the pandemic, we have at times during the pandemic experienced labor or supply chain disruptions at our manufacturing facilities and may continue to experience such disruptions while the pandemic persists, which could impact our ability to manufacture our products and the third-party products from which we receive revenue in a timely matter or at all. In addition, while we have continued to conduct R&D activities, including our ongoing clinical trials, the COVID-19 pandemic has at times impacted the timelines of certain of our early-stage discovery efforts and clinical trials, and may continue to impact such timelines while the pandemic persists. We work with our internal teams, our clinical investigators, R&D vendors and critical supply chain vendors to continually assess, and mitigate, the potential impact of COVID-19 on our manufacturing operations and R&D activities.

The degree to which the COVID-19 pandemic may continue to impact our employees, business, financial condition and results of operations will depend on the ultimate severity and duration of the pandemic and the manner in which it continues to evolve, including the emergence, prevalence and severity of new COVID-19 variants, and future developments in response thereto. Due to these and numerous other uncertainties surrounding the ongoing COVID-19 pandemic, the actual impact of the pandemic on our financial condition and operating results may differ from our current projections. For additional information about risks and uncertainties related to the COVID-19 pandemic that may impact our business, our financial condition or our results of operations, see "Item 1A—Risk Factors" in this Annual Report and specifically the section entitled "Our business, financial condition and results of

operations have been, and may continue to be, adversely affected by the ongoing COVID-19 pandemic or other similar outbreaks of contagious diseases."

Results of Operations

Product Sales, Net

Our product sales, net consist of sales in the U.S. of VIVITROL, ARISTADA, ARISTADA INITIO, and following its commercial launch in October 2021, LYBALVI, primarily to wholesalers, specialty distributors and pharmacies. The following table presents the adjustments deducted from product sales, gross to arrive at product sales, net for sales of VIVITROL, ARISTADA, ARISTADA INITIO and LYBALVI in the U.S. during the years ended December 31, 2022 and 2021:

	Year Ended December 31,			
(In millions, except for % of Sales)	2022	% of Sales	2021	% of Sales
Product sales, gross	$ 1,548.9	100.0 %	$ 1,315.1	100.0 %
Adjustments to product sales, gross:				
Medicaid rebates	(344.0)	(22.2) %	(331.9)	(25.2) %
Chargebacks	(157.2)	(10.2) %	(129.1)	(9.8) %
Product discounts	(124.1)	(8.0) %	(107.0)	(8.1) %
Medicare Part D	(68.1)	(4.4) %	(59.8)	(4.5) %
Other	(77.9)	(5.0) %	(59.9)	(4.6) %
Total adjustments	(771.3)	(49.8) %	(687.7)	(52.2) %
Product sales, net	$ 777.6	50.2 %	$ 627.4	47.8 %

Product sales, net during the years ended December 31, 2022 and 2021 were as follows:

	Year Ended December 31,		
(In millions)	2022	2021	Change
VIVITROL	$ 379.5	$ 343.9	$ 35.6
ARISTADA and ARISTADA INITIO	302.1	275.4	26.7
LYBALVI	96.0	8.1	87.9
Product sales, net	$ 777.6	$ 627.4	$ 150.2

VIVITROL product sales, gross, increased by 7% in 2022 which was primarily due to an increase of 2% in the number of VIVITROL units sold and a 6% increase in the selling price of VIVITROL that went into effect in April 2022. ARISTADA and ARISTADA INITIO product sales, gross, increased by 11% in 2022 which was primarily due to an increase of 8% in the number of ARISTADA and ARISTADA INITIO units sold and a 3% increase in the selling price of ARISTADA and ARISTADA INITIO that went into effect in April 2022. The increase in LYBALVI during 2022, as compared to 2021, was due to the product having a full year of sales in 2022 following its commercial launch in October 2021.

The decrease in Medicaid rebates as a percentage of sales was primarily due to actual Medicaid utilization rates related to VIVITROL being lower than original estimates as such rates normalize from initial pandemic levels and due to the increased sales of LYBALVI, which had lower Medicaid utilization than VIVITROL and ARISTADA.

A number of companies are working to develop products to treat addiction, including alcohol and opioid dependence, that may compete with, and negatively impact, future sales of VIVITROL. Increased competition may lead to reduced unit sales of VIVITROL and increased pricing pressure. The latest to expire of our patents covering VIVITROL will expire in 2029 in the U.S. and expired in Europe in 2021. Under the terms of a settlement and license agreement, we granted Amneal a license under certain patents covering VIVITROL, including the latest to expire patent covering VIVITROL in the U.S., to market and sell a generic formulation of VIVITROL in the U.S. beginning sometime in 2028 or earlier under certain circumstances. We are currently engaged in Paragraph IV litigation with certain Teva entities in respect of the last to expire patent covering VIVITROL in the U.S. For a discussion of these legal proceedings, see Note 17, *Commitments and Contingent Liabilities* in the "Notes to Consolidated Financial Statements" in this Annual Report and for information regarding the risks relating to these legal proceedings, see "Item 1A—Risk Factors" in this Annual Report and specifically the section entitled "Risks Related to our Intellectual Property—We or our licensees may face claims against IP rights covering our products and competition from generic drug manufacturers". A number of companies currently market and/or are developing products to treat schizophrenia and/or bipolar I disorder that may compete with and negatively impact future sales of ARISTADA, ARISTADA INITIO and LYBALVI. Increased competition may lead to reduced unit sales of ARISTADA, ARISTADA INITIO and LYBALVI and increased pricing pressure. The latest to expire of our patents covering ARISTADA, ARISTADA INITIO and LYBALVI in the U.S. will expire in 2039, 2039 and 2032, respectively; and, as such, we do not anticipate any generic versions of these products to enter the market in the near term. We expect our product sales, net will continue to grow as VIVITROL continues to penetrate the alcohol dependence and opioid dependence markets in the U.S., as ARISTADA and ARISTADA INITIO continue to gain market share in the U.S., and as we continue the commercial launch of LYBALVI.

Manufacturing and Royalty Revenues

Manufacturing revenue from RISPERDAL CONSTA and VUMERITY are recognized at the point in time that the product has been fully manufactured. Manufacturing revenues for third-party products using our proprietary technologies are mostly recognized over time as products move through the manufacturing process, using an input method based on costs as a measure of progress. Royalties earned on our licensees' net sales of third-party products using our proprietary technologies are generally recognized in the period such products are sold by our licensees. The following table compares manufacturing and royalty revenues earned in the years ended December 31, 2022 and 2021:

	Year Ended December 31,		
(In millions)	2022	2021	Change
Manufacturing and royalty revenues:			
Long-acting INVEGA products	$ 115.7	$ 303.1	$ (187.4)
VUMERITY	115.5	87.4	28.1
RISPERDAL CONSTA	49.9	50.9	(1.0)
Other	50.9	100.4	(49.5)
Manufacturing and royalty revenues	$ 332.0	$ 541.8	$ (209.8)

Our agreements with Janssen related to the long-acting INVEGA products provide for tiered royalty payments, which consist of a patent royalty and a know-how royalty, both of which are determined on a country-by-country basis. The patent royalty, which equals 1.5% of net sales, is payable in each country until the expiration of the last of the patents with valid claims applicable to the product in such country. The know-how royalty is a tiered royalty of 3.5% on calendar year net sales up to $250 million; 5.5% on calendar year net sales of between $250 million and $500 million; and 7.5% on calendar year net sales exceeding $500 million. The know-how royalty rate resets to 3.5% at the beginning of each calendar year and is payable until 15 years from the first commercial sale of a product in each individual country, subject to expiry of the agreement. For more information about the license agreement with Janssen in respect of the long-acting INVEGA products, see "Collaborative Arrangements—Janssen" in "Item 1—Business" in this Annual Report.

In November 2021, we received notice of partial termination of our license agreement with Janssen under which we provided Janssen with rights to, and know-how, training and technical assistance in respect of, our small particle pharmaceutical compound technology, known as NanoCrystal technology, which was used to develop INVEGA SUSTENNA/XEPLION, INVEGA TRINZA/TREVICTA, and INVEGA HAFYERA/BYANNLI. The partial termination became effective in February 2022, at which time Janssen ceased paying royalties related to sales of INVEGA SUSTENNA, INVEGA TRINZA and INVEGA HAFYERA in the U.S. In April 2022, we commenced binding arbitration proceedings related to, among other things, Janssen's partial termination of this license agreement and Janssen's royalty and other obligations under the agreement. On December 21, 2022, we received the Interim Award for these proceedings from the Tribunal, in which the Tribunal agreed with our position that, while Janssen may terminate the agreement, it may not continue to sell Products (as defined in the agreement) developed during the term of the agreement without paying royalties pursuant to the term of the agreement. This award is not yet final. We will engage with Janssen and the Tribunal in additional proceedings prior to the Tribunal's issuance of a final award. Accordingly, we have not recognized royalty revenue related to U.S. sales of long-acting INVEGA products since February 2022. For additional information regarding the arbitration proceedings with Janssen, see Note 17, *Commitments and Contingent Liabilities* in the "Notes to Consolidated Financial Statements" in this Annual Report. For information about risks relating to the notice of partial termination and our collaborative arrangements more broadly, see "Item 1A—Risk Factors" in this Annual Report and specifically the section entitled "We rely heavily on our licensees in the commercialization and continued development of products from which we receive revenue and, if our licensees are not effective, or if disputes arise in respect of our contractual arrangements, our revenues could be materially adversely affected."

The decrease in royalty revenues from the long-acting INVEGA products was primarily due to Janssen's partial termination of our license agreement related to such products. When the partial termination of the license agreement became effective in February 2022, Janssen ceased paying royalties related to sales of INVEGA SUSTENNA, INVEGA TRINZA and INVEGA HAFYERA in the U.S. and we stopped recognizing royalty revenue related to net sales of these products. During 2022, Janssen's rest of world net sales were $1,426.0 million, as compared to $1,472.0 million during 2021. We expect royalty revenues from net sales of XEPLION, TREVICTA and BYANNLI to decrease over time. The amount, timing and duration of royalty revenues from sales of INVEGA SUSTENNA, INVEGA TRINZA and INVEGA HAFYERA depend upon the outcome of our dispute with Janssen related to the impact of its partial termination of our license agreement on its obligations to continue to pay us know-how royalties in accordance with the terms of the agreement.

In addition, each of INVEGA SUSTENNA and INVEGA TRINZA are currently subject to Paragraph IV litigation in response to companies seeking to market generic versions of such products. Increased competition from new products or generic versions of these products may lead to reduced unit sales of such products and increased pricing pressure. For a discussion of these legal proceedings, see Note 17, *Commitments and Contingent Liabilities* in the "Notes to Consolidated Financial Statements" in this Annual Report, and for information about risks relating to these legal proceedings, see "Item 1A—Risk Factors" in this Annual Report, and specifically the section entitled "We or our licensees may face claims against IP rights covering our products and competition from generic drug manufacturers."

We recognize manufacturing revenue for RISPERDAL CONSTA at the point in time when RISPERDAL CONSTA has been fully manufactured, which is deemed to have occurred when the product is approved for shipment by both us and Janssen. We record royalty revenue, equal to 2.5% of Janssen's end-market net sales, in the period that the end-market sales of RISPERDAL CONSTA occur. The decrease in revenue from RISPERDAL CONSTA was primarily due to a decrease of $3.2 million in royalty revenue, partially offset by a $2.2 million increase in manufacturing revenue. This decrease in royalty revenue was due to a decrease in end-market sales of RISPERDAL CONSTA, which was $485.0 million during 2022, as compared to $592.0 million during 2021. The increase in manufacturing revenue was primarily due to an increase in the number of units approved for shipment to Janssen. We expect revenues from RISPERDAL CONSTA to decrease over time. The latest to expire patent covering RISPERDAL CONSTA expired in 2021 in the EU and expired in January 2023 in the U.S., and we are aware of potential generic competition for RISPERDAL CONSTA that may lead to reduced unit sales and increased pricing pressure.

We receive a 15% royalty on worldwide net sales of VUMERITY for product manufactured and packaged by us, subject to increases for VUMERITY manufactured and/or packaged by Biogen or its designees, in the period that the end-market sales of VUMERITY occur. We also recognize manufacturing revenue related to VUMERITY at cost plus 15%, upon making available bulk batches of VUMERITY to Biogen and, to the extent we package such product, then also when packaged batches of VUMERITY are made available to Biogen. The increase in revenue from VUMERITY was due to increases of $6.7 million and $21.4 million in manufacturing revenue and royalty revenue, respectively. The increase in manufacturing revenue was due to an increase in the number of packaged batches that were manufactured for Biogen, partially offset by a manufacturing issue related to VUMERITY, which, for a period during 2022, negatively impacted the number of commercial batches we were able to manufacture. The increase in royalty revenue was due to an increase in net sales of VUMERITY, which were $553.4 million during 2022, as compared to $410.0 million during 2021.

The decrease in other manufacturing and royalty revenue was primarily due to the decision from an arbitration panel in October 2022, which found that we must return to Acorda $16.5 million (inclusive of prejudgment interest and administrative fees) previously paid by Acorda under a license agreement between the Company and Acorda. In November 2022, the panel found that we must pay to Acorda an additional $1.8 million (inclusive of prejudgment interest). These amounts represent a portion of the royalty revenue paid to us by Acorda since July 2020 related to AMPYRA. We paid the $16.5 million in October 2022 and paid the additional $1.8 million in December 2022. In addition, during the three months ended June 30, 2022, we had recorded $3.2 million of royalty revenue related to AMPYRA as we believed that we had met the necessary revenue recognition criteria under the Financial Accounting Standards Board Accounting Standards Codification 606, *Revenue from Contracts with Customers* ("Topic 606"). However, as a result of the arbitration ruling, we reversed the $3.2 million as the panel found that we were no longer entitled to be paid those royalties. During the three months ended September 30, 2022, we recorded both the approximately $18.3 million in repayments and the $3.2 million reversal as reversals of royalty revenue within "Manufacturing and royalty revenue" in the accompanying consolidated statements of operations and comprehensive loss. As a result of the arbitration ruling, we no longer have a contractual obligation to manufacture and supply AMPYRA or a contractual right to receive future manufacturing or royalty revenue related to AMPYRA. In January 2023, Acorda filed a petition with the U.S. District Court for the Southern District of New York asking the court to confirm in part and modify in part the final arbitral award rendered by the arbitration panel in October 2022 and, as part of the requested modification, seeking an additional approximately $66.0 million in damages. We intend to contest this petition and believe it is without merit.

Certain of our manufacturing and royalty revenues are earned in countries outside of the U.S. and are denominated in currencies in which the product is sold. See "Item 7A—Quantitative and Qualitative Disclosures about Market Risk" in this Annual Report for information on currency exchange rate risk related to our revenues and "Item 1A—Risk Factors" in this Annual Report, and specifically the section entitled "Currency exchange rates may affect revenues and expenses" for risks related to currency exchange rates.

Costs and Expenses

Cost of Goods Manufactured and Sold

(In millions)	Year Ended December 31, 2022	2021	Change
Cost of goods manufactured and sold	$ 218.1	$ 197.4	$ 20.7

The increase in cost of goods manufactured and sold was primarily due to increases of $6.4 million and $4.8 million, respectively, in the cost of goods manufactured for VUMERITY and RISPERDAL CONSTA and increases of $5.6 million and $10.2 million, respectively, in the cost of goods sold for VIVITROL and LYBALVI. The increases related to VUMERITY and RISPERDAL CONSTA were primarily due to increased manufacturing activity, as discussed above. The increase related to LYBALVI was primarily due to the increase in sales activity, as discussed above. The increase related to VIVITROL was primarily due to an increase in costs incurred for out-of-specification batches, as well as an increase in sales activity, as discussed above.

Research and Development Expenses

For each of our R&D programs, we incur both external and internal expenses. External R&D expenses include fees for clinical and non-clinical activities performed by CROs, consulting fees, and costs related to laboratory services, the purchase of drug product materials and third-party manufacturing development activities. Internal R&D expenses include employee-related expenses, occupancy costs, depreciation and general overhead. We track external R&D expenses for each of our development programs; however, internal R&D expenses are not tracked by individual program as they can benefit multiple programs or our technologies in general.

The following table sets forth our external R&D expenses for the years ended December 31, 2022 and 2021 relating to our then-current development programs and our internal R&D expenses, listed by the nature of such expenses:

(In millions)	Year Ended December 31, 2022	2021	Change
External R&D expenses:			
Development programs:			
nemvaleukin	$ 77.8	$ 80.1	$ (2.3)
LYBALVI	23.1	26.0	(2.9)
ALKS 1140	3.5	29.3	(25.8)
Other external R&D expenses	76.1	65.7	10.4
Total external R&D expenses	180.5	201.1	(20.6)
Internal R&D expenses:			
Employee-related	159.0	148.6	10.4
Occupancy	17.8	19.5	(1.7)
Depreciation	12.0	12.2	(0.2)
Other	24.5	25.1	(0.6)
Total internal R&D expenses	213.3	205.4	7.9
Research and development expenses	$ 393.8	$ 406.5	$ (12.7)

These amounts are not necessarily predictive of future R&D expenses. In an effort to allocate our spending most effectively, we continually evaluate our products under development based on the performance of such products in preclinical and/or clinical trials, our expectations regarding the likelihood of their regulatory approval and our view of their future potential commercial viability, among other factors.

The decrease in expenses related to nemvaleukin was primarily due to decreased spend on the ARTISTRY-1 study, partially offset by increased spend on the ARTISTRY-7 study. For additional detail on the ARTISTRY development program for nemvaleukin, see “Item 1—Business” in this Annual Report and specifically the section entitled “Key Development Program – nemvaleukin alfa”. The decrease in expenses related to LYBALVI was primarily due to decreased R&D activities for the product in light of its commercial launch in October 2021, partially offset by continued spend on ongoing clinical studies. The decrease in expenses related to ALKS 1140 was primarily due to the termination of the ALKS 1140 clinical development program in the second quarter of 2022, as the initial data did not support further clinical development, and a $25.0 million development milestone in the third quarter of 2021 related to the submission of a clinical trial authorization for ALKS 1140. The increase in other external R&D expenses was primarily due to an increase of $10.2 million related to our early-stage development programs.

The increase in employee-related expense was primarily related to an increase of $5.5 million in labor and benefits, primarily due to increases in recruitment costs and temporary labor and an increase of $3.2 million in R&D-related share-based compensation, primarily due to an increase in the fair value of the awards granted in 2022.

Selling, General and Administrative Expenses

(In millions)	Year Ended December 31, 2022	2021	Change
Selling and marketing expense	$ 392.2	$ 365.9	$ 26.3
General and administrative expense	213.5	195.1	18.4
Selling, general and administrative expense	$ 605.7	$ 561.0	$ 44.7

The increase in selling and marketing expense was primarily due to a $14.6 million increase in employee-related expenses due to an increase in selling-and-marketing-related salaries and benefits and an increase of $10.0 million in marketing activity related to the commercial launch of LYBALVI.

The increase in general and administrative expense was primarily due to a $9.9 million increase in professional service fees, primarily due to increased spend on legal fees and fees related to the proposed separation of the Company's oncology business. We also had a $3.5 million increase in our branded prescription drug fee due to an increase in sales of our commercialized products and a $1.9 million increase in travel and expense, primarily due to resuming in-person meetings as travel restrictions loosened.

Amortization of Acquired Intangible Assets

(In millions)	Year Ended December 31, 2022	2021	Change
Amortization of acquired intangible assets	$ 36.4	$ 38.1	$ (1.7)

Our amortizable intangible assets consist of technology and collaborative arrangements acquired as part of the acquisition of EDT in September 2011, which are being amortized over 12 to 13 years. We amortize our amortizable intangible assets using the economic use method, which reflects the pattern that the economic benefits of the intangible assets are consumed as revenue is generated from the underlying patent or contract.

Based on our most recent analysis, amortization of intangible assets included within our consolidated balance sheet at December 31, 2022 is expected to be approximately $35.0 million and $1.0 million in the years ending December 31, 2023 and 2024, respectively.

Other Expense, Net

(In millions)	Year Ended December 31, 2022	2021	Change
Interest income	$ 7.6	$ 2.4	$ 5.2
Interest expense	(13.0)	(11.2)	(1.8)
Change in the fair value of contingent consideration	(21.8)	(1.4)	(20.4)
Other income, net	2.2	0.2	2.0
Total other expense, net	$ (25.0)	$ (10.0)	$ (15.0)

The increase in total other expense, net was primarily due to the change in the fair value of contingent consideration and an increase in interest expense, partially offset by increases in interest income and other income, net. The change in the fair value of the contingent consideration was due to the determination that it was unlikely that we would collect any further contingent consideration proceeds from Baudax Bio, Inc. ("Baudax"), and accordingly, we reduced the fair value of the contingent consideration to zero, as discussed in Note 5, *Fair Value*, in the "Notes to Consolidated Financial Statements" in this Annual Report. Interest expense consists primarily of interest incurred on our 2026 Term Loans. Interest income consists primarily of interest earned on our available-for-sale investments. The increases in interest income and interest expense were primarily due to increases in interest rates. The increase in interest expense was partially offset by a decrease in certain financing costs related to the Term Loan Refinancing completed in March 2021. The Term Loan Refinancing is discussed in Note 11, *Long-Term Debt* in the "Notes to Consolidated Financial Statements" in this Annual Report. The increase in other income, net was primarily due to proceeds received in connection with the Company's investment in Fountain Healthcare Partners II, L.P. of Ireland ("Fountain") in March 2022, partially offset by the write down of certain construction in progress due to the determination that certain construction in progress related to our agreement with Baudax had no future value, as discussed in Note 7, *Property, Plant and Equipment*, in the "Notes to Consolidated Financial Statements" in this Annual Report. The Fountain investment is discussed in Note 4, *Investments*, in the "Notes to Consolidated Financial Statements" in this Annual Report.

Income Tax (Benefit) Provision

(In millions)	Year Ended December 31, 2022	2021	Change
Income tax (benefit) provision	$ (9.0)	$ 8.9	$ (17.9)

The income tax benefit in 2022 was primarily due to an enhanced foreign derived intangible income deduction that resulted from a change to Section 174 of the Tax Cuts and Jobs Act in relation to capitalization and amortization of R&D expenses. The income tax provision in 2021 was primarily due to U.S. federal and state taxes on income earned in the U.S. and the tax impact of employee equity activity. No provision for income tax has been provided on undistributed earnings of our foreign subsidiaries because such earnings are indefinitely reinvested in the foreign operations. Cumulative unremitted earnings of overseas subsidiaries totaled approximately $812.8 million at December 31, 2022. In the event of a repatriation of those earnings in the form of dividends or otherwise, we may be liable for income taxes, subject to adjustment, if any, for foreign tax credits and foreign withholding taxes payable to foreign tax authorities. We estimate that approximately $55.0 million of income taxes would be payable on the repatriation of the unremitted earnings to Ireland.

As of December 31, 2022, we had $1.7 billion of Irish NOL carryforwards, $15.1 million of U.S. federal NOL carryforwards, $43.2 million of state NOL carryforwards, $5.7 million of federal R&D credits and $29.0 million of state tax credits which will either expire on various dates through 2042 or can be carried forward indefinitely. These loss and credit carryforwards are available to reduce certain future Irish and foreign taxable income and tax. These loss and credit carryforwards are subject to review and possible adjustment by the appropriate taxing authorities and may be subject to limitations based upon changes in the ownership of our ordinary shares.

As discussed in "Item 1A—Risk Factors" in this Annual Report and specifically the section entitled "Changes in tax rules and regulations, or interpretations thereof, may adversely affect our financial condition", effective in 2022, the Tax Cuts and Jobs Act of 2017 requires us to capitalize, and subsequently amortize R&D expenses over five years for research activities conducted in the U.S. and over fifteen years for research activities conducted outside of the U.S. In 2022, this resulted in a material increase to our U.S. income tax liability and net deferred tax assets and a material decrease to our cash flows provided from operations. We expect an impact from this legislative change throughout the amortization period.

In December 2022, the EU agreed to implement a corporate minimum tax rate of 15% on companies with combined annual revenue of at least €750.0 million. The Irish government will be required to transpose these rules into Irish legislation. The new rules are expected to come into effect on January 1, 2024. The Company is currently monitoring these developments and assessing the potential impact.

Liquidity and Capital Resources

Our financial condition is summarized as follows:

(In millions)	December 31, 2022 U.S.	Ireland	Total	December 31, 2021 U.S.	Ireland	Total
Cash and cash equivalents	$ 208.4	$ 84.1	$ 292.5	$ 88.6	$ 248.9	$ 337.5
Investments—short-term	207.6	108.4	316.0	144.5	54.3	198.8
Investments—long-term	70.3	61.3	131.6	163.0	66.4	229.4
Total cash and investments	$ 486.3	$ 253.8	$ 740.1	$ 396.1	$ 369.6	$ 765.7
Outstanding borrowings—short and long-term	$ 293.3	$ —	$ 293.3	$ 295.8	$ —	$ 295.8

At December 31, 2022, our investments consisted of the following:

(In millions)	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Allowance for Credit Losses	Estimated Fair Value
Investments—short-term available-for-sale	$ 320.6	$ —	$ (4.6)	$ —	$ 316.0
Investments—long-term available-for-sale	134.6	—	(4.8)	—	129.8
Investments—long-term held-to-maturity	1.8	—	—	—	1.8
Total	$ 457.0	$ —	$ (9.4)	$ —	$ 447.6

Sources and Uses of Cash

We generated $21.0 million and $101.7 million of cash from operating activities during the years ended December 31, 2022 and 2021, respectively. We expect that our existing cash, cash equivalents and investments will be sufficient to finance our anticipated working capital and other cash requirements, such as capital expenditures and principal and interest payments on our long-term debt, for at least the twelve months following the date from which our financial statements were issued. Subject to market conditions, interest rates and other factors, we may pursue opportunities to obtain additional financing in the future, including debt and equity offerings, corporate collaborations, bank borrowings, arrangements relating to assets or other financing methods or structures. In addition, the 2026 Term Loans have an incremental facility capacity in an amount of $175.0 million, plus additional potential amounts provided that we meet certain conditions, including a specified leverage ratio.

Our investment objectives are, first, to preserve liquidity and conserve capital and, second, to generate investment income. We mitigate credit risk in our cash reserves by maintaining a well-diversified portfolio that limits the amount of investment exposure as to institution, maturity and investment type. However, the value of these securities may be adversely affected by the instability of the global financial markets, which could, in turn, adversely impact our financial position and our overall liquidity. Our available-for-sale investments consist primarily of short and long-term U.S. government and agency debt securities, corporate debt securities and debt securities issued and backed by non-U.S. governments. Our held-to-maturity investments consist of investments that are held as collateral under certain letters of credit related to certain of our lease agreements.

We classify available-for-sale investments in an unrealized loss position that do not mature within 12 months as long-term investments. We have the intent and ability to hold these investments until recovery, which may be at maturity, and it is more-likely-than-not that we would not be required to sell these securities before recovery of their amortized cost.

We have no off-balance sheet arrangements that are reasonably likely to have a material effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures, or capital resources in the next twelve months. As discussed above, we made a $25.0 million development milestone payment to the former shareholders of Rodin Therapeutics, Inc. (“Rodin”) during the year ended December 31, 2021. We are obligated to make up to $825.0 million in future payments, $225.0 million of which would be triggered upon achievement of certain specified clinical milestones, $300.0 million of which would be triggered by the achievement of certain regulatory milestones and $325.0 million of which would be triggered upon the attainment of certain sales thresholds. At December 31, 2022, we had not recorded a liability related to these milestone payments as none of the future events that would trigger a milestone payment were considered probable of occurring.

Information about our cash flows, by category, is presented in the accompanying consolidated statements of cash flows. The following table summarizes our cash flows for the years ended December 31, 2022 and 2021:

	Year Ended December 31,	
(In millions)	**2022**	**2021**
Cash and cash equivalents, beginning of period	$ 337.5	$ 273.0
Cash flows provided by operating activities	21.0	101.7
Cash flows used in investing activities	(64.4)	(66.2)
Cash flows (used in) provided by financing activities	(1.6)	29.0
Cash and cash equivalents, end of period	$ 292.5	$ 337.5

Operating Activities

Cash flows from operating activities represent the cash receipts and disbursements related to all of our activities other than investing and financing activities. We expect cash provided from operating activities will continue to be our primary source of funds to finance operating needs and capital expenditures for the foreseeable future. Operating cash flow is derived by adjusting our net loss for non-cash operating items such as depreciation, amortization and share-based compensation as well as changes in operating assets and liabilities, which reflect timing differences between the receipt and payment of cash associated with transactions and when they are recognized in our results of operations.

The decrease in cash flows provided by operating activities was primarily due to an increase in our net loss of $110.1 million and an increase in cash used for our lease liabilities of $15.3 million related to an early payment of our lease of approximately 231,000 square feet of office and laboratory space located at 900 Winter Street in Waltham, Massachusetts. Please refer to Note 9, *Leases*, in the “Notes to Consolidated Financial Statements” in this Annual Report for additional information related to such early payment. These were partially offset by an increase in the cash provided by working capital, primarily due to an increase in cash provided by receivables of $63.3 million and from accounts payable and accrued expenses of $4.0 million.

Investing Activities

The decrease in cash flows used in investing activities was primarily due to a $17.4 million decrease in net purchase of investments and a $6.7 million decrease in payments received in connection with the contingent consideration resulting from the Gainesville Transaction, partially offset by a $10.2 million increase in capital expenditures.

We expect to spend approximately $35.0 million to $40.0 million during the year ending December 31, 2023 for capital expenditures. We continue to evaluate our manufacturing capacity based on expectations of demand for the products that we manufacture and will continue to record such amounts within construction in progress until such time as the underlying assets are placed into service, or we determine we have sufficient existing capacity and the assets are no longer required, at which time we would recognize an impairment charge. We continue to periodically evaluate whether facts and circumstances indicate that the carrying value of these long-lived assets to be held and used may not be recoverable.

Financing Activities

The change in cash flows from financing activities was primarily due to $23.6 million in proceeds from the Term Loan Refinancing, which we received in 2021, and a $7.3 million decrease in the amount of cash that we received upon the exercise of employee stock options, net of employee taxes.

Debt

At December 31, 2022, our borrowings consisted of $294.8 million outstanding under the 2026 Term Loans. The 2026 Term Loans bear interest at LIBOR plus 2.5%, with a LIBOR floor of 0.5%. Principal payments of $0.8 million are to be made quarterly through 2025, with a final payment of $285.8 million due in March 2026. Please refer to Note 11, *Long-Term Debt*, in the "Notes to Consolidated Financial Statements" in this Annual Report for a discussion of our outstanding term loans.

Critical Accounting Estimates

Our consolidated financial statements are prepared in accordance with GAAP. In connection with the preparation of our financial statements, we are required to make assumptions and estimates about future events, and apply judgments based on historical experience, current trends and other factors that management believes to be relevant at the time our consolidated financial statements are prepared. On a regular basis, we review these accounting policies, assumptions, estimates and judgments to ensure that our financial statements are presented fairly and in accordance with GAAP. However, because future events and their effects cannot be determined with certainty, actual results could differ from our assumptions and estimates, and such differences could be material.

Our significant accounting policies are discussed in Note 2, *Summary of Significant Accounting Policies*, of the "Notes to Consolidated Financial Statements" in this Annual Report. We believe that the following accounting estimates are the most critical to aid in fully understanding and evaluating our reported financial results, and they require our most difficult, subjective or complex judgments, resulting from the need to make estimates about the effects of matters that are inherently uncertain. We have reviewed these critical accounting estimates and related disclosures with the audit and risk committee of our board of directors.

Revenue from Contracts with Customers

When entering into arrangements with customers, we identify whether our performance obligations under each arrangement represent a distinct good or service or a series of distinct goods or services. If a contract contains more than one performance obligation, we allocate the total transaction price to each performance obligation in an amount based on the estimated relative standalone selling prices of the promised goods or services underlying each performance obligation. The fair value of performance obligations under each arrangement may be derived using an estimate of selling price if we do not sell the goods or services separately.

We recognize revenue when or as we satisfy a performance obligation by transferring an asset or providing a service to a customer. Management judgment is required in determining the consideration to be earned under an arrangement and the period over which we are expected to complete our performance obligations under an arrangement. Steering committee services that are not inconsequential or perfunctory and that are determined to be performance obligations are combined with other research services or performance obligations required under an arrangement, if any, in determining the level of effort required in an arrangement and the period over which we expect to complete our aggregate performance obligations.

Product Sales, Net

Our product sales, net consist of sales in the U.S. of VIVITROL, ARISTADA, ARISTADA INITIO and, following its commercial launch in October 2021, LYBALVI, primarily to wholesalers, specialty distributors and pharmacies. Product sales, net are recognized when the customer obtains control of the product, which is when the product has been received by the customer.

Revenues from product sales are recorded net of reserves established for applicable discounts and allowances that are offered within contracts with our customers, healthcare providers or payers. Our process for estimating reserves established for these variable consideration components does not differ materially from historical practices. The transaction price, which includes variable consideration reflecting the impact of discounts and allowances, may be subject to constraint and is included in the net sales price only to the extent that it is probable that a significant reversal of the amount of the cumulative revenues recognized will not occur in a future period. Actual amounts may ultimately differ from our estimates. If actual results vary, we adjust these estimates, which could have an effect on earnings in the period of adjustment. The following are our significant categories of sales discounts and allowances:

- *Medicaid Rebates*—we record accruals for rebates to U.S. states under the Medicaid Drug Rebate Program as a reduction of sales when the product is shipped into the distribution channel using the expected value. We rebate individual U.S. states for all eligible units purchased under the Medicaid program based on a rebate per unit calculation, which is based on our average manufacturer prices. We estimate expected unit sales to individuals covered by Medicaid and rebates per unit under the Medicaid program and adjust our rebate accrual based on actual unit sales and rebates per unit and changes in trends in Medicaid utilization. To date, actual Medicaid rebates have not differed materially from our estimates;

- *Chargebacks*—discounts that occur when contracted indirect customers purchase directly from wholesalers and specialty distributors. Contracted customers generally purchase a product at its contracted price. The wholesaler or specialty distributor, in turn, then generally charges back to us the difference between the wholesale acquisition cost and the contracted price paid to the wholesaler or specialty distributor by the customer. The allowance for chargebacks is made using the expected value and is based on actual and expected utilization of these programs. Chargebacks could exceed historical experience and our estimates of future participation in these programs. To date, actual chargebacks have not differed materially from our estimates;

- *Product Discounts*—cash consideration, including sales incentives, given by us under agreements with a number of wholesaler, distributor, pharmacy, and treatment provider customers that provide them with a discount on the purchase price of products. The reserve is made using the expected value and to date, actual product discounts have not differed materially from our estimates;

- *Product Returns*—we record an estimate for product returns at the time our customers take control of our product. We estimate this liability using the expected returns of product sold based on our historical return levels and specifically identified anticipated returns due to known business conditions and product expiry dates. Return amounts are recorded as a reduction of sales. Once product is returned, it is destroyed; and

- *Medicare Part D*—we record accruals for Medicare Part D liabilities under the Medicare Coverage Gap Discount Program (“CGDP”) as a reduction of sales. Under the CGDP, patients reaching the annual coverage gap threshold are eligible for reimbursement coverage for out-of-pocket costs for covered prescription drugs. Under an agreement with the Centers for Medicare and Medicaid Services, manufacturers are responsible for reimbursement of prescription plan sponsors for the portion of out-of-pocket expenses not covered under their Medicare plans.

A rollforward of our provisions for sales and allowances is as follows:

(In millions)	Medicaid Rebates	Chargebacks	Product Discounts	Product Returns	Medicare Part D	Other	Total
Balance, December 31, 2020	$ 182.0	$ 4.3	$ 14.4	$ 23.7	$ 12.9	$ 10.0	$ 247.3
Provision:							
Current year	344.3	129.1	107.0	11.4	59.8	49.5	701.1
Prior year	(12.4)	—	—	(1.0)	—	—	(13.4)
Total	331.9	129.1	107.0	10.4	59.8	49.5	687.7
Actual:							
Current year	(173.5)	(124.4)	(85.1)	(9.7)	(47.6)	(39.3)	(479.6)
Prior year	(145.0)	(3.4)	(17.8)	—	(10.8)	(10.6)	(187.6)
Total	(318.5)	(127.8)	(102.9)	(9.7)	(58.4)	(49.9)	(667.2)
Balance, December 31, 2021	$ 195.4	$ 5.6	$ 18.5	$ 24.4	$ 14.3	$ 9.6	$ 267.8
Provision:							
Current year	366.1	157.2	124.1	15.9	68.1	58.8	790.2
Prior year	(22.1)	—	—	3.2	—	—	(18.9)
Total	344.0	157.2	124.1	19.1	68.1	58.8	771.3
Actual:							
Current year	(186.5)	(149.9)	(103.0)	(13.8)	(51.1)	(48.8)	(553.1)
Prior year	(144.6)	(4.1)	(22.3)	—	(12.9)	(11.6)	(195.5)
Total	(331.1)	(154.0)	(125.3)	(13.8)	(64.0)	(60.4)	(748.6)
Balance, December 31, 2022	$ 208.3	$ 8.8	$ 17.3	$ 29.7	$ 18.4	$ 8.0	$ 290.5

Manufacturing Revenue

We recognize manufacturing revenues from the sale of products we manufacture for resale by our licensees. Manufacturing revenues for our partnered products, with the exception of those from Janssen related to RISPERDAL CONSTA and from Biogen related to VUMERITY, are recognized over time as products move through the manufacturing process, using a standard cost-based model as a measure of progress, which represents a faithful depiction of the transfer of control of the goods. We recognize manufacturing revenue from these products over time as we determined, in each instance, that we would have a right to payment for performance completed to date if our customer were to terminate the manufacturing agreement for reasons other than our non-performance and the products have no alternative use. We invoice our licensees upon shipment with payment terms between 30 to 90 days.

We are the exclusive manufacturer of RISPERDAL CONSTA for commercial sale under our manufacturing and supply agreement with Janssen. We determined that it is appropriate to record revenue under this agreement at the point in time when control of the product passes to Janssen, which is determined to be when the product has been fully manufactured, since Janssen does not control the product during the manufacturing process and, in the event Janssen terminates the manufacturing and supply agreement, it is uncertain whether, and at what amount, we would be reimbursed for performance completed to date for product not yet fully manufactured. The manufacturing process is considered fully complete once the finished goods have been approved for shipment by both us and Janssen.

We recognize manufacturing revenue related to VUMERITY at cost plus 15%, upon making available bulk batches of VUMERITY to Biogen and, to the extent we package such product, then also when packaged batches of VUMERITY are made available to Biogen. Control of the product passes to Biogen when VUMERITY, in either bulk or finished form, is made available to Biogen.

The sales price for certain of our manufacturing revenues is based on the end-market sales price earned by our licensees. As end-market sales generally occur after we have recorded manufacturing revenue, we estimate the sales price for such products based on information supplied to us by our licensees, our historical transaction experience and other third-party data. Differences between actual manufacturing revenues and estimated manufacturing revenues are reconciled and adjusted for in the period in which they become known, which is generally within the same quarter. The differences between our actual and estimated manufacturing revenues have not been material to date.

Royalty Revenue

We recognize royalty revenues related to the sale by our licensees of products that incorporate our technology. Substantially all of our royalties qualify for the sales-and-usage exemption under Topic 606 as (i) such royalties are based strictly on the sales-and-usage by the licensee; and (ii) a license of IP is the sole or predominant item to which such royalties relate. Based on this exemption, such royalties are earned in the period the products are sold by our licensee and we have a present right to payment.

Certain of our royalty revenues are recognized based on information supplied to us by our licensees and require estimates to be made. Differences between actual royalty revenues and estimated royalty revenues are reconciled and adjusted for in the period in which they become known, which is generally within the same quarter. The differences between our actual and estimated royalty revenues have not been material to date.

Research and Development Revenue and License Revenue

Research and development revenue consists of funding that compensates us for formulation, preclinical and clinical testing under research and development arrangements with our partners. We generally bill our partners under such arrangements using a full-time equivalent or hourly rate, plus direct external costs, if any. Revenue is recognized as the obligations under the arrangements are performed.

We recognize revenue from the grant of distinct, right-to-use licenses of IP when control of the license is transferred to our licensee, which is the point in time that the licensee is able to direct the use of and obtain substantially all of the benefits from the license.

Amortization and Impairment of Long-Lived Assets

Long-lived assets, other than goodwill which is separately tested for impairment, are evaluated for impairment whenever events or changes in circumstances indicate the carrying value of an asset may not be recoverable. When evaluating long-lived assets for potential impairment, we first compare the carrying value of the asset to the asset's estimated future cash flows (undiscounted and without interest charges). If the estimated future cash flows are less than the carrying value of the asset, we calculate an impairment loss. The impairment loss calculation compares the carrying value of the asset to the asset's estimated fair value, which may be based on estimated future cash flows (discounted and with interest charges). We recognize an impairment loss if the amount of the asset's carrying value exceeds the asset's estimated fair value. If we recognize an impairment loss, the adjusted carrying amount of the asset becomes its new cost basis. For a depreciable long-lived asset, the new cost basis will be depreciated over the remaining useful life of that asset.

When reviewing long-lived assets for impairment, we group long-lived assets with other assets and liabilities at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities. Our impairment loss calculations contain uncertainties because they require management to make assumptions and to apply judgment to estimate future cash flows and asset fair values, including forecasting useful lives of the assets and selecting the discount rate that reflects the risk inherent in future cash flows.

Our amortizable intangible assets consist of IP and are being amortized as revenue is generated from products utilizing the IP, which we refer to as the economic benefit amortization model. This amortization methodology involves calculating a ratio of actual current period sales to total anticipated sales for the life of the product and applying this ratio to the carrying amount of the intangible asset.

In order to determine the pattern in which the economic benefits of our intangible assets are consumed, we estimated the future revenues to be earned by products utilizing the capitalized IP from the date of acquisition to the end of their respective useful lives. The factors used to estimate such future revenues included: (i) our and our licensees' projected future sales of the existing commercial products based on these intangible assets; (ii) our projected future sales of new products based on these intangible assets which we anticipate will be launched commercially; (iii) the patent lives of the technologies underlying such existing and new products; and (iv) our expectations regarding the entry of generic and/or other competing products into the markets for such existing and new products. These factors involve known and unknown risks and uncertainties, many of which are beyond our control and could cause the actual economic benefits of these intangible assets to be materially different from our estimates.

Based on our most recent analysis, amortization of intangible assets included within our consolidated balance sheet at December 31, 2022, is expected to be approximately $35.0 million and $1.0 million in the years ending December 31, 2023 and 2024, respectively. Although we believe such available information and assumptions are reasonable, given the inherent risks and uncertainties underlying our expectations regarding such future revenues, there is the potential for our actual results to vary significantly from such expectations. If revenues are projected to change, the related amortization of the intangible asset will change in proportion to the change in revenue.

If there are any indications that the assumptions underlying our most recent analysis would be different than those utilized within our current estimates, our analysis would be updated and may result in a significant change in the anticipated lifetime revenue of the products associated with our amortizable intangible assets. For example, the occurrence of an adverse event could substantially increase the amount of amortization expense associated with our acquired intangible assets as compared to previous periods or our current expectations, which may result in a significant negative impact on our future results of operations.

Goodwill

We evaluate goodwill for impairment for our reporting units annually, as of October 31, and whenever events or changes in circumstances indicate the carrying value of the reporting units may not be recoverable. A reporting unit is an operating segment, as defined by GAAP, or a component of an operating segment. A component of an operating segment is a reporting unit if the component constitutes a business for which discrete financial information is available and is reviewed by management. Two or more components of an operating segment may be aggregated and deemed a single reporting unit for goodwill impairment testing purposes if the components have similar economic characteristics. As of December 31, 2022, we have one operating segment and two reporting units. Our goodwill, which solely relates to the Business Combination, has been assigned to one reporting unit which consists of the former EDT business.

We have the option to first assess qualitative factors to determine whether it is necessary to perform a quantitative impairment test. If we elect this option and determine, as a result of the qualitative assessment, that it is more likely than not that the fair value of a reporting unit is less than its carrying amount, the quantitative impairment test is required; otherwise, no further testing is required. Among other relevant events and circumstances that affect the fair value of reporting units, we consider individual factors, such as microeconomic conditions, changes in the industry and the markets in which we operate as well as historical and expected future financial performance. Alternatively, we may elect to not first assess qualitative factors and instead immediately perform the quantitative impairment test.

On October 31, 2022, we elected to perform a qualitative impairment test and determined that based on the weight of all available evidence, the fair value of the reporting unit more-likely-than-not exceeded its carrying value.

Contingent Consideration

We record contingent consideration that we are entitled to receive related to the sale of a business at fair value on the acquisition date. We estimate the fair value of contingent consideration through valuation models that incorporate probability-adjusted assumptions related to the achievement of milestones and the corresponding likelihood of receiving related payments. We revalue our contingent consideration each reporting period, with changes in the fair value of contingent consideration recognized within the consolidated statements of operations and comprehensive loss. Changes in the fair value of contingent consideration can result from changes to one or multiple assumptions, including adjustments to the discount rates, changes in the amount and timing of cash flows, changes in the assumed achievement and timing of any development and sales-based milestones, changes in the assumed probability associated with regulatory approval and changes in the probability of collection or default on portions of the contingent consideration due to us.

These fair value measurements are based on significant inputs, including inputs not observable in the market. Significant judgment was employed in determining the appropriateness of these assumptions at the acquisition date and for each subsequent period. Accordingly, changes in assumptions described above could have a material impact on the increase or decrease in the fair value of contingent consideration recorded in any given period.

Valuation of Deferred Tax Assets

We evaluate the need for deferred tax asset valuation allowances based on a more-likely-than-not standard. The ability to realize deferred tax assets depends on the ability to generate sufficient taxable income within the carryback or carryforward periods provided for in the tax law for each applicable tax jurisdiction. We consider the following possible sources of taxable income when assessing the realization of deferred tax assets:

- future reversals of existing taxable temporary differences;
- future taxable income exclusive of reversing temporary differences and carryforwards;
- taxable income in prior carryback years; and
- tax-planning strategies.

The assessment regarding whether a valuation allowance is required or should be adjusted also considers all available positive and negative evidence factors including, but not limited to:

- nature, frequency and severity of recent losses;
- duration of statutory carryforward periods;
- historical experience with tax attributes expiring unused; and
- near- and medium-term financial outlook.

We utilize a rolling three years of actual and current year anticipated results as the primary measures of cumulative losses in recent years.

The evaluation of deferred tax assets requires judgment in assessing the likely future tax consequences of events that have been recognized in our financial statements or tax returns and future profitability. Our accounting for deferred tax consequences represents our best estimate of those future events. Changes in our current estimates, due to unanticipated events or otherwise, could have a material effect on our financial condition and results of operations. For information related to risks surrounding our deferred tax assets, see "Item 1A—Risk Factors" in this Annual Report and specifically the section entitled "Our deferred tax assets may not be realized."

Recent Accounting Pronouncements

Please refer to Note 2, *Summary of Significant Accounting Policies*, "New Accounting Pronouncements" in our "Notes to Consolidated Financial Statements" in this Annual Report for a discussion of new accounting standards.

Item 7A. *Quantitative and Qualitative Disclosures about Market Risk*

We hold securities in our investment portfolio that are sensitive to market risks. Our securities with fixed interest rates may have their market value adversely impacted by a rise in interest rates, while floating rate securities may produce less income than expected if interest rates fall. Due in part to these factors, our future investment income may fall short of expectations due to a fall in interest rates or we may suffer losses in principal if we are forced to sell securities that decline in market value due to changes in interest rates. However, because we classify our investments in debt securities as available-for-sale, no gains or losses are recognized due to changes in interest rates unless such securities are sold prior to maturity or declines in fair value are determined to be other-than-temporary. Should interest rates fluctuate by 10%, our interest income would change by an immaterial amount over an annual period. We do not believe that we have a material exposure to interest rate risk as our investment policies specify credit quality standards for our investments and limit the amount of credit exposure from any single issue, issuer or type of investment.

Although we have seen a significant increase in the number of our investment securities in unrealized loss positions, we do not believe our exposure to liquidity and credit risk to be significant as approximately 47% and 45% of our investments at December 31, 2022 are in corporate debt securities with a minimum rating of A2 (Moody's)/A (Standard and Poor's) and debt securities issued by the U.S. government or its agencies, respectively. We have the intent and ability to hold these securities until recovery, which may be at maturity.

At December 31, 2022, our borrowings consisted of $294.8 million outstanding under the 2026 Term Loans. The 2026 Term Loans bear interest at the one-, three- or six-month LIBOR rate of our choosing, plus 2.5% with a 0.5% LIBOR floor. We are currently using the one-month LIBOR rate, which was 4.32% at December 31, 2022. A 10% increase in the one-month LIBOR rate would have increased the amount of interest we owed by approximately $1.3 million. At December 31, 2021, a 10% increase in the three-month LIBOR rate, which was the LIBOR rate in use at the time, would not have increased the amount of interest we owed under this agreement as the LIBOR floor of 0.5% was higher than the then-current LIBOR rate of 0.21% plus 10%.

In 2017, the U.K. Financial Conduct Authority announced its intention to phase out LIBOR after 2023. Currently, it is anticipated that LIBOR will be completely phased out by June 30, 2023. On July 29, 2021, the ARRC, a steering committee comprised of large U.S. financial institutions, formally recommended SOFR as its preferred alternative replacement rate for USD LIBOR. The 2026 Term Loans contain customary ARRC hardwired benchmark replacement language to transition from LIBOR to SOFR. At this time, it is not possible to predict the effect that the anticipated discontinuance of LIBOR, or the establishment of alternative reference rates such as SOFR, will have on us or our borrowing costs. SOFR is a relatively new reference rate and its composition and characteristics are not the same as LIBOR. Given SOFR's very limited history and potential volatility as compared to other benchmark or market rates, the future performance of SOFR cannot be predicted based on historical performance. The consequences of using SOFR could include an increase in the cost of our variable rate indebtedness. We are monitoring these transition efforts and, although the 2026 Term Loans contain provisions designed to accommodate an alternate reference rate, we may need to amend these and other contracts to accommodate any replacement rate. The potential effect of any such event on our cost of capital cannot yet be determined, but we do not expect it to have a material impact on our consolidated financial condition, results of operations, or cash flows. For a discussion about risks relating to LIBOR, see "Item 1A—Risk Factors" in this Annual Report and specifically the section entitled "Discontinuation, reform or replacement of LIBOR and SOFR, or uncertainty related to the potential for any of the foregoing, may adversely affect us."

Currency Exchange Rate Risk

Manufacturing and royalty revenues that we receive on certain of our products and services are a percentage of the net sales made by our licensees, and a portion of these sales are made in countries outside the U.S. and are denominated in currencies in which the product is sold, which is predominantly the euro. The manufacturing and royalty payments on these non-U.S. sales are calculated initially in the currency in which the sale is made and are then converted into USD to determine the amount that our licensees pay us

for manufacturing and royalty revenues. Fluctuations in the exchange ratio of the USD and these non-U.S. currencies will have the effect of increasing or decreasing our revenues even if there is a constant amount of sales in non-U.S. currencies. For example, if the USD weakens against a non-U.S. currency, then our revenues will increase given a constant amount of sales in such non-U.S. currency. For the year ended December 31, 2022, an average 10% strengthening of the USD relative to the currencies in which these products are sold would have resulted in revenues being reduced by approximately $1.1 million, as compared to a reduction in revenues of approximately $33.1 million for the year ended December 31, 2021.

We incur significant operating costs in Ireland and face exposure to changes in the exchange ratio of the USD and the euro arising from expenses and payables at our Irish operations that are settled in euro. The impact of changes in the exchange ratio of the USD and the euro on our USD-denominated revenues earned in countries other than the U.S. is partially offset by the opposite impact of changes in the exchange ratio of the USD and the euro on operating expenses and payables incurred at our Irish operations that are settled in euro. For the year ended December 31, 2022, an average 10% weakening in the USD relative to the euro would have resulted in an increase to our expenses denominated in euro of approximately $7.5 million, as compared to an increase in our expenses of approximately $8.3 million in the year ended December 31, 2021.

Item 8. *Financial Statements and Supplementary Data*

All financial statements required to be filed hereunder are filed as exhibits hereto, are listed under Item 15(a)(1) below and are incorporated herein by reference.

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

Not applicable.

Item 9A. *Controls and Procedures*

Disclosure Controls and Procedures and Internal Control Over Financial Reporting

Controls and Procedures

Our management has evaluated, with the participation of our principal executive officer and principal financial officer, the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act), as of December 31, 2022. Based upon that evaluation, our principal executive officer and principal financial officer concluded that, as of the end of the period covered by this report, our disclosure controls and procedures were effective to provide reasonable assurance that (a) the information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and (b) such information is accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding required disclosure. In designing and evaluating our disclosure controls and procedures, our management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives, and our management necessarily was required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting during the quarter ended December 31, 2022 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Management's Annual Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over our financial reporting as defined in Rules 13a-15(f) and 15d-15(f). Internal control over financial reporting is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act as a process designed by, or under the supervision of, the issuer's principal executive and principal financial officers, or persons performing similar functions, and effected by the issuer's board of directors, management and other personnel to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP and includes those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect our transactions and dispositions of the assets of the issuer;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with GAAP, and that receipts and expenditures of the issuer are being made only in accordance with authorizations of management and directors of the issuer; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the issuer's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness for 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.

Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2022. In making this assessment, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") in its 2013 Internal Control—Integrated Framework.

Based on this assessment, our management has concluded that, as of December 31, 2022, our internal control over financial reporting was effective.

The effectiveness of our internal control over financial reporting as of December 31, 2022 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report, which is included in this Annual Report, beginning on page F-1.

Item 9B. *Other Information*

None.

Item 9C. *Disclosure Regarding Foreign Jurisdictions that Prevent Inspections*

Not applicable.

PART III

Item 10. *Directors, Executive Officers and Corporate Governance*

The information required by this item is incorporated herein by reference to our definitive proxy statement for our 2023 annual general meeting of shareholders.

Item 11. *Executive Compensation*

The information required by this item (excluding, for clarity, the information required by Item 402(v) of Regulation S-K) is incorporated herein by reference to our definitive proxy statement for our 2023 annual general meeting of shareholders.

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

The information required by this item is incorporated herein by reference to our definitive proxy statement for our 2023 annual general meeting of shareholders.

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

The information required by this item is incorporated herein by reference to our definitive proxy statement for our 2023 annual general meeting of shareholders.

Item 14. *Principal Accounting Fees and Services*

The information required by this item is incorporated herein by reference to our definitive proxy statement for our 2023 annual general meeting of shareholders.

PART IV

Item 15. *Exhibits and Financial Statement Schedules*

(a)(1) Consolidated Financial Statements—The consolidated financial statements of Alkermes plc, as required by this item, are submitted in a separate section beginning on page F-1 of this Annual Report, as follows:

Financial Statement	Page Number
Report of Independent Registered Public Accounting Firm (PCAOB ID: 238)	F-1
Consolidated Balance Sheets	F-3
Consolidated Statements of Operations and Comprehensive Loss	F-4
Consolidated Statements of Shareholders' Equity	F-5
Consolidated Statements of Cash Flows	F-6
Notes to the Consolidated Financial Statements	F-7

(2) Financial Statement Schedules—All schedules have been omitted because the absence of conditions under which they are required or because the required information is included in the consolidated financial statements or notes thereto.

(3) The exhibits listed in the below Exhibit Index are filed or furnished as part of this Annual Report or are incorporated into this Annual Report by reference.

EXHIBIT INDEX

		Incorporated by reference herein	
Exhibit No.	Description of Exhibit	Form	Date
2.1 *	Purchase and Sale Agreement, dated March 7, 2015, by and among Alkermes Pharma Ireland Limited, Daravita Limited, Eagle Holdings USA, Inc., Recro Pharma, Inc., and Recro Pharma LLC (assigned by Recro to Baudax Bio, Inc. in November 2019).	Exhibit 2.1 to the Alkermes plc Current Report on Form 8-K/A (File No. 001-35299)	April 16, 2015
2.1-1	First Amendment to Purchase and Sale Agreement, dated December 8, 2016 by and among Alkermes Pharma Ireland Limited, Daravita Limited, Eagle Holdings USA, Inc., Recro Pharma, Inc., and Recro Gainesville LLC (assigned by Recro to Baudax Bio, Inc. in November 2019).	Exhibit 2.1.1 to the Alkermes plc Annual Report on Form 10-K (File No. 001-35299)	February 17, 2017
2.1-2	Second Amendment to Purchase and Sale Agreement, dated December 20, 2018, by and among Alkermes Pharma Ireland Limited, Daravita Limited, Alkermes US Holdings, Inc. (as successor in interest to Eagle Holdings USA, Inc.), Recro Pharma, Inc. and Recro Gainesville LLC (assigned by Recro to Baudax Bio, Inc. in November 2019).	Exhibit 2.1.2 to the Alkermes plc Annual Report on Form 10-K (File No. 001-35299)	February 15, 2019
2.1-3	Third Amendment to Purchase and Sale Agreement, dated August 17, 2020, by and among Alkermes Pharma Ireland Limited, Daravita Limited, Alkermes US Holdings, Inc. (as successor in interest to Eagle Holdings USA, Inc.) and Baudax Bio, Inc. (as successor in interest to Recro Pharma, Inc. and Recro Gainesville LLC).	Exhibit 2.1 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	October 29, 2020
2.2 **	Agreement and Plan of Merger, dated November 14, 2019 by and among Alkermes, Inc., Thinker Merger Sub, Inc., Alkermes plc, Rodin Therapeutics, Inc., and Shareholder Representative Services LLC, as Company Equityholder Representative.	Exhibit 2.1 to the Alkermes plc Current Report on Form 8-K (File No. 001-35299)	November 25, 2019
3.1	Memorandum and Articles of Association of Alkermes plc.	Exhibit 3.1 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	July 27, 2022
4.1 #	Description of Securities.		
10.1	Lease between Alkermes, Inc. and PDM Unit 850, LLC, dated as of April 22, 2009.	Exhibit 10.5 to the Alkermes, Inc. Annual Report on Form 10-K (File No. 001-14131)	May 28, 2009
10.1-1	First Amendment to Lease between Alkermes, Inc. and PDM Unit 850, LLC, dated as of June 18, 2009.	Exhibit 10.2 to the Alkermes, Inc. Quarterly Report on Form 10-Q (File No. 001-14131)	August 6, 2009

Exhibit No.	Description of Exhibit	Incorporated by reference herein	
		Form	Date
10.1-2	Second Amendment to Lease between Alkermes, Inc. and PDM Unit 850, LLC, dated as of November 12, 2013.	Exhibit 10.74 to the Alkermes plc Transition Report on Form 10-KT (File No. 001-35299)	February 27, 2014
10.1-3	Third Amendment to Lease between Alkermes, Inc. and PDM 850 Unit, LLC, dated as of May 15, 2014.	Exhibit 10.2 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	July 31, 2014
10.1-4	Fourth Amendment to Lease between Alkermes, Inc. and GI TC 850 Winter Street, LLC, dated as of December 30, 2014.	Exhibit 10.7 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	July 30, 2015
10.1-5	Fifth Amendment to Lease between Alkermes, Inc. and GI TC 850 Winter Street, LLC, dated as of October 31, 2018.	Exhibit 10.1.5 to the Alkermes plc Annual Report on Form 10-K (File No. 001-35299)	February 15, 2019
10.1-6	Sixth Amendment to Lease between Alkermes, Inc. and GI TC 850 Winter Street, LLC, dated as of July 24, 2020.	Exhibit 10.1 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	October 29, 2020
10.2	License Agreement, dated as of February 13, 1996, between Medisorb Technologies International L.P. and Janssen Pharmaceutica Inc. (United States) (assigned to Alkermes, Inc. in July 2006).	Exhibit 10.2 to the Alkermes plc Annual Report on Form 10-K (File No. 001-35299)	February 25, 2016
10.2-1 *	Third Amendment to Development Agreement, Second Amendment to Manufacturing and Supply Agreement and First Amendment to License Agreements by and between Janssen Pharmaceutica International, Janssen Pharmaceutica Inc. and Alkermes Controlled Therapeutics Inc. II, dated April 1, 2000 (assigned to Alkermes, Inc. in July 2006).	Exhibit 10.5 to the Alkermes, Inc. Quarterly Report on Form 10-Q (File No. 001-14131)	February 8, 2005
10.2-2 *	Second Amendment, dated as of August 16, 2012, to the License Agreement, dated as of February 13, 1996, as amended, by and between Alkermes, Inc. and Janssen Pharmaceutica Inc. and the License Agreement, dated as of February 21, 1996, as amended, by and between Alkermes, Inc. and JPI Pharmaceutica International, and the Fifth Amendment, dated as of August 16, 2012, to the Manufacturing and Supply Agreement, dated as of August 6, 1997, as amended, by and between Alkermes, Inc., Janssen Pharmaceutica Inc. and JPI Pharmaceutica International.	Exhibit 10.3 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	November 1, 2012
10.3	License Agreement, dated as of February 21, 1996, between Medisorb Technologies International L.P. and Janssen Pharmaceutica International (worldwide except United States) (assigned to Alkermes, Inc. in July 2006).	Exhibit 10.3 to the Alkermes plc Annual Report on Form 10-K (File No. 001-35299)	February 25, 2016
10.4	Manufacturing and Supply Agreement, dated August 6, 1997, by and among JPI Pharmaceutica International, Janssen Pharmaceutica, Inc. and Alkermes Controlled Therapeutics Inc. II (assigned to Alkermes, Inc. in July 2006).	Exhibit 10.4 to the Alkermes plc Annual Report on Form 10-K (File No. 001-35299)	February 25, 2016
10.4-1 *	Fourth Amendment to Development Agreement and First Amendment to Manufacturing and Supply Agreement by and between Janssen Pharmaceutica International, Janssen Pharmaceutica Products, L.P. and Alkermes Controlled Therapeutics Inc. II, dated December 20, 2000 (assigned to Alkermes, Inc. in July 2006).	Exhibit 10.4 to the Alkermes, Inc. Quarterly Report on Form 10-Q (File No. 001-14131)	February 8, 2005
10.4-2	Addendum to the Manufacturing and Supply Agreement by and among JPI Pharmaceutica International, Janssen Pharmaceutica Inc. and Alkermes Controlled Therapeutics Inc. II, dated August 1, 2001.	Exhibit 10.4.2 to the Alkermes plc Annual Report on Form 10-K (File No. 001-35299)	February 25, 2016
10.4-3	Letter Agreement and Exhibits to Manufacturing and Supply Agreement, dated February 1, 2002, by and among JPI Pharmaceutica International, Janssen Pharmaceutica Inc. and Alkermes Controlled Therapeutics Inc. II (assigned to Alkermes, Inc. in July 2006).	Exhibit 10.4.3 to the Alkermes plc Annual Report on Form 10-K (File No. 001-35299)	February 25, 2016

Exhibit No.	Description of Exhibit	Incorporated by reference herein	
		Form	Date
10.4-4 *	Amendment to Manufacturing and Supply Agreement by and between JPI Pharmaceutica International, Janssen Pharmaceutica Inc. and Alkermes Controlled Therapeutics Inc. II, dated December 22, 2003 (assigned to Alkermes, Inc. in July 2006).	Exhibit 10.6 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 011-35299)	July 30, 2015
10.4-5 *	Fourth Amendment to Manufacturing and Supply Agreement by and between JPI Pharmaceutica International, Janssen Pharmaceutica Inc. and Alkermes Controlled Therapeutics Inc. II, dated January 10, 2005 (assigned to Alkermes, Inc. in July 2006).	Exhibit 10.9 to the Alkermes, Inc. Quarterly Report on Form 10-Q (File No. 001-14131)	February 8, 2005
10.4-6 *	Sixth Amendment to Manufacturing and Supply Agreement by and between JPI Pharmaceutica International, Janssen Pharmaceutica Inc. and Alkermes Controlled Therapeutics Inc. II (assigned to Alkermes, Inc. in July 2006), effective as of July 1, 2018.	Exhibit 10.11 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 011-35299)	October 23, 2018
10.5 *	Development and License Agreement, dated as of May 15, 2000, by and between Alkermes Controlled Therapeutics Inc. II and Amylin Pharmaceuticals, Inc., as amended on October 24, 2005 and July 17, 2006 (assigned, as amended, to Alkermes, Inc. in July 2006).	Exhibit 10.28 to the Alkermes, Inc. Annual Report on Form 10-K (File No. 001-14131)	May 21, 2010
10.5-1 *	Third Amendment to Development and License Agreement, dated March 20, 2018, by and between Amylin Pharmaceuticals, LLC and Alkermes Pharma Ireland Limited (as successor-in-interest to Alkermes Controlled Therapeutics Inc. II), amending that certain Development and License Agreement, by and between ACTII and Amylin, dated May 15, 2000, as amended on October 24, 2005 and July 17, 2006.	Exhibit 10.3 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 011-35299)	April 26, 2018
10.6 *	Agreement by and between JPI Pharmaceutica International, Janssen Pharmaceutica Inc. and Alkermes Controlled Therapeutics Inc. II, dated December 21, 2002 (assigned to Alkermes, Inc. in July 2006).	Exhibit 10.6 to the Alkermes, Inc. Quarterly Report on Form 10-Q (File No. 001-14131)	February 8, 2005
10.6-1 *	Amendment to Agreement by and between JPI Pharmaceutica International, Janssen Pharmaceutica Inc. and Alkermes Controlled Therapeutics Inc. II, dated December 16, 2003 (assigned to Alkermes, Inc. in July 2006).	Exhibit 10.7 to the Alkermes, Inc. Quarterly Report on Form 10-Q (File No. 001-14131)	February 8, 2005
10.7 *	License Agreement by and among Elan Pharmaceutical Research Corp., d/b/a Nanosystems and Elan Pharma International Limited and Janssen Pharmaceutica N.V. dated as of March 31, 1999.	Exhibit 10.23 to the Alkermes plc Annual Report on Form 10-K (File No. 001-35299)	May 23, 2013
10.7-1	First Amendment, dated as of July 31, 2003, to the License Agreement by and among Elan Drug Delivery, Inc. (formerly Elan Pharmaceutical Research Corp.) and Elan Pharma International Limited and Janssen Pharmaceutica NV dated March 31, 1999.	Exhibit 10.24 to the Alkermes plc Annual Report on Form 10-K (File No. 001-35299)	May 23, 2013
10.7-2 *	Agreement Amendment No. 2, dated as of July 31, 2009, to the License Agreement by and among Elan Pharmaceutical Research Corp., d/b/a Nanosystems and Elan Pharma International Limited and Janssen Pharmaceutica N.V. dated as of March 31, 1999, as amended by the First Amendment, dated as of July 31, 2003.	Exhibit 10.25 to the Alkermes plc Annual Report on Form 10-K (File No. 001-35299)	May 23, 2013
10.8	Amendment to First Lien Credit Agreement, dated September 25, 2012, among Alkermes, Inc., Alkermes plc, the guarantors party thereto, the lenders party thereto, Morgan Stanley Senior Funding, Inc. as Administrative Agent and Collateral Agent and the arrangers and agents party thereto.	Exhibit 10.1 to the Alkermes plc Current Report on Form 8-K (File No. 011-35299)	September 25, 2012
10.8-1	Amendment No. 2, dated as of February 14, 2013, to Amended and Restated Credit Agreement, dated as of September 16, 2011, as amended and restated on September 25, 2012, among Alkermes, Inc., Alkermes plc, the guarantors party thereto, the lenders party thereto, Morgan Stanley Senior Funding, Inc. as Administrative Agent and Collateral Agent and the arrangers and agents party thereto.	Exhibit 10.1 to the Alkermes plc Current Report on Form 8-K (File No. 011-35299)	February 19, 2013

Exhibit No.	Description of Exhibit	Incorporated by reference herein	
		Form	Date
10.8-2	Amendment No. 3 and Waiver to Amended and Restated Credit Agreement, dated as of May 22, 2013, among Alkermes, Inc., Alkermes plc, Alkermes Pharma Ireland Limited, Alkermes US Holdings, Inc., Morgan Stanley Senior Funding, Inc. as Administrative Agent and Collateral Agent and the lenders party thereto.	Exhibit 10.52 to the Alkermes plc Annual Report on Form 10-K (File No. 011-35299)	May 23, 2013
10.8-3	Amendment No. 4, dated as of October 12, 2016, to Amended and Restated Credit Agreement, dated as of September 16, 2011, as amended and restated on September 25, 2012, as further amended by Amendment No. 2 on February 14, 2013 and as amended by Amendment No. 3 and Waiver to Amended and Restated Credit Agreement dated as of May 22, 2013, among Alkermes, Inc., Alkermes plc, the guarantors party thereto, the lenders party thereto and Morgan Stanley Senior Funding, Inc. as Administrative Agent and Collateral Agent.	Exhibit 10.2 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 011-35299)	November 2, 2016
10.8-4	Amendment No. 5, dated as of March 26, 2018, to Amended and Restated Credit Agreement, dated as of September 16, 2011, as amended and restated on September 25, 2012, as further amended by Amendment No. 2 on February 14, 2013, as amended by Amendment No. 3 and Waiver to Amended and Restated Credit Agreement dated as of May 22, 2013, and as amended by Amendment No. 4, dated as of October 12, 2016, among Alkermes, Inc., Alkermes plc, the guarantors party thereto, the lenders party thereto and Morgan Stanley Senior Funding, Inc. as Administrative Agent and Collateral Agent.	Exhibit 10.5 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 011-35299)	April 26, 2018
10.8-5	Amendment No. 6, dated as of March 12, 2021, to Amended and Restated Credit Agreement, dated as of September 16, 2011, as amended and restated on September 25, 2012, as further amended by Amendment No. 2 on February 14, 2013, as amended by Amendment No. 3 and Waiver to Amended and Restated Credit Agreement dated as of May 22, 2013, as amended by Amendment No. 4, dated as of October 12, 2016, and as amended by Amendment No. 5, dated as of March 26, 2018, among Alkermes, Inc., Alkermes plc, the guarantors party thereto, the lenders party thereto and Morgan Stanley Senior Funding, Inc. as Administrative Agent and Collateral Agent.	Exhibit 10.1 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 011-35299)	April 28, 2021
10.9 *	License and Collaboration Agreement, dated November 27, 2017, by and between Alkermes Pharma Ireland Limited and Biogen Swiss Manufacturing GmbH.	Exhibit 10.10 of the Alkermes plc Annual Report on Form 10-K (File No. 011-35299)	February 16, 2018
10.9-1 *	First Amendment to License and Collaboration Agreement between Alkermes Pharma Ireland Limited and Biogen Swiss Manufacturing GmbH, effective as of October 3, 2018.	Exhibit 10.12 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 011-35299)	October 23, 2018
10.9-2	Second Amendment to License and Collaboration Agreement between Alkermes Pharma Ireland Limited and Biogen Swiss Manufacturing GmbH, effective as of January 31, 2019.	Exhibit 10.1 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 011-35299)	April 25, 2019
10.9-3 **	Third Amendment to License and Collaboration Agreement between Alkermes Pharma Ireland Limited and Biogen Swiss Manufacturing GmbH, effective as of October 30, 2019.	Exhibit 10.10.3 of the Alkermes plc Annual Report on Form 10-K (File No. 011-35299)	February 13, 2020
10.9-4 **	Fourth Amendment to License and Collaboration Agreement between Alkermes Pharma Ireland Limited and Biogen Swiss Manufacturing GmbH, effective as of August 25, 2022.	Exhibit 10.1 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 011-35299)	November 2, 2022
10.10	Lease, dated March 23, 2018, by and between Alkermes, Inc. and PDM 900 Unit, LLC.	Exhibit 10.4 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 011-35299)	April 26, 2018
10.10-1	First Amendment to Lease, dated June 21, 2018, by and between Alkermes, Inc. and PDM 900 Unit, LLC.	Exhibit 10.2 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	July 26, 2018
10.10-2	Second Amendment to Lease, dated May 10, 2019, by and between Alkermes, Inc. and PDM 900 Unit, LLC.	Exhibit 10.2 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	July 25, 2019

Exhibit No.	Description of Exhibit	Incorporated by reference herein	
		Form	Date
10.11 †	Employment Agreement, dated as of December 12, 2007, by and between Richard F. Pops and Alkermes, Inc.	Exhibit 10.1 to the Alkermes, Inc. Quarterly Report on Form 10-Q (File No. 001-14131)	February 11, 2008
10.11-1 †	Amendment to Employment Agreement, dated as of October 7, 2008, by and between Alkermes, Inc. and Richard F. Pops.	Exhibit 10.5 to the Alkermes, Inc. Current Report on Form 8-K (File No. 001-14131)	October 7, 2008
10.11-2 †	Amendment No. 2 to Employment Agreement, dated as of September 10, 2009 by and between Richard F. Pops and Alkermes, Inc.	Exhibit 10.2 to the Alkermes, Inc. Current Report on Form 8-K (File No. 001-14131)	September 11, 2009
10.12 †	Form of Employment Agreement, as amended by the Form of Amendment to Employment Agreement set forth in 10.12.1, entered into by and between Alkermes, Inc. and each of Blair C. Jackson and Michael J. Landine.	Exhibit 10.3 to the Alkermes, Inc. Quarterly Report on Form 10-Q (File No. 001-14131)	February 11, 2008
10.12-1 †	Form of Amendment to Employment Agreement with Alkermes, Inc.	Exhibit 10.7 to the Alkermes, Inc. Current Report on Form 8-K (File No. 001-14131)	October 7, 2008
10.13 †	Form of Covenant Not to Compete, of various dates, by and between Alkermes, Inc. and Michael J. Landine.	Exhibit 10.15(a) to the Alkermes, Inc. Annual Report on Form 10-K (File No. 001-14131)	May 30, 2008
10.14 †	Form of Employment Agreement entered into by and between Alkermes, Inc. and each of Iain M. Brown, David J. Gaffin, Craig C. Hopkinson, M.D. and Christian Todd Nichols.	Exhibit 10.1 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 011-35299)	November 2, 2016
10.14-1†	Offer Letter by and between Alkermes, Inc. and Craig C. Hopkinson M.D., effective as of April 24, 2017.	Exhibit 10.17.1 to the Alkermes plc Annual Report on Form 10-K (File No. 011-35299)	February 16, 2018
10.14-2 †	Offer Letter, dated March 29, 2019, by and between Alkermes, Inc. and Christian Todd Nichols.	Exhibit 10.1 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 011-35299)	July 29, 2020
10.15 †	Form of Indemnification Agreement entered into by and between Alkermes, Inc. and each of the Directors and Secretaries of Alkermes plc and its Irish subsidiaries.	Exhibit 10.2 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	April 29, 2020
10.16 †	Form of Deed of Indemnification entered into by and between each of the Directors, Secretaries and executive officers of Alkermes plc and its subsidiaries.	Exhibit 10.1 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	April 29, 2020
10.17†	Alkermes plc Amended and Restated 2008 Stock Option and Incentive Plan, as amended.	Exhibit 10.1 to the Alkermes plc Quarterly Report on Form 10-Q for the quarter ended March 31, 2017 (File No. 001-35299)	April 27, 2017
10.17-1 †	Form of Stock Option Award Certificate (Non-Employee Director) under the Alkermes plc Amended and Restated 2008 Stock Option and Incentive Plan, as amended.	Exhibit 10.4 to the Alkermes plc Quarterly Report on Form 10-Q for the quarter ended March 31, 2016 (File No. 001-35299)	April 28, 2016
10.17-2 †	Form of Restricted Stock Unit Award Certificate (Time Vesting Only – Irish) under the Alkermes plc Amended and Restated 2008 Stock Option and Incentive Plan, as amended.	Exhibit 10.5 to the Alkermes plc Quarterly Report on Form 10-Q for the quarter ended March 31, 2016 (File No. 001-35299)	April 28, 2016

Exhibit No.	Description of Exhibit	Incorporated by reference herein	
		Form	Date
10.17-3 †	Form of Restricted Stock Unit Award Certificate (Time Vesting Only – U.S.) under the Alkermes plc Amended and Restated 2008 Stock Option and Incentive Plan, as amended.	Exhibit 10.6 to the Alkermes plc Quarterly Report on Form 10-Q for the quarter ended March 31, 2016 (File No. 001-35299)	April 28, 2016
10.17-4 †	Form of Stock Option Award Certificate (Time Vesting Non-Qualified Option – Irish) under the Alkermes plc Amended and Restated 2008 Stock Option and Incentive Plan, as amended.	Exhibit 10.7 to the Alkermes plc Quarterly Report on Form 10-Q for the quarter ended March 31, 2016 (File No. 001-35299)	April 28, 2016
10.17-5 †	Form Stock Option Award Certificate (Time Vesting Non-Qualified Option – U.S.) under the Alkermes plc Amended and Restated 2008 Stock Option and Incentive Plan, as amended.	Exhibit 10.8 to the Alkermes plc Quarterly Report on Form 10-Q for the quarter ended March 31, 2016 (File No. 001-35299)	April 28, 2016
10.17-6 †	Form of Stock Option Award Certificate (Incentive Stock Option – U.S.) under the Alkermes plc Amended and Restated 2008 Stock Option and Incentive Plan, as amended.	Exhibit 10.9 to the Alkermes plc Quarterly Report on Form 10-Q for the quarter ended March 31, 2016 (File No. 001-35299)	April 28, 2016
10.17-7 †	Form of 2008 Restricted Stock Unit Award Certificate (Performance Vesting Only) under the Alkermes plc Amended and Restated 2008 Stock Option and Incentive Plan, as amended.	Exhibit 10.2 to the Alkermes, Inc. Current Report on Form 8-K (File No. 001-14131)	May 22, 2009
10.18†	Alkermes plc 2011 Stock Option and Incentive Plan, as amended.	Exhibit 10.1 to the Alkermes plc Current Report on Form 8-K (File No. 011-35299)	May 24, 2017
10.18-1 †	Form of Incentive Stock Option Award Certificate under the Alkermes plc 2011 Stock Option and Incentive Plan, as amended.	Exhibit 10.1 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	October 23, 2018
10.18-2 †	Form of Non-Qualified Stock Option (Employee) Award Certificate under the Alkermes plc 2011 Stock Option and Incentive Plan, as amended.	Exhibit 10.2 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	October 23, 2018
10.18-3 †	Form of Restricted Stock Unit (Time-Vesting) Award Certificate under the Alkermes plc 2011 Stock Option and Incentive Plan, as amended.	Exhibit 10.3 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	October 23, 2018
10.18-4 †	Form of Restricted Stock Unit (Performance-Vesting) Award Certificate under the Alkermes plc 2011 Stock Option and Incentive Plan, as amended.	Exhibit 10.4 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	October 23, 2018
10.18-5 †	Form of Non-Qualified Stock Option (Non-Employee Director) Award Certificate under the Alkermes plc 2011 Stock Option and Incentive Plan, as amended.	Exhibit 10.5 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	October 23, 2018
10.19 †	Alkermes plc 2018 Stock Option and Incentive Plan, as amended.	Exhibit 10.1 to the Alkermes plc Current Report on Form 8-K (File No. 001-35299)	July 7, 2022
10.19-1 †	Form of Incentive Stock Option Award Certificate under the Alkermes plc 2018 Stock Option and Incentive Plan, as amended.	Exhibit 10.6 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	October 23, 2018
10.19-2 †	Form of Non-Qualified Stock Option (Employee) Award Certificate under the Alkermes plc 2018 Stock Option and Incentive Plan, as amended.	Exhibit 10.7 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	October 23, 2018
10.19-3 †	Form of Restricted Stock Unit (Time-Vesting) Award Certificate under the Alkermes plc 2018 Stock Option and Incentive Plan, as amended.	Exhibit 10.8 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	October 23, 2018
10.19-4 †	Form of Restricted Stock Unit (Performance-Vesting) Award Certificate under the Alkermes plc 2018 Stock Option and Incentive Plan, as amended.	Exhibit 10.6 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	July 29, 2020
10.19-5 †	Form of Non-Qualified Stock Option (Non-Employee Director) Award Certificate under the Alkermes plc 2018 Stock Option and Incentive Plan, as amended.	Exhibit 10.4 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	July 29, 2020

Exhibit No.	Description of Exhibit	Incorporated by reference herein	
		Form	Date
10.19-6 †	Form of Non-Employee Director Restricted Stock Unit (Time-Vesting) Award Certificate under the Alkermes plc 2018 Stock Option and Incentive Plan, as amended.	Exhibit 10.5 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	July 29, 2020
10.19-7 †	Form of Non-Employee Director New Director Grant Non-Qualified Stock Option Award Certificate under the Alkermes plc 2018 Stock Option and Incentive Plan, as amended.	Exhibit 10.1.1 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	July 27, 2022
10.19-8 †	Form of Non-Employee Director New Director Grant Restricted Stock Unit (Time-Vesting) Award Certificate under the Alkermes plc 2018 Stock Option and Incentive Plan, as amended.	Exhibit 10.1.2 to the Alkermes plc Quarterly Report on Form 10-Q (File No. 001-35299)	July 27, 2022
10.19-9 †#	Form of Incentive Stock Option Award Certificate for Reporting Officers under the Alkermes plc 2018 Stock Option and Incentive Plan, as amended.		
10.19-10 †#	Form of Non-Qualified Stock Option Award Certificate for Reporting Officers under the Alkermes plc 2018 Stock Option and Incentive Plan, as amended.		
10.19-11 †#	Form of Restricted Stock Unit (Time-Vesting) Award Certificate for Reporting Officers under the Alkermes plc 2018 Stock Option and Incentive Plan, as amended.		
10.19-12 †#	Form of Restricted Stock Unit (Performance-Vesting) Award Certificate for Reporting Officers under the Alkermes plc 2018 Stock Option and Incentive Plan, as amended.		
21.1 #	List of subsidiaries.		
23.1 #	Consent of PricewaterhouseCoopers LLP, an independent registered public accounting firm.		
24.1 #	Power of Attorney (included on the signature pages hereto).		
31.1 #	Certification Pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934.		
31.2 #	Certification Pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934.		
32.1 ‡	Certification Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.		
101.SCH #	Inline XBRL Taxonomy Extension Schema Document.		
101.CAL #	Inline XBRL Taxonomy Extension Calculation Linkbase Document.		
101.LAB #	Inline XBRL Taxonomy Extension Label Linkbase Document.		
101.PRE #	Inline XBRL Taxonomy Extension Presentation Linkbase Document.		
101.DEF #	Inline XBRL Taxonomy Extension Definition Linkbase Document.		
104	Cover Page Interactive Data File (formatted as Inline XBRL with applicable taxonomy extension information contained in Exhibits 101).		

†	Indicates a management contract or any compensatory plan, contract or arrangement.
#	Filed herewith.
‡	Furnished herewith.
*	Confidential treatment has been granted or requested for certain portions of this exhibit. Such portions have been filed separately with the SEC pursuant to a confidential treatment request.
**	In accordance with Item 601(b)(2)(ii) of Regulation S-K, certain information (indicated by "[**]") has been excluded from this exhibit because it is both not material and would likely cause competitive harm to the Company if publicly disclosed.

Item 16. *Form 10-K Summary*

None.

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.

ALKERMES PLC

By: /s/ RICHARD F. POPS
Richard F. Pops
Chairman and Chief Executive Officer

February 16, 2023

POWER OF ATTORNEY

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

Each person whose signature appears below in so signing also makes, constitutes and appoints Richard F. Pops and Iain M. Brown, and each of them, his true and lawful attorney-in-fact, with full power of substitution, for him in any and all capacities, to execute and cause to be filed with the Securities and Exchange Commission any and all amendments to this Annual Report, with exhibits thereto and other documents in connection therewith, and hereby ratifies and confirms all that said attorney-in-fact or his substitute or substitutes may do or cause to be done by virtue hereof.

Signature	Title	Date
/s/ RICHARD F. POPS Richard F. Pops	Chairman and Chief Executive Officer (Principal Executive Officer)	February 16, 2023
/s/ IAIN M. BROWN Iain M. Brown	Senior Vice President, Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	February 16, 2023
/s/ EMILY PETERSON ALVA Emily Peterson Alva	Director	February 16, 2023
/s/ SHANE M. COOKE Shane M. Cooke	Director	February 16, 2023
/s/ DAVID A. DAGLIO, JR. David A. Daglio, Jr.	Director	February 16, 2023
/s/ RICHARD B. GAYNOR Richard B. Gaynor	Director	February 16, 2023
/s/ CATO T. LAURENCIN Cato T. Laurencin	Director	February 16, 2023
/s/ BRIAN P. MCKEON Brian P. McKeon	Director	February 16, 2023
/s/ NANCY L. SNYDERMAN Nancy L. Snyderman	Director	February 16, 2023
/s/ FRANK ANDERS WILSON Frank Anders Wilson	Director	February 16, 2023
/s/ CHRISTOPHER I. WRIGHT Christopher I. Wright	Director	February 16, 2023
/s/ NANCY J. WYSENSKI Nancy J. Wysenski	Director	February 16, 2023

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of Alkermes plc

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Alkermes plc and its subsidiaries (the "Company") as of December 31, 2022 and 2021, and the related consolidated statements of operations and comprehensive loss, of shareholders' equity and of cash flows for each of the three years in the period ended December 31, 2022, including the related notes (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2022, based on criteria established in *Internal Control - Integrated Framework* (2013) 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 three years in the 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 Internal Control - Integrated Framework (2013) issued by the COSO.

Basis for Opinions

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 Management's Annual Report on Internal Control over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company'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.

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 respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. 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

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

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

Critical Audit Matters

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that (i) relates to accounts or disclosures that are material to the consolidated financial statements and (ii) 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 matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Rebate Accruals – Medicaid Drug Rebate Program

As described in Note 2 and Note 10 to the consolidated financial statements, the Company's revenue from product sales are recorded net of reserves established for applicable discounts and allowances that are offered within contracts with the Company's customers, health care providers or payers. The Company records accruals for rebates to U.S. states under the Medicaid Drug Rebate Program as a reduction of sales when the product is shipped into the distribution channel using the expected value method. As of December 31, 2022, accrued Medicaid rebates were $208.3 million, of which a significant amount related to the Medicaid Drug Rebate Program. The Company rebates individual U.S. states for all eligible units purchased under the Medicaid program based on a rebate per unit calculation, which is based on the Company's average manufacturer prices. The Company estimates expected unit sales to individuals covered by Medicaid and rebates per unit under the Medicaid program and adjusts its rebate accrual based on actual unit sales and rebates per unit and changes in trends in Medicaid utilization.

The principal considerations for our determination that performing procedures relating to rebate accruals for the Medicaid Drug Rebate Program is a critical audit matter are (i) the significant judgment by management due to significant measurement uncertainty involved in developing the reserves, as the reserves are based on assumptions developed using historical experience, current contractual requirements, specific known market events and payment patterns and (ii) a high degree of auditor judgment, effort, and subjectivity in applying procedures related to these assumptions.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to rebate accruals for the Medicaid Drug Rebate Program, including controls over the assumptions used to estimate the rebate accruals. These procedures also included, among others, (i) developing an independent estimate of the rebate accruals by utilizing third-party data related to product sales, the historical trend of actual rebate claims paid and consideration of contractual requirement changes and market events; (ii) comparing the independent estimate to management's estimate; and (iii) testing rebate claims processed by the Company.

/s/ PricewaterhouseCoopers LLP
Boston, Massachusetts
February 16, 2023

We have served as the Company's auditor since 2007.

ALKERMES PLC AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
December 31, 2022 and 2021

	December 31, 2022	December 31, 2021
	(In thousands, except share and per share amounts)	
ASSETS		
CURRENT ASSETS:		
Cash and cash equivalents	$ 292,473	$ 337,544
Investments—short-term	315,992	198,767
Receivables, net	287,967	313,193
Inventory	181,418	150,335
Contract assets	8,929	13,363
Prepaid expenses and other current assets	43,527	48,967
Total current assets	1,130,306	1,062,169
PROPERTY, PLANT AND EQUIPMENT, NET	325,361	341,054
INVESTMENTS—LONG-TERM	131,610	229,430
RIGHT-OF-USE ASSETS	115,855	115,627
INTANGIBLE ASSETS, NET	37,680	74,043
GOODWILL	92,873	92,873
DEFERRED TAX ASSETS	115,602	81,833
OTHER ASSETS	14,691	27,455
TOTAL ASSETS	$ 1,963,978	$ 2,024,484
LIABILITIES AND SHAREHOLDERS' EQUITY		
CURRENT LIABILITIES:		
Accounts payable and accrued expenses	$ 220,089	$ 208,491
Accrued sales discounts, allowances and reserves	252,115	237,216
Operating lease liabilities—short-term	15,722	16,240
Contract liabilities—short-term	6,816	6,339
Current portion of long-term debt	3,000	3,000
Total current liabilities	497,742	471,286
LONG-TERM DEBT	290,270	292,804
OPERATING LEASE LIABILITIES—LONG-TERM	89,829	104,162
OTHER LONG-TERM LIABILITIES	42,384	43,648
Total liabilities	920,225	911,900
COMMITMENTS AND CONTINGENT LIABILITIES (Note 17)		
SHAREHOLDERS' EQUITY:		
Preferred shares, par value, $0.01 per share; 50,000,000 shares authorized; zero issued and outstanding at December 31, 2022 and 2021, respectively	—	—
Ordinary shares, par value, $0.01 per share; 450,000,000 shares authorized; 168,951,193 and 165,790,549 shares issued; 164,377,009 and 161,937,327 shares outstanding at December 31, 2022 and 2021, respectively	1,690	1,658
Treasury shares, at cost (4,574,184 and 3,853,222 shares at December 31, 2022 and 2021, respectively)	(160,862)	(142,658)
Additional paid-in capital	2,913,099	2,798,325
Accumulated other comprehensive loss	(10,889)	(3,723)
Accumulated deficit	(1,699,285)	(1,541,018)
Total shareholders' equity	1,043,753	1,112,584
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	$ 1,963,978	$ 2,024,484

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

ALKERMES PLC AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
Years Ended December 31, 2022, 2021 and 2020

	Year Ended December 31,		
	2022	2021	2020
	(In thousands, except per share amounts)		
REVENUES:			
Product sales, net	$ 777,552	$ 627,424	$ 551,760
Manufacturing and royalty revenues	331,983	541,807	484,000
License revenue	2,000	3,500	1,050
Research and development revenue	260	1,020	1,946
Total revenues	1,111,795	1,173,751	1,038,756
EXPENSES:			
Cost of goods manufactured and sold (exclusive of amortization of acquired intangible assets shown below)	218,108	197,387	178,316
Research and development	393,842	406,526	394,588
Selling, general and administrative	605,747	560,977	538,827
Amortization of acquired intangible assets	36,363	38,148	39,452
Total expenses	1,254,060	1,203,038	1,151,183
OPERATING LOSS	(142,265)	(29,287)	(112,427)
OTHER (EXPENSE) INCOME, NET:			
Interest income	7,629	2,408	6,960
Interest expense	(13,040)	(11,219)	(8,659)
Change in the fair value of contingent consideration	(21,750)	(1,427)	3,945
Other income, net	2,122	219	13,644
Total other (expense) income, net	(25,039)	(10,019)	15,890
LOSS BEFORE INCOME TAXES	(167,304)	(39,306)	(96,537)
INCOME TAX (BENEFIT) PROVISION	(9,037)	8,863	14,324
NET LOSS	$ (158,267)	$ (48,169)	$ (110,861)
LOSS PER ORDINARY SHARE:			
Basic and diluted	$ (0.97)	$ (0.30)	$ (0.70)
WEIGHTED AVERAGE NUMBER OF ORDINARY SHARES OUTSTANDING:			
Basic and diluted	163,541	160,942	158,803
COMPREHENSIVE LOSS:			
Net loss	$ (158,267)	$ (48,169)	$ (110,861)
Holding loss, net of a tax (benefit) provision of $(973), $(706) and $130, respectively	(7,166)	(2,374)	467
COMPREHENSIVE LOSS	$ (165,433)	$ (50,543)	$ (110,394)

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

ALKERMES PLC AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY
Years Ended December 31, 2022, 2021 and 2020

	Ordinary Shares		Additional Paid-In	Accumulated Other Comprehensive	Accumulated	Treasury Stock		
	Shares	Amount	Capital	Loss	Deficit	Shares	Amount	Total
				(In thousands, except share data)				
BALANCE — December 31, 2019	160,489,888	$ 1,602	$ 2,586,030	$ (1,816)	$ (1,381,988)	(2,710,886)	$ (118,386)	$ 1,085,442
Issuance of ordinary shares under employee stock plans	682,122	7	8,366	—	—	—	—	8,373
Receipt of Alkermes' shares for the purchase of stock options or to satisfy minimum tax withholding obligations related to share-based awards	1,097,210	11	(11)	—	—	(397,193)	(7,701)	(7,701)
Share-based compensation	—	—	91,262	—	—	—	—	91,262
Unrealized gain on marketable securities, net of tax provision of $130	—	—	—	467	—	—	—	467
Net loss	—	—	—	—	(110,861)	—	—	(110,861)
BALANCE — December 31, 2020	162,269,220	$ 1,620	$ 2,685,647	$ (1,349)	$ (1,492,849)	(3,108,079)	$ (126,087)	$ 1,066,982
Issuance of ordinary shares under employee stock plans	3,521,329	38	25,281	—	—	—	—	25,319
Receipt of Alkermes' shares for the purchase of stock options or to satisfy minimum tax withholding obligations related to share-based awards	—	—	—	—	—	(745,143)	(16,571)	(16,571)
Share-based compensation	—	—	87,397	—	—	—	—	87,397
Unrealized loss on marketable securities, net of tax benefit of $706	—	—	—	(2,374)	—	—	—	(2,374)
Net loss	—	—	—	—	(48,169)	—	—	(48,169)
BALANCE —December 31, 2021	165,790,549	$ 1,658	$ 2,798,325	$ (3,723)	$ (1,541,018)	(3,853,222)	$ (142,658)	$ 1,112,584
Issuance of ordinary shares under employee stock plans	3,160,644	32	19,598	—	—	—	—	19,630
Receipt of Alkermes' shares for the purchase of stock options or to satisfy minimum tax withholding obligations related to share-based awards	—	—	—	—	—	(720,962)	(18,204)	(18,204)
Share-based compensation	—	—	95,176	—	—	—	—	95,176
Unrealized loss on marketable securities, net of tax benefit of $973	—	—	—	(7,166)	—	—	—	(7,166)
Net loss	—	—	—	—	(158,267)	—	—	(158,267)
BALANCE —December 31, 2022	168,951,193	$ 1,690	$ 2,913,099	$ (10,889)	$ (1,699,285)	(4,574,184)	$ (160,862)	$ 1,043,753

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

ALKERMES PLC AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
Years Ended December 31, 2022, 2021 and 2020

	Year Ended December 31,		
	2022	2021	2020
		(In thousands)	
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net loss	$ (158,267)	$ (48,169)	$ (110,861)
Adjustments to reconcile net loss to cash flows from operating activities:			
Depreciation and amortization	77,862	78,652	81,854
Share-based compensation expense	94,254	87,622	90,164
Deferred income taxes	(32,795)	5,081	9,985
Change in the fair value of contingent consideration	21,750	1,427	(3,945)
Other non-cash charges	5,531	2,650	2,514
Changes in assets and liabilities:			
Receivables	25,250	(38,011)	(18,050)
Contract assets	4,434	6,037	(6,015)
Inventory	(31,021)	(24,769)	(22,933)
Prepaid expenses and other assets	(5,328)	11,481	4,022
Right-of-use assets	16,569	17,051	17,336
Accounts payable and accrued expenses	15,534	11,514	(14,375)
Accrued sales discounts, allowances and reserves	14,899	18,339	64,975
Contract liabilities	(7,129)	(6,080)	(4,924)
Operating lease liabilities	(33,225)	(16,777)	(16,273)
Other long-term liabilities	12,726	(4,333)	9,368
Cash flows provided by operating activities	21,044	101,715	82,842
CASH FLOWS FROM INVESTING ACTIVITIES:			
Additions of property, plant and equipment	(38,255)	(28,020)	(42,219)
Proceeds from the sale of equipment	—	287	643
Proceeds from contingent consideration	1,273	7,937	3,886
Return of Fountain Healthcare Partners II, L.P. investment	485	—	2,751
Payment made for licensed Intellectual Property ("IP")	—	(1,000)	—
Purchases of investments	(309,671)	(340,418)	(229,543)
Sales and maturities of investments	281,627	295,010	253,001
Cash flows used in investing activities	(64,541)	(66,204)	(11,481)
CASH FLOWS FROM FINANCING ACTIVITIES:			
Proceeds from the issuance of ordinary shares under share-based compensation arrangements	19,630	25,319	8,373
Employee taxes paid related to net share settlement of equity awards	(18,204)	(16,571)	(7,701)
Proceeds from the issuance of long-term debt	—	23,567	—
Payment made for debt extinguishment	—	(993)	—
Principal payments of long-term debt	(3,000)	(2,250)	(2,843)
Cash flows (used in) provided by financing activities	(1,574)	29,072	(2,171)
NET (DECREASE) INCREASE IN CASH AND CASH EQUIVALENTS	(45,071)	64,583	69,190
CASH AND CASH EQUIVALENTS—Beginning of period	337,544	272,961	203,771
CASH AND CASH EQUIVALENTS—End of period	$ 292,473	$ 337,544	$ 272,961
SUPPLEMENTAL CASH FLOW DISCLOSURE:			
Cash paid for interest	$ 13,563	$ 6,904	$ 8,288
Cash paid for taxes	$ 20,749	$ 1,888	$ 620
Non-cash investing and financing activities:			
Purchased capital expenditures included in accounts payable and accrued expenses	$ 2,950	$ 6,025	$ 2,420

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

1. DESCRIPTION OF BUSINESS AND BASIS OF PRESENTATION

Alkermes plc (the "Company") is a fully integrated, global biopharmaceutical company that applies its scientific expertise and proprietary technologies to research, develop and commercialize, both with partners and on its own, pharmaceutical products that are designed to address unmet medical needs of patients in the fields of neuroscience and oncology. Alkermes has a portfolio of proprietary commercial products focused on alcohol dependence, opioid dependence, schizophrenia and bipolar I disorder and a pipeline of product candidates in development for neurological disorders and cancer. Headquartered in Dublin, Ireland, the Company has a research and development ("R&D") center in Waltham, Massachusetts; R&D and manufacturing facilities in Athlone, Ireland; and a manufacturing facility in Wilmington, Ohio.

On November 2, 2022, the Company announced its intent, as approved by its board of directors, to separate its neuroscience business and oncology business. The Company is exploring a separation of the oncology business into an independent, publicly-traded company (referred to herein as "Oncology Co.") as part of an ongoing review of strategic alternatives for the oncology business. Following the planned separation, the Company would retain its focus on driving growth of its proprietary commercial products: LYBALVI, ARISTADA/ARISTADA INITIO and VIVITROL, and advancing the development of pipeline programs focused on neurological disorders. The Company also expects to retain manufacturing and royalty revenues related to its licensed products and third-party products using its proprietary technologies under license. Oncology Co. would focus on the discovery and development of cancer therapies, including the continued development of nemvaleukin alfa and the Company's portfolio of novel, preclinical engineered cytokines. The separation, if consummated, is expected to be completed in the second half of 2023 and is subject to customary closing conditions, including final approval by the Company's board of directors and, if sought, receipt of a private letter ruling from the IRS and/or tax opinion from the Company's tax advisors.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Principles of Consolidation

The consolidated financial statements include the accounts of Alkermes plc and its wholly-owned subsidiaries. Intercompany accounts and transactions have been eliminated.

Reclassification

The Company reclassified certain prior year amounts on the consolidated balance sheet to conform to the current year presentation. These reclassifications had no impact on the previously reported total assets, liabilities or shareholders' equity.

Use of Estimates

The preparation of the Company's consolidated financial statements in accordance with accounting principles generally accepted in the United States ("GAAP") requires that Company management make estimates, judgments and assumptions that may affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. On an on-going basis, the Company evaluates its estimates and judgments and methodologies, including but not limited to, those related to revenue from contracts with its customers and related allowances, impairment and amortization of intangibles and long-lived assets, share-based compensation, income taxes including the valuation allowance for deferred tax assets, valuation of investments, contingent consideration and litigation. The Company bases its estimates on historical experience and on various other assumptions that are believed to be reasonable, the results of which form the basis for making judgments about the carrying values of assets and liabilities. Actual results may differ from these estimates under different assumptions or conditions.

Cash and Cash Equivalents

The Company values its cash and cash equivalents at cost plus accrued interest, which the Company believes approximates their market value. The Company considers cash equivalents only those investments that are highly liquid, readily convertible into cash and so near their maturity, generally three months from the date of purchase, that they present insignificant risk of change in value because of interest rate changes.

Investments

The Company has investments in various types of securities, consisting primarily of United States ("U.S.") government and agency obligations, corporate debt securities and debt securities issued by non-U.S. agencies and backed by non-U.S. governments. The Company generally holds its interest-bearing investments with major financial institutions and in accordance with documented investment policies. The Company limits the amount of credit exposure to any one financial institution or corporate issuer. At December 31, 2022, substantially all these investments were classified as available-for-sale and were recorded at fair value.

Unrealized gains and losses are included in accumulated other comprehensive loss in equity, net of related tax, in accumulated other comprehensive loss unless: (i) the security has experienced a credit loss; (ii) the Company has determined that it has the intent to sell the security; or (iii) it has determined that it is more likely than not that the Company will have to sell the security before its expected recovery. Periodic reviews are conducted to identify and evaluate each investment that has an unrealized loss in accordance with the meaning of other-than-temporary impairment. An unrealized loss exists when the current fair value of an individual security is less than its amortized cost basis.

For available-for-sale debt securities with unrealized losses, the Company performs an analysis to assess whether it intends to sell or whether it would more likely than not be required to sell the security before the expected recovery of the amortized cost basis. Where the Company intends to sell a security, or may be required to do so, the security's decline in fair value is deemed to be other-than-temporary and the full amount of the unrealized loss is reflected in earnings as an impairment loss.

Regardless of the Company's intent to sell a security, the Company performs additional analysis on all securities with unrealized losses to evaluate losses associated with the creditworthiness of the security. Credit losses are identified where the Company does not expect to receive cash flows sufficient to recover the amortized cost basis of a security.

The Company's held-to-maturity investments are restricted investments held as collateral under letters of credit related to certain of the Company's agreements and are included in "Investments—long-term," in the accompanying consolidated balance sheets.

Fair Value of Financial Instruments

The Company's financial assets and liabilities are recorded at fair value and are classified as Level 1, 2 or 3 within the fair value hierarchy, as described in the accounting standards for fair value measurement. At December 31, 2022, the Company's financial assets consisted of cash equivalents, investments and contingent consideration and are classified within the fair value hierarchy as follows:

- *Level 1*–these valuations are based on a market approach using quoted prices in active markets for identical assets. Valuations of these products do not require a significant degree of judgment. Assets utilizing Level 1 inputs at December 31, 2022 included U.S. treasury securities, marketable securities classified as cash equivalents and a fixed term deposit account;
- *Level 2*–these valuations are based on quoted prices for identical or similar assets in active markets or other market observable inputs such as interest rates, yield curves, foreign currency spot rates and option pricing valuation models. Assets utilizing Level 2 inputs at December 31, 2022 included U.S. government agency debt securities, debt securities issued by non-U.S. agencies and backed by non-U.S. governments and investments in corporate debt securities that are trading in the credit markets; and
- *Level 3*–these valuations are based on an income approach using certain inputs that are unobservable and are significant to the overall fair value measurement. Valuations of these products require a significant degree of judgment. At December 31, 2022, no assets utilized Level 3 inputs.

The carrying amounts reflected in the consolidated balance sheets for cash and cash equivalents, accounts receivable, other current assets, accounts payable and accrued expenses approximate fair value due to their short-term nature.

Inventory

Inventory is stated at the lower of cost and net realizable value. Cost is determined using the first-in, first-out method. Included in inventory are raw materials used in production of preclinical and clinical products, which have alternative future use and are charged to R&D expense when consumed. The cost elements included within inventory include three primary categories for commercial products: cost of raw materials; direct labor; and overhead. Overhead is based on the normal capacity of the Company's production facilities and does not include costs from abnormally low production or idle capacity, which are expensed directly to the consolidated statement of operations and comprehensive loss.

The Company capitalizes inventory costs associated with its products prior to regulatory approval when, based on management's judgment, future commercialization of the product is considered probable and future economic benefit from such product is expected to be realized. The Company assesses the regulatory approval process and where the particular product stands in relation to that approval process, including any known safety, efficacy or quality concerns, potential labeling restrictions and other potential impediments to approval. The Company also considers the shelf life of the product in relation to the expected timeline for approval and considers issues that may prevent or delay commercialization, including issues that may arise in relation to the manufacturing of the product. The Company expenses previously capitalized costs related to pre-approval inventory upon a change in such judgment, due to, among other potential factors, a denial or significant delay of approval by relevant regulatory agencies or other issues that may make the pre-approval inventory batches less likely or unlikely to be commercialized and to result in future economic benefit.

Property, Plant and Equipment

Property, plant and equipment are recorded at cost, subject to review for impairment whenever events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable. Expenditures for repairs and maintenance are charged to expense as incurred and major renewals and improvements are capitalized. Depreciation is calculated using the straight-line method over the following estimated useful lives of the assets:

Asset group	Term
Buildings and improvements	15 - 40 years
Furniture, fixtures and equipment	3 - 10 years
Leasehold improvements	Shorter of useful life or lease term

Contingent Consideration

The Company records contingent consideration it is entitled to receive related to the sale of a business at fair value on the acquisition date. The Company estimates the fair value of contingent consideration through valuation models that incorporate probability-adjusted assumptions related to the likelihood of achievement of milestones and the corresponding likelihood of receiving related payments. The Company revalues its contingent consideration each reporting period, with changes in the fair value of contingent consideration recognized within the consolidated statements of operations and comprehensive loss. Changes in the fair value of contingent consideration can result from changes to one or multiple assumptions, including adjustments to the discount rates, changes in the amount and timing of cash flows, changes in the assumed achievement and timing of any development and sales-based milestones, changes in the assumed probability associated with regulatory approvals and changes in the probability of collection or default of portions of the contingent consideration due to the Company.

These fair value measurements are based on significant inputs, including inputs not observable in the market. Significant judgment was employed in determining the appropriateness of these assumptions at the acquisition date and for each subsequent period. Accordingly, changes in assumptions described above could have a material impact on the increase or decrease in the fair value of contingent consideration recorded in any given period.

Goodwill and Intangible Assets

Goodwill represents the excess cost of the Company's investment in the net assets of acquired companies over the fair value of the underlying identifiable net assets at the date of acquisition. The Company's goodwill consists solely of goodwill created as a result of the Company's acquisition of Elan Drug Technologies ("EDT") from Elan Corporation, plc (such acquisition, the "Business Combination") in September 2011 and has been assigned to one reporting unit. A reporting unit is an operating segment or one level below an operating segment or a component to which goodwill is assigned when initially recorded.

Goodwill is not amortized but is reviewed for impairment on an annual basis, as of October 31, and whenever events or changes in circumstances indicate that the carrying value of the goodwill might not be recoverable. The Company has the option to first assess qualitative factors to determine whether it is necessary to perform the quantitative impairment test. If the Company elects this option and believes, as a result of the qualitative assessment, that it is more-likely-than-not that the fair value of its reporting unit is less than its carrying amount, the quantitative impairment test is required; otherwise, no further testing is required. Alternatively, the Company may elect to not first assess qualitative factors and immediately perform the quantitative impairment test. In the quantitative impairment test, the Company compares the fair value of its reporting unit to its carrying value. If the carrying value of the net assets assigned to the reporting unit exceeds the fair value of the reporting unit, then the Company would record an impairment loss equal to the difference.

The Company's finite-lived intangible assets, consisting of core developed technology and collaboration agreements acquired as part of the Business Combination, were recorded at fair value at the time of their acquisition and are stated within the Company's consolidated balance sheets net of accumulated amortization. The finite-lived intangible assets are amortized over their estimated useful lives using the economic use method, which reflects the pattern that the economic benefits of the intangible assets are consumed as revenue is generated from the underlying patent or contract. The useful lives of the Company's intangible assets are primarily based on the legal or contractual life of the underlying patent or contract, which does not include additional years for the potential extension or renewal of the contract or patent.

Impairment of Long-Lived Assets

The Company reviews long-lived assets to be held and used for impairment whenever events or changes in circumstances indicate that the carrying amount of the assets may not be recoverable. Conditions that would necessitate an impairment assessment include a significant decline in the observable market value of an asset; a significant change in the extent or manner in which an asset

is used; a significant adverse change in legal factors or in the business climate that could affect the value of a long-lived asset; an accumulation of costs significantly in excess of the amount originally expected for the acquisition or construction of a long-lived asset; a current-period operating or cash flow loss combined with a history of operating or cash-flow losses or a projection or forecast that demonstrates continuing losses associated with the use of a long-lived asset; or a current expectation that, more likely than not, a long-lived asset will be sold or otherwise disposed of significantly before the end of its previously estimated useful life. Determination of recoverability is based on an estimate of undiscounted future cash flows resulting from the use of the asset and its eventual disposition. In the event that such cash flows are not expected to be sufficient to recover the carrying amount of the assets, the assets are written-down to their estimated fair values. Long-lived assets to be disposed of are carried at fair value less costs to sell them.

In April 2015, the Company sold its Gainesville, GA manufacturing facility, the related manufacturing and royalty revenue associated with certain products manufactured at the facility, and the rights to IV/IM and parenteral forms of Meloxicam to Recro Pharma, Inc. ("Recro") and Recro Gainesville LLC (such transaction the "Gainesville Transaction"). The Gainesville Transaction included in the purchase price contingent consideration tied to low double digit royalties on net sales of the IV/IM and parenteral forms of Meloxicam and any other product with the same active ingredient as Meloxicam IV/IM that is discovered or identified using certain of the Company's IP to which Recro was provided a right of use, through license or transfer, pursuant to the Gainesville Transaction (such products, the "Meloxicam Products"), and milestone payments upon the achievement of certain regulatory and sales milestones related to the Meloxicam Products. In the third quarter of 2022, the Company determined that certain construction in progress related to the manufacture of ANJESO®, the first approved Meloxicam Product, was impaired, as it had no alternative future use. See Note 7, *Property, Plant and Equipment*, within the "Notes to Consolidated Financial Statements" in this Annual Report for details related to such construction in progress.

In the fourth quarter of 2022, the Company determined that an impairment triggering event occurred related to an arbitration panel's ruling relative to the Company's manufacturing and royalty revenue arrangement with Acorda related to AMPYRA®. Following this triggering event, the Company evaluated certain of its intangible assets for impairment under a held-and-used model. The Company concluded in this instance that the long-lived assets evaluated for impairment were recoverable based on an analysis of the undiscounted cash flows to be generated from the use of these assets and that there was no impact to the remaining useful lives of these assets.

Revenue from Contracts with Customers

The Company recognizes revenue in accordance with Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") 606, *Revenue from Contracts with Customers* ("Topic 606"). When entering into arrangements with customers, the Company identifies whether its performance obligations under the arrangement represent a distinct good or service or a series of distinct goods or services. If a contract contains more than one performance obligation, the Company allocates the total transaction price to each performance obligation in an amount based on the estimated relative standalone selling prices of the promised goods or services underlying each performance obligation. The fair value of performance obligations under the arrangement may be derived using an estimate of selling price if the Company does not sell the goods or services separately.

The Company recognizes revenue when or as it satisfies a performance obligation by transferring an asset or providing a service to a customer. Management judgment is required in determining the consideration to be earned under an arrangement and the period over which the Company is expected to complete its performance obligations under an arrangement. Steering committee services that are not inconsequential or perfunctory and that are determined to be performance obligations are combined with other research services or performance obligations required under an arrangement, if any, in determining the level of effort required in an arrangement and the period over which the Company expects to complete its aggregate performance obligations.

Product Sales, Net

The Company's product sales, net consist of sales in the U.S. of VIVITROL®, ARISTADA® and ARISTADA INITIO® and, following its commercial launch in October 2021, LYBALVI®, primarily to wholesalers, specialty distributors and pharmacies. Product sales, net are recognized when the customer obtains control of the product, which is when the product has been received by the customer.

Revenues from product sales are recorded net of reserves established for applicable discounts and allowances that are offered within contracts with the Company's customers, healthcare providers or payers. The Company's process for estimating reserves established for these variable consideration components does not differ materially from historical practices. The transaction price, which includes variable consideration reflecting the impact of discounts and allowances, may be subject to constraint and is included in the net sales price only to the extent that it is probable that a significant reversal of the amount of the cumulative revenues recognized will not occur in a future period. Actual amounts may ultimately differ from the Company's estimates. If actual results vary, the Company adjusts these estimates, which could have an effect on earnings in the period of adjustment. The following are the Company's significant categories of sales discounts and allowances:

- *Medicaid Rebates*—the Company records accruals for rebates to U.S. states under the Medicaid Drug Rebate Program as a reduction of sales when the product is shipped into the distribution channel using the expected value method. The Company rebates individual U.S. states for all eligible units purchased under the Medicaid program based on a rebate per unit calculation, which is based on the Company's average manufacturer prices. The Company estimates expected unit sales to individuals covered by Medicaid and rebates per unit under the Medicaid program and adjusts its rebate accrual based on actual unit sales and rebates per unit and changes in trends in Medicaid utilization. To date, actual Medicaid rebates have not differed materially from the Company's estimates;
- *Chargebacks*—discounts that occur when contracted indirect customers purchase directly from wholesalers and specialty distributors. Contracted customers generally purchase a product at its contracted price. The wholesaler or specialty distributor, in turn, then generally charges back to the Company the difference between the wholesale acquisition cost and the contracted price paid to the wholesaler or specialty distributor by the customer. The allowance for chargebacks is made using the expected value method and is based on actual and expected utilization of these programs. Chargebacks could exceed historical experience and the Company's estimates of future participation in these programs. To date, actual chargebacks have not differed materially from the Company's estimates;
- *Product Discounts*—cash consideration, including sales incentives, given by the Company under agreements with a number of wholesaler, distributor, pharmacy, and treatment provider customers that provide them with a discount on the purchase price of products. The reserve is made using the expected value method and to date, actual product discounts have not differed materially from the Company's estimates;
- *Product Returns*—the Company records an estimate for product returns at the time its customers take control of their product. The Company estimates this liability using the expected returns of product sold based on historical return levels and specifically identified anticipated returns due to known business conditions and product expiry dates. Return amounts are recorded as a reduction of sales. Once product is returned, it is destroyed; and
- *Medicare Part D*—the Company records accruals for Medicare Part D liabilities under the Medicare Coverage Gap Discount Program ("CGDP") as a reduction of sales. Under the CGDP, patients reaching the annual coverage gap threshold are eligible for reimbursement coverage for out-of-pocket costs for covered prescription drugs. Under an agreement with the Centers for Medicare and Medicaid Services, manufacturers are responsible to reimburse prescription plan sponsors for the portion of out-of-pocket expenses not covered under their Medicare plans.

Collaborative Arrangements

The Company has entered into collaboration agreements with pharmaceutical companies including, among others, Janssen Pharmaceuticals, Inc. ("Janssen, Inc."), Janssen Pharmaceutica International, a division of Cilag International AG ("Janssen International"), and Janssen Pharmaceutica N.V. (together with Janssen, Inc., Janssen International and their affiliates, "Janssen") related to INVEGA SUSTENNA/XEPLION, INVEGA TRINZA/TREVICTA, INVEGA HAFYERA/BYANNLI (the "long-acting INVEGA products") and RISPERDAL CONSTA®, and Biogen Swiss Manufacturing GmbH (together with its affiliates, "Biogen") related to VUMERITY®. Substantially all of the products developed under these arrangements are currently being marketed as approved products for which the Company receives payments for manufacturing services and/or royalties on net product sales.

Manufacturing Revenue

The Company recognizes manufacturing revenues from the sale of products it manufactures for resale by its licensees. Manufacturing revenues for the Company's partnered products, with the exception of those from Janssen related to RISPERDAL CONSTA and from Biogen related to VUMERITY, are recognized over time as products move through the manufacturing process, using a standard cost-based model as a measure of progress, which represents a faithful depiction of the transfer of control of the goods. The Company recognizes manufacturing revenue from these products over time as it determined, in each instance, that it would have a right to payment for performance completed to date if its customer were to terminate the manufacturing agreement for reasons other than the Company's non-performance and the products have no alternative use. The Company invoices its licensees upon shipment with payment terms between 30 to 90 days.

The Company is the exclusive manufacturer of RISPERDAL CONSTA for commercial sale under its manufacturing and supply agreement with Janssen. The Company determined that it is appropriate to record revenue under this agreement at the point in time when control of the product passes to Janssen, which is determined to be when the product has been fully manufactured, since Janssen does not control the product during the manufacturing process and, in the event Janssen terminates the manufacturing and supply agreement, it is uncertain whether, and at what amount, the Company would be reimbursed for performance completed to date for product not yet fully manufactured. The manufacturing process is considered fully complete once the finished goods have been approved for shipment by both the Company and Janssen.

The Company recognizes manufacturing revenue related to VUMERITY at cost plus 15%, upon making available bulk batches of VUMERITY to Biogen, to the extent the Company packages such product, then also when packaged batches of VUMERITY are made available to Biogen. Control of the product passes to Biogen when VUMERITY, in either bulk or finished form, is made available to Biogen.

The sales price for certain of the Company's manufacturing revenues is based on the end-market sales price earned by its licensees. As end-market sales generally occur after the Company has recorded manufacturing revenue, the Company estimates the sales price for such products based on information supplied to it by the Company's licensees, its historical transaction experience and other third-party data. Differences between actual manufacturing revenues and estimated manufacturing revenues are reconciled and adjusted for in the period in which they become known, which is generally within the same quarter. The difference between the Company's actual and estimated manufacturing revenues has not been material to date.

Royalty Revenue

The Company recognizes royalty revenues related to the sale by its licensees of products that incorporate the Company's technologies. Substantially all of the Company's royalties qualify for the sales-and-usage exemption under Topic 606 as (i) such royalties are based strictly on the sales-and-usage by the licensee; and (ii) a license of IP is the sole or predominant item to which such royalties relate. Based on this exemption, these royalties are earned in the period that the products are sold by the Company's licensee and the Company has a present right to payment.

Certain of the Company's royalty revenues are recognized by the Company based on information supplied to the Company by its licensees and require estimates to be made. Differences between actual royalty revenues and estimated royalty revenues are reconciled and adjusted for in the period in which they become known, which is generally within the same quarter. The difference between the Company's actual and estimated royalty revenues has not been material to date.

Research and Development Revenue

R&D revenue consists of funding that compensates the Company for formulation, preclinical and clinical testing under R&D arrangements with its partners. The Company generally bills its partners under R&D arrangements using a full-time equivalent or hourly rate, plus direct external costs, if any. Revenue is recognized as the obligations under the R&D arrangements are performed.

License Revenue

The Company recognizes revenue from the grant of distinct, right-to-use licenses of IP when control of the license is transferred to the licensee, which is the point in time that the licensee is able to direct the use of and obtain substantially all of the benefits from the license.

Receivables, net

Receivables, net, include amounts billed and amounts unbilled but currently unconditionally due from customers. The amounts due are stated at their net estimated realizable value. The Company's unbilled receivable balance was $72.0 million and $127.6 million at December 31, 2022 and 2021, respectively, and related primarily to royalty revenue. The Company maintains an allowance for doubtful accounts to provide for the estimated amounts of receivables that will not be collected. The allowance is based upon an assessment of customer creditworthiness, historical payment experience, the age of outstanding receivables and collateral to the extent applicable. The Company's allowance for doubtful accounts was approximately $0.2 million at December 31, 2022 and 2021, respectively.

Contract Assets

Contract assets include unbilled amounts resulting from sales under certain of the Company's manufacturing contracts where revenue is recognized over time, except for $5.0 million of consideration related to the Company's collaboration with Biogen related to VUMERITY, which was included in contract assets at December 31, 2021 and transferred to receivables, net, as the milestone related to such amount was achieved in November 2022. The manufacturing-related amounts included in the contract assets table below are classified as "Current assets" in the accompanying consolidated balance sheets, as they related to manufacturing processes that are completed in ten days to eight weeks.

Contract assets consisted of the following:

(In thousands)	Contract Assets
Contract assets at January 1, 2021	$ 19,401
Additions	30,609
Transferred to receivables, net	(36,647)
Contract assets at December 31, 2021	$ 13,363
Additions	42,218
Transferred to receivables, net	(46,652)
Contract assets at December 31, 2022	$ 8,929

Contract Liabilities

The Company's contract liabilities consist of contractual obligations related to deferred revenue.

Contract liabilities consisted of the following:

(In thousands)	Contract Liabilities
Contract liabilities at January 1, 2021	$ 23,909
Additions	—
Amounts recognized into revenue	(6,079)
Contract liabilities at December 31, 2021	$ 17,830
Additions	6,769
Amounts recognized into revenue	(7,514)
Amounts recognized into other income, net	(6,384)
Contract liabilities at December 31, 2022	$ 10,701

Foreign Currency

The Company's functional and reporting currency is the U.S. dollar. Transactions in foreign currencies are recorded at the exchange rate prevailing on the date of the transaction. The resulting monetary assets and liabilities are translated into U.S. dollars at exchange rates prevailing on the subsequent balance sheet date. Gains and losses as a result of translation adjustments are recorded within "Other income, net" in the accompanying consolidated statements of operations and comprehensive loss. During the years ended December 31, 2022, 2021 and 2020, the Company recorded a gain of $0.7 million, a loss of $0.3 million and a gain of $2.4 million, respectively, on foreign currency translation.

Concentrations

Financial instruments that potentially subject the Company to concentrations of credit risk are receivables and marketable securities. Billings to large pharmaceutical companies and pharmaceutical wholesalers account for the majority of the Company's receivables, and collateral is generally not required from these customers. To mitigate credit risk, the Company monitors the financial performance and credit-worthiness of its customers. The following represents revenue and receivables from the Company's customers exceeding 10% of the total in each category as of, and for the years ended, December 31, 2022, 2021 and 2020:

	Year Ended December 31,					
	2022		2021		2020	
Customer	Receivables	Revenue	Receivables	Revenue	Receivables	Revenue
Janssen	*	15%	30%	30%	30%	33%
Biogen	19%	13%	11%	10%	*	*
Cardinal Health	24%	24%	17%	20%	16%	21%
AmerisourceBergen	18%	14%	13%	11%	11%	10%
McKesson	12%	16%	11%	13%	*	14%

* Indicates the revenues or receivables for the customer did not exceed 10% of the Company's total in each category as of or for the years ended December 31, 2022, 2021 or 2020, as noted.

The Company holds its interest-bearing investments with major financial institutions and, in accordance with documented investment policies, the Company limits the amount of credit exposure to any one financial institution or corporate issuer. The Company's investment objectives are, first, to ensure liquidity and conservation of capital and, second, to obtain investment income.

Geographic Information

Company revenues by geographic location, as determined by the location of the customer, and the location of its assets, are as follows:

(In thousands)	Year Ended December 31, 2022	2021	2020
Revenue by region:			
U.S.	$ 931,991	$ 984,235	$ 838,995
Ireland	1,829	2,175	3,233
Rest of world	177,975	187,341	196,528
Assets by region:			
Current assets:			
U.S.	$ 702,564	$ 485,083	$ 662,615
Ireland	427,742	577,086	448,356
Rest of world	—	—	—
Long-term assets:			
U.S.:			
Other	$ 529,002	$ 591,217	$ 472,999
Ireland:			
Intangible assets	$ 37,680	$ 74,043	$ 111,191
Goodwill	92,873	92,873	92,873
Other	174,117	204,182	161,696

Research and Development Expenses

For each of its R&D programs, the Company incurs both external and internal expenses. External R&D expenses include fees related to clinical and non-clinical activities performed by contract research organizations, consulting fees and costs related to laboratory services, purchases of drug product materials and third-party manufacturing development costs. Internal R&D expenses include employee-related expenses, occupancy costs, depreciation and general overhead. The Company tracks external R&D expenses for each of its development programs, however, internal R&D expenses are not tracked by individual program as they benefit multiple programs or the Company's technologies in general.

Selling, General and Administrative Expenses

Selling, general and administrative ("SG&A") expenses are primarily comprised of employee-related expenses associated with selling and marketing, finance, human resources, legal, information technology and other administrative personnel, outside marketing, advertising, financial and legal expenses and other general and administrative costs.

Advertising costs are expensed as incurred. During the years ended December 31, 2022, 2021 and 2020, advertising costs totaled $41.4 million, $38.9 million and $25.5 million, respectively.

Share-Based Compensation

The Company's share-based compensation programs grant awards in the form of stock options and restricted stock unit awards ("RSUs"), which vest with the passage of time and/or based on the achievement of certain performance criteria. The Company issues new shares upon the exercise of stock options or the vesting of RSUs. Under the terms of the Company's stock option and incentive plans (the "Plans"), certain of the Company's employees may, at the discretion of the plan administrator, become eligible upon retirement for accelerated vesting of certain awards granted to them under the Plans. Since there are no effective future service requirements for such employees, the fair value of awards to such employees would be expensed in full on the grant date or upon meeting the retirement eligibility criteria, whichever is later.

Time-Based Stock Options

Except as otherwise provided in the applicable Plan, stock option grants to employees expire ten years from the date of grant and generally vest in four equal annual installments, commencing on the first anniversary of the date of grant, provided the employee remains continuously employed with the Company during the applicable vesting period. Except as otherwise provided in the applicable Plan, annual stock option grants to non-employee directors expire ten years from the grant date and generally vest over a one-year period provided that the director continues to serve on the Company's board of directors through the vesting date. The estimated fair value of options is recognized over the requisite service period, which is generally the vesting period. Share-based compensation expense is based on awards ultimately expected to vest. Forfeitures are estimated based on historical experience at the time of grant and revised in subsequent periods if actual forfeitures differ from those estimates.

The fair value of stock option grants is based on estimates as of the date of grant using a Black-Scholes option valuation model. The Company uses historical data as the basis for estimating stock option terms and forfeitures. Separate groups of employees that have similar historical stock option exercise and forfeiture behavior are considered separately for valuation purposes. The ranges of expected terms disclosed below reflect different expected behavior among certain groups of employees. Expected stock volatility factors are based on a weighted average of implied volatilities from traded options of the Company's ordinary shares and historical share price volatility of the Company's ordinary shares, which is determined based on a review of the weighted average of historical weekly price changes of the Company's ordinary shares. The risk-free interest rate for periods commensurate with the expected term of the stock option is based on the U.S. treasury yield curve in effect at the time of grant. The dividend yield on the Company's ordinary shares is estimated to be zero as the Company has not paid dividends and does not expect to pay dividends in the near future. The exercise price of options granted is equal to the closing price of the Company's ordinary shares traded on the Nasdaq Global Select Market on the date of grant.

The fair value of each stock option grant was estimated on the grant date with the following weighted-average assumptions:

	Year Ended December 31,		
	2022	2021	2020
Expected option term	5 - 8 years	5 - 7 years	5 - 7 years
Expected stock volatility	43 % - 51 %	43 % - 54 %	47 % - 54 %
Risk-free interest rate	1.83 % - 4.26 %	0.67 % - 1.46 %	0.24 % - 1.69 %
Expected annual dividend yield	—	—	—

Time-Based Restricted Stock Unit Awards

Except as otherwise provided in the applicable Plan, time-based RSUs awarded to employees generally vest in four equal annual installments, commencing on the first anniversary of the date of grant, provided the employee remains continuously employed with the Company during the applicable vesting period. Shares subject to these RSUs are delivered to the employee upon vesting, subject to payment of applicable withholding taxes. The fair value of time-based RSUs is equal to the closing price of the Company's ordinary shares traded on the Nasdaq Global Select Market on the date of grant. Compensation expense, including the effect of forfeitures, is recognized over the applicable service period.

Performance-Based Restricted Stock Unit Awards

Performance-based RSUs awarded to employees vest upon the achievement of certain performance criteria, typically during or at the end of a specified performance period. The estimated fair value of these RSUs are generally based on the closing price of the Company's ordinary shares traded on the Nasdaq Global Select Market on the date of grant, unless the RSU is also subject to a market condition. In that case, the fair value of the RSU is based on a Monte Carlo simulation model. Compensation expense for performance-based RSUs is recognized from the date the Company determines the performance criteria probable of being achieved to the date the award, or relevant portion of the award, is expected to vest. Cumulative adjustments are recorded on a quarterly basis to reflect subsequent changes to the estimated outcome of the performance criteria until the date results are determined.

Income Taxes

The Company recognizes income taxes under the asset and liability method. Deferred income taxes are recognized for differences between the financial reporting and tax bases of assets and liabilities at enacted statutory tax rates in effect for the years in which the differences are expected to reverse. The effect on deferred taxes of a change in tax rates is recognized in income in the period that includes the enactment date. In evaluating the Company's ability to recover its deferred tax assets, the Company considers all available positive and negative evidence including its past operating results, the existence of cumulative income in the most recent fiscal years, changes in the business in which the Company operates and its forecast of future taxable income. In determining future taxable income, the Company is responsible for assumptions utilized including the amount of Irish and non-Irish pre-tax operating income, the reversal of temporary differences and the implementation of feasible and prudent tax planning strategies. These assumptions require significant judgment about the forecasts of future taxable income and are consistent with the plans and estimates that the Company is using to manage the underlying business.

The Company accounts for uncertain tax positions using a more-likely-than-not threshold for recognizing and resolving uncertain tax positions. The evaluation of uncertain tax positions is based on factors including, but not limited to, changes in tax law, the measurement of tax positions taken or expected to be taken in tax returns, the effective settlement of matters subject to audit, new audit activity and changes in facts or circumstances related to a tax position. The Company evaluates its tax position on a quarterly basis. The Company also accrues for potential interest and penalties related to unrecognized tax benefits in income tax expense.

Comprehensive Loss

Comprehensive loss consists of net loss and other comprehensive loss. Other comprehensive loss includes changes in equity that are excluded from net loss, such as unrealized holding gains and losses on available-for-sale investments.

Loss Per Share

Basic loss per share is calculated based upon net loss available to holders of ordinary shares divided by the weighted average number of ordinary shares outstanding. For the calculation of diluted earnings per share, the Company uses the weighted average number of ordinary shares outstanding, as adjusted for the effect of potential dilutive securities, including stock options and RSUs.

Segment Information

The Company operates as one business segment, which is the business of developing, manufacturing and commercializing medicines designed to address unmet medical needs of patients in major therapeutic areas. The Company's chief decision maker, the Chairman and Chief Executive Officer, reviews the Company's operating results on an aggregate basis and manages the Company's operations as a single operating unit.

Employee Benefit Plans

401(k) Plan

The Company maintains a 401(k) retirement savings plan (the "401(k) Plan"), which covers substantially all of its U.S.-based employees. Eligible employees may contribute up to 100% of their eligible compensation, subject to certain Internal Revenue Service ("IRS") limitations. The Company matches 100% of employee contributions up to the first 5% of employee pay, up to IRS limits. Employee and Company contributions are fully vested when made. During the years ended December 31, 2022, 2021 and 2020, the Company contributed $15.3 million, $14.6 million and $14.7 million, respectively, to match employee deferrals under the 401(k) Plan.

Defined Contribution Plan

The Company maintains a defined contribution plan for its Ireland-based employees (the "Defined Contribution Plan"). The Defined Contribution Plan provides for eligible employees to contribute up to a maximum of 40%, depending upon their age, of their total taxable earnings subject to an earnings cap of €115,000. The Company provides a match of up to 18% of taxable earnings depending upon an individual's contribution level. During the years ended December 31, 2022, 2021 and 2020, the Company contributed $5.1 million, $5.2 million and $4.4 million, respectively, in contributions to the Defined Contribution Plan.

Risks and Uncertainties

The COVID-19 pandemic has impacted, and may continue to impact, many aspects of society, including the operation of healthcare systems, global travel, supply and labor markets and other business and economic activity worldwide. A number of the marketed products from which the Company derives revenue, including manufacturing and royalty revenue, are injectable medications administered by healthcare professionals, which have been, and the Company expects may continue to be, adversely impacted to varying degrees as a result of COVID-19 related closures restrictions, labor shortages and other disruptions that have transpired, and may continue to transpire, while the pandemic persists.

The COVID-19 pandemic has caused, and the Company expects may continue to cause, varying degrees of disruption to its employees and business operations. While the Company has continued to operate its manufacturing facilities and supply its medicines throughout the pandemic, the Company has at times during the pandemic experienced labor or supply chain disruptions at its manufacturing facilities and may continue to experience such disruptions while the pandemic persists, which could impact the Company's ability to manufacture its products and the third-party products from which it receives revenue in a timely matter or at all. In addition, while the Company has continued to conduct R&D activities, including its ongoing clinical trials, the COVID-19 pandemic has at times impacted the timelines of certain of its early-stage discovery efforts and clinical trials, and may continue to impact such timelines while the pandemic persists. The Company works with its internal teams, its clinical investigators, R&D vendors and critical supply chain vendors to continually assess, and mitigate, the potential impact of COVID-19 on its manufacturing operations and R&D activities.

The degree to which the COVID-19 pandemic may continue to impact the Company's employees, business, financial condition and results of operations will depend on the ultimate severity and duration of the pandemic and the manner in which it continues to evolve, including the emergence, prevalence and severity of new COVID-19 variants, and future developments in response thereto. Due to these and numerous other uncertainties surrounding the ongoing COVID-19 pandemic, the actual impact of the pandemic on the Company's financial condition and operating results may differ from its current projections. For additional information about risks

and uncertainties related to the COVID-19 pandemic that may impact the Company's business, financial condition or results of operations, see "Part I, Item 1A—Risk Factors" in this Annual Report and specifically the section entitled "—Our business, financial condition and results of operations have been, and may continue to be, adversely affected by the ongoing COVID-19 pandemic or other similar outbreaks of contagious diseases."

New Accounting Pronouncements

From time to time, new accounting pronouncements are issued by the FASB or other standard-setting bodies that are adopted by the Company as of the specified effective date. Unless otherwise discussed, the Company believes that the impact of recently issued standards that are not yet effective will not have a material impact on its financial position or results of operations upon adoption.

3. REVENUE FROM CONTRACTS WITH CUSTOMERS

During the years ended December 31, 2022, 2021 and 2020, the Company recorded product sales, net, as follows:

	Year Ended December 31,		
(In thousands)	2022	2021	2020
VIVITROL	$ 379,478	$ 343,853	$ 310,722
ARISTADA and ARISTADA INITIO	302,052	275,356	241,038
LYBALVI	96,022	8,215	—
Total product sales, net	$ 777,552	$ 627,424	$ 551,760

During the years ended December 31, 2022, 2021 and 2020, the Company recorded manufacturing and royalty revenues from its collaboration arrangements as follows:

	Year Ended December 31, 2022		
(In thousands)	Manufacturing Revenue	Royalty Revenue	Total
Long-acting INVEGA products[1]	$ —	$ 115,655	$ 115,655
VUMERITY	32,493	83,003	115,496
RISPERDAL CONSTA	42,670	7,243	49,913
Other	37,211	13,708	50,919
	$ 112,374	$ 219,609	$ 331,983

	Year Ended December 31, 2021		
(In thousands)	Manufacturing Revenue	Royalty Revenue	Total
Long-acting INVEGA products[1]	$ —	$ 303,106	$ 303,106
VUMERITY	25,808	61,614	87,422
RISPERDAL CONSTA	40,413	10,456	50,869
Other	39,407	61,003	100,410
	$ 105,628	$ 436,179	$ 541,807

	Year Ended December 31, 2020		
(In thousands)	Manufacturing Revenue	Royalty Revenue	Total
Long-acting INVEGA products [1]	$ —	$ 274,200	$ 274,200
VUMERITY	8,848	13,693	22,541
RISPERDAL CONSTA	56,893	14,468	71,361
Other	53,293	62,605	115,898
	$ 119,034	$ 364,966	$ 484,000

(1) "Long-acting INVEGA products": INVEGA SUSTENNA/XEPLION (paliperidone palmitate), INVEGA TRINZA/TREVICTA (paliperidone palmitate) and INVEGA HAFYERA/BYANNLI (paliperidone palmitate).

In October 2022, an arbitration panel found that the Company must return to Acorda $16.5 million (inclusive of prejudgment interest and administrative fees) previously paid by Acorda under a license agreement between the Company and Acorda and in November 2022, the panel found that the Company must pay to Acorda an additional $1.8 million (inclusive of prejudgment interest). These amounts represent a portion of the royalty revenue paid to the Company by Acorda since July 2020 related to AMPYRA. The Company paid the $16.5 million in October 2022 and paid the additional $1.8 million in December 2022. In addition, during the three months ended June 30, 2022, the Company had recorded $3.2 million of royalty revenue related to AMPYRA as the Company believed that it had met the necessary revenue recognition criteria under the Financial Accounting Standards Board Accounting

Standards Codification 606, *Revenue from Contracts with Customers* ("Topic 606"). However, as a result of the arbitration ruling, the Company reversed the $3.2 million as the panel found that the Company was no longer entitled to be paid those royalties. During the three months ended September 30, 2022, the Company recorded both the $18.3 million in repayments and the $3.2 million reversal as reversals of royalty revenue within "Manufacturing and royalty revenue" in the accompanying consolidated statements of operations and comprehensive loss. As a result of the arbitration ruling, the Company no longer has a contractual obligation to manufacture and supply AMPYRA or a contractual right to receive future manufacturing or royalty revenue related to AMPYRA. In January 2023, Acorda filed a petition with the U.S. District Court for the Southern District of New York asking the court to confirm in part and modify in part the final arbitral award rendered by the arbitration panel in October 2022 and, as part of the requested modification, seeking an additional approximately $66.0 million in damages. The Company intends to contest this petition and believe it is without merit.

In November 2021, the Company received notice of partial termination of an exclusive license agreement with Janssen. Under this license agreement, the Company provided Janssen with rights to, and know-how, training and technical assistance in respect of, the Company's small particle pharmaceutical compound technology, known as NanoCrystal technology, which it used to develop INVEGA SUSTENNA/XEPLION, INVEGA TRINZA/TREVICTA and INVEGA HAFYERA/BYANNLI. When the partial termination became effective in February 2022, Janssen ceased paying royalties related to sales of INVEGA SUSTENNA, INVEGA TRINZA and INVEGA HAFYERA in the U.S. and the Company stopped recognizing royalty revenue related to net sales of these products in the U.S. In April 2022, the Company commenced binding arbitration proceedings related to, among other things, Janssen's partial termination of the license agreement and Janssen's royalty and other obligations under the agreement. On December 21, 2022, the Company received an interim award (the "Interim Award") in these proceedings from the arbitral tribunal (the "Tribunal"), in which the Tribunal agreed with the Company's position that, while Janssen may terminate the agreement, it may not continue to sell Products (as defined in the agreement) developed during the term of the agreement without paying royalties pursuant to the terms of the agreement. This award is not yet final. The Company will engage with Janssen and the Tribunal in additional proceedings prior to the Tribunal's issuance of a final award. Accordingly, the Company has not recognized royalty revenue related to U.S. sales of the long-acting INVEGA products since February 2022. Refer to Note 17, *Commitments and Contingent Liabilities* within the "Notes to Consolidated Financial Statements" in this Annual Report for additional information regarding the arbitration proceedings with Janssen.

4. INVESTMENTS

Investments consist of the following:

December 31, 2022	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses: Less than One Year	Gross Unrealized Losses: Greater than One Year	Estimated Fair Value
Short-term investments:					
Available-for-sale securities:					
Corporate debt securities	$ 145,421	$ —	$ (432)	$ (2,054)	$ 142,935
U.S. government and agency debt securities	143,710	16	(266)	(1,289)	142,171
Non-U.S. government debt securities	31,452	—	(20)	(546)	30,886
Total short-term investments	320,583	16	(718)	(3,889)	315,992
Long-term investments:					
Available-for-sale securities:					
Corporate debt securities	68,229	—	(1,550)	(676)	66,003
U.S. government and agency debt securities	62,220	—	(917)	(1,424)	59,879
Non-U.S. government debt securities	4,099	—	—	(191)	3,908
	134,548	—	(2,467)	(2,291)	129,790
Held-to-maturity securities:					
Certificates of deposit	1,820	—	—	—	1,820
Total long-term investments	136,368	—	(2,467)	(2,291)	131,610
Total investments	$ 456,951	$ 16	$ (3,185)	$ (6,180)	$ 447,602

December 31, 2021					
Short-term investments:					
Available-for-sale securities:					
Corporate debt securities	$ 85,201	$ 177	$ (39)	$ —	$ 85,339
U.S. government and agency debt securities	45,349	35	(24)	—	45,360
Non-U.S. government debt securities	68,046	75	(53)	—	68,068
Total short-term investments	198,596	287	(116)	—	198,767
Long-term investments:					
Available-for-sale securities:					
Corporate debt securities	111,793	—	(654)	—	111,139
U.S. government and agency debt securities	81,296	—	(517)	—	80,779
Non-U.S. government debt securities	35,902	—	(210)	—	35,692
	228,991	—	(1,381)	—	227,610
Held-to-maturity securities:					
Certificates of deposit	1,820	—	—	—	1,820
Total long-term investments	230,811	—	(1,381)	—	229,430
Total investments	$ 429,407	$ 287	$ (1,497)	$ —	$ 428,197

At December 31, 2022, the Company reviewed its investment portfolio to assess whether the unrealized losses on its available-for-sale investments were temporary. Investments with unrealized losses consisted primarily of corporate debt securities and debt securities issued by non-U.S. agencies and backed by non-U.S. governments. At December 31, 2022, 280 of the Company's 289 investment securities were in an unrealized loss position and had an aggregate estimated fair value of $422.7 million. Approximately 47% and 45% of the Company's investment securities at December 31, 2022 are in corporate debt securities, with a minimum rating of A2 (Moody's)/A (Standard and Poor's), and debt securities issued by the U.S. government or its agencies, respectively. In a rising interest rate environment, the Company expects its fixed-rate investment securities will carry unrealized losses. In making the determination whether the decline in fair value of these securities was other-than-temporary, the Company evaluated whether it intended to sell the security and whether it was more likely than not that the Company would be required to sell the security before recovering its amortized cost basis. The Company has the intent and ability to hold these investments until recovery, which may be at maturity.

In September 2019, the Company purchased $1.9 million of convertible promissory notes from Synchronicity Pharma, Inc. ("Synchronicity"), a related party. The notes were due to mature on the earlier of June 30, 2021, the closing of a preferred equity financing, the closing of a merger, business combination or sale of stock resulting in Synchronicity's stockholders owning less than 50% of the surviving entity, or an event of default. During the years ended December 31, 2021 and 2020, the Company recorded an other-than-temporary credit loss of $0.9 million and $1.0 million, respectively, against the value of this investment and at December

31, 2021, this investment was fully impaired. The losses were recorded within "Other income, net" in the accompanying consolidated statements of operations and comprehensive loss.

In January 2022, the Company purchased $0.5 million of convertible promissory notes from Synchronicity that matured on the earlier of September 30, 2022, the closing of a preferred equity financing, the closing of a merger, business combination or sale of stock resulting in Synchronicity's stockholders owning less than 50% of the surviving entity, or an event of default. During the year ended December 31, 2022, the Company determined there was an other-than-temporary loss related to this investment in Synchronicity and the $0.5 million was recorded within "Other income, net" in the accompanying consolidated statements of operations and comprehensive loss.

In May 2014, the Company entered into an agreement whereby it is committed to provide up to €7.4 million to a partnership, Fountain Healthcare Partners II, L.P. of Ireland ("Fountain"), which was created to carry on the business of investing exclusively in companies and businesses engaged in the healthcare, pharmaceutical and life sciences sectors. As of December 31, 2022, the Company's total contribution in Fountain was equal to €7.4 million, and its commitment represented approximately 7% of the partnership's total funding. The Company is accounting for its investment in Fountain under the equity method.

During the year ended December 31, 2020, two of the companies within the Fountain portfolio were acquired by third parties. The Company's proportional share of the proceeds from these transactions was $11.1 million, of which $10.4 million was received during the year ended December 31, 2020 and the remaining $0.7 million was received during the year ended December 31, 2021. The transactions were accounted for under the cumulative earnings approach whereby the return on investment of $8.3 million was recorded as a gain within "Other income, net" in the accompanying consolidated statements of operations and comprehensive loss and the return of investment of $2.8 million was recorded as a reduction in the Company's net investment in Fountain.

During the three months ended March 31, 2022, one of the companies within the Fountain portfolio was acquired by a third party. The Company's proportional share of the proceeds from this transaction was $1.1 million, of which $1.0 million was received during the three months ended March 31, 2022 and the remaining $0.1 million is being held in escrow until May 2023. The transaction was accounted for under the cumulative earnings approach whereby the return on investment of $0.6 million was recorded as a gain within "Other income, net" in the accompanying consolidated statements of operations and comprehensive loss and the return of investment of $0.5 million was recorded as a reduction in the Company's net investment in Fountain. The Company's net investment in Fountain was $7.9 million and $6.1 million at December 31, 2022 and 2021, respectively, and was included within "Other assets" in the accompanying consolidated balance sheets.

During the years ended December 31, 2022, 2021 and 2020, the Company recorded an increase in its investment in Fountain of $1.8 million, a decrease of $0.4 million and an increase of $0.3 million, respectively, which represented the Company's proportional share of Fountain's net gains or losses for such periods.

Realized gains and losses on the sales and maturities of investments, which were identified using the specific identification method, were as follows:

	Year Ended December 31,		
(In thousands)	2022	2021	2020
Proceeds from the sales and maturities of investments	$ 281,627	$ 295,010	$ 253,001
Realized gains	$ —	$ 34	$ 76
Realized losses	$ 529	$ 977	$ 977

The Company's available-for-sale and held-to-maturity securities at December 31, 2022 had contractual maturities in the following periods:

	Available-for-sale		Held-to-maturity	
(In thousands)	Amortized Cost	Estimated Fair Value	Amortized Cost	Estimated Fair Value
Within 1 year	$ 318,592	$ 313,994	$ 1,820	$ 1,820
After 1 year through 5 years	136,539	131,788	—	—
Total	$ 455,131	$ 445,782	$ 1,820	$ 1,820

5. FAIR VALUE

The following table presents information about the Company's assets and liabilities that are measured at fair value on a recurring basis and indicates the fair value hierarchy and the valuation techniques the Company utilized to determine such fair value:

(In thousands)	December 31, 2022	Level 1	Level 2	Level 3
Assets:				
Cash equivalents	$ 19,857	$ 19,857	$ —	$ —
U.S. government and agency debt securities	202,050	168,639	33,411	—
Corporate debt securities	208,938	—	208,938	—
Non-U.S. government debt securities	34,794	—	34,794	—
Total	$ 465,639	$ 188,496	$ 277,143	$ —

	December 31, 2021	Level 1	Level 2	Level 3
Assets:				
U.S. government and agency debt securities	$ 126,139	$ 96,597	$ 29,542	$ —
Corporate debt securities	196,478	—	196,478	—
Non-U.S. government debt securities	103,760	—	103,760	—
Contingent consideration	23,048	—	—	23,048
Total	$ 449,425	$ 96,597	$ 329,780	$ 23,048

The Company transfers its financial assets and liabilities, measured at fair value on a recurring basis, between the fair value hierarchies at the end of each reporting period.

There were no transfers of any securities between levels during the year ended December 31, 2022. The following table is a rollforward of the fair value of the Company's investments whose fair value was determined using Level 3 inputs at December 31, 2022:

(In thousands)	Fair Value
Balance, January 1, 2022	$ 23,048
Purchase of corporate debt security	500
Change in the fair value of contingent consideration	(21,750)
Milestone and royalty payments received by the Company related to contingent consideration	(1,298)
Impairment of corporate debt security	(500)
Balance, December 31, 2022	$ —

The Company's investments in U.S. government and agency debt securities, non-U.S. government agency debt securities and corporate debt securities classified as Level 2 within the fair value hierarchy were initially valued at the transaction price and subsequently valued, at the end of each reporting period, utilizing market-observable data. The market-observable data included reportable trades, benchmark yields, credit spreads, broker/dealer quotes, bids, offers, current spot rates and other industry and economic events. The Company validated the prices developed using the market-observable data by obtaining market values from other pricing sources, analyzing pricing data in certain instances and confirming that the relevant markets are active.

In November 2019, Recro Pharma, Inc. ("Recro") spun out its acute care segment to Baudax Bio, Inc. ("Baudax"), a publicly-traded pharmaceutical company. As part of this transaction, Recro's obligations to pay certain contingent consideration from the Gainesville Transaction were assigned and/or transferred to Baudax.

In Baudax's Quarterly Report on Form 10-Q for the period ended September 30, 2022, Baudax continued to include disclosures regarding its ability to continue as a going concern, which first appeared in its Annual Report on Form 10-K for the period ended December 31, 2021. In March 2022, Baudax reduced its workforce by approximately 80%, which was designed to reduce its operational expenses and conserve its cash resources. As a result of these events and the fact that, as of March 31, 2022, Baudax had only paid $0.5 million of the $6.4 million milestone payment that was due to the Company in March 2022, the Company recorded a reduction in the fair value of the contingent consideration of $19.1 million during the three months ended March 31, 2022. In light of Baudax's disclosures and the fact that, as of September 30, 2022, Baudax had only paid $1.2 million of the $6.4 million that was due to the Company in March 2022, the Company determined, during the three months ended September 30, 2022, that it was unlikely to collect any further proceeds under this arrangement and recorded a $3.6 million charge to reduce the fair value of the contingent consideration to zero within "Change in the fair value of contingent consideration". In addition, during the three months ended September 30, 2022, the Company determined that certain construction in progress related to the manufacture of ANJESO had no future value. See Note 7, *Property, Plant and Equipment*, within the "Notes to Consolidated Financial Statements" in this Annual Report for details related to such construction in progress.

In December 2022, Baudax announced that it would discontinue the sale of ANJESO and on December 28, 2022, the U.S. Food and Drug Administration ("FDA") acknowledged the discontinuation of sale of ANJESO via listing in the Orange Book.

The estimated fair value of the Company's long-term debt under the 2026 Term Loans (as defined in Note 11, *Long-Term Debt* within these "Notes to Consolidated Financial Statements" in this Annual Report), which was based on quoted market price indications (Level 2 in the fair value hierarchy) and which may not be representative of actual values that could have been, or will be, realized in the future, was $278.9 million and $285.8 million at December 31, 2022 and 2021, respectively.

6. INVENTORY

Inventory consists of the following:

(In thousands)	December 31, 2022	December 31, 2021
Raw materials	$ 61,064	$ 56,125
Work in process	76,228	59,105
Finished goods[1]	44,126	35,105
Total inventory	$ 181,418	$ 150,335

(1) At December 31, 2022 and 2021, the Company had $30.9 million and $25.1 million, respectively, of finished goods inventory located at its third-party warehouse and shipping service provider.

7. PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment consists of the following:

(In thousands)	December 31, 2022	December 31, 2021
Land	$ 6,560	$ 6,560
Building and improvements	195,144	192,920
Furniture, fixtures and equipment	418,448	398,099
Leasehold improvements	54,152	52,526
Construction in progress	84,715	86,512
Subtotal	759,019	736,617
Less: accumulated depreciation	(433,658)	(395,563)
Total property, plant and equipment, net	$ 325,361	$ 341,054

Depreciation expense was $41.7 million, $40.5 million and $42.4 million for the years ended December 31, 2022, 2021 and 2020, respectively. Also, during the years ended December 31, 2022, 2021 and 2020, the Company wrote off furniture, fixtures and equipment that had an approximate carrying value of $0.5 million, $0.1 million and less than $0.1 million, respectively, at the time of disposition.

Amounts included as construction in progress in the consolidated balance sheets primarily include capital expenditures at the Company's manufacturing facility in Wilmington, Ohio. The Company continues to evaluate its manufacturing capacity based on expectations of demand for its products and will continue to record such amounts within construction in progress until such time as the underlying assets are placed into service. The Company expects that approximately $44.3 million of construction in progress will be placed into service in the second half of 2023. The Company continues to periodically evaluate whether facts and circumstances indicate that the carrying value of its long-lived assets to be held and used may not be recoverable.

In September 2022, the Company determined that $8.7 million of its construction in progress that related to the manufacture of ANJESO had no future value. The Company had previously received $6.4 million from Baudax related to such equipment which it had recorded as contract liabilities within "Other long-term liabilities" in the accompanying consolidated balance sheets and the net amount of $2.3 million was written off through "other income, net" in the accompanying consolidated statements of operations and comprehensive loss.

8. GOODWILL AND INTANGIBLE ASSETS

Goodwill and intangible assets consists of the following:

(In thousands)	Weighted Amortizable Life (Years)	December 31, 2022 Gross Carrying Amount	December 31, 2022 Accumulated Amortization	December 31, 2022 Net Carrying Amount	December 31, 2021 Gross Carrying Amount	December 31, 2021 Accumulated Amortization	December 31, 2021 Net Carrying Amount
Goodwill		$ 92,873	$ —	$ 92,873	$ 92,873	$ —	$ 92,873
Finite-lived intangible assets:							
Collaboration agreements	12	$ 465,590	$ (435,887)	$ 29,703	$ 465,590	$ (407,012)	$ 58,578
Capitalized IP	11-13	118,160	(110,183)	7,977	118,160	(102,695)	15,465
Total		$ 583,750	$ (546,070)	$ 37,680	$ 583,750	$ (509,707)	$ 74,043

The Company's finite-lived intangible assets consist of collaborative agreements and the NanoCrystal and oral controlled release technologies acquired as part of the EDT acquisition. The Company recorded $36.4 million, $38.1 million and $39.5 million of amortization expense related to its finite-lived intangible assets during the years ended December 31, 2022, 2021 and 2020, respectively. Based on the Company's most recent analysis, amortization of intangible assets included within its consolidated balance sheets at December 31, 2022 is expected to be approximately $35.0 million and $1.0 million in the years ending December 31, 2023 and 2024, respectively. Although the Company believes such available information and assumptions are reasonable, given the inherent risks and uncertainties underlying its expectations regarding such future revenues, there is the potential for the Company's actual results to vary significantly from such expectations. If revenues are projected to change, the related amortization of the intangible assets will change in proportion to the change in revenues.

The Company performed its annual goodwill impairment test as of October 31, 2022. The Company elected to perform a qualitative impairment test and based on the weight of all available evidence, determined that the fair value of the reporting unit more-likely-than-not exceeded its carrying value.

9. LEASES

All of the Company's leases are accounted for as operating leases. The Company's two significant operating leases at December 31, 2022 include the following:

900 Winter Street

The Company leases approximately 231,000 square feet of office and laboratory space located at 900 Winter Street in Waltham, Massachusetts (the "900 Winter Street Lease"). The initial term of the lease commenced on January 20, 2020, expires in 2035 and includes an option to extend the term for an additional ten-year period.

In December 2022, the Company exercised an early payment option included within the terms of the 900 Winter Street Lease. The election of such early payment option resulted in a remeasurement of the remaining lease liability and right-of-use asset as of the remeasurement date of December 1, 2022 of $12.8 million. Subsequently, the Company made the early lease payment of $15.3 million in December 2022. As of December 31, 2022, the remeasurement and subsequent payment resulted in an increase in the right-of-use asset of $12.8 million and a net decrease in the lease liability of $2.5 million.

852 Winter Street

The Company leases approximately 180,000 square feet of corporate office space, administrative areas and laboratories at 852 Winter Street in Waltham, Massachusetts. The original lease commenced in 2010 and was extended, at the Company's option, for five years in 2020. The lease extension commenced in March 2021 for 163,000 square feet of space and in September 2021 for the remaining 17,000 square feet of space. The lease expires in 2026 and includes a tenant option to extend the term of the lease for an additional five-year period.

At December 31, 2022 and 2021, the operating leases held by the Company had a weighted average incremental borrowing rate of 5.25% and 5.25%, respectively, and a weighted average remaining lease term of 8.9 years and 11.7 years, respectively. During the years ended December 31, 2022, 2021 and 2020, cash paid for amounts included for the measurement of lease liabilities was $33.2 million, $16.8 million and $16.3 million, respectively. The Company recorded operating lease expense of $16.6 million, $17.1 million and $17.3 million for the years ended December 31, 2022, 2021 and 2020, respectively.

Future lease payments under non-cancelable leases as of December 31, 2022 consisted of the following:

(In thousands)	December 31, 2022
2023	$ 16,665
2024	16,608
2025	16,855
2026	12,767
2027	9,506
Thereafter	69,474
Total operating lease payments	$ 141,875
Less: imputed interest	(36,324)
Total operating lease liabilities	$ 105,551

10. ACCOUNTS PAYABLE AND ACCRUED EXPENSES

Accounts payable and accrued expenses consists of the following:

(In thousands)	December 31, 2022	December 31, 2021
Accounts payable	$ 32,843	$ 55,721
Accrued compensation	79,085	77,256
Accrued other	108,161	75,514
Total accounts payable and accrued expenses	$ 220,089	$ 208,491

A summary of the Company's current provision for sales discounts, allowances and reserves is as follows:

(In thousands)	December 31, 2022	December 31, 2021
Medicaid rebates	$ 208,332	$ 195,413
Product discounts	13,204	14,951
Medicare Part D	18,409	14,348
Other	12,170	12,504
Total accrued sales discounts, allowances and reserves	$ 252,115	$ 237,216

11. LONG-TERM DEBT

Long-term debt consists of the following:

(In thousands)	December 31, 2022	December 31, 2021
2026 Term Loans, due March 12, 2026	$ 293,270	$ 295,804
Less: current portion	(3,000)	(3,000)
Long-term debt	$ 290,270	$ 292,804

In March 2021, the Company amended and refinanced its existing term loan, previously referred to as the 2023 Term Loans, in order to, among other things, provide for a new class of replacement term loans equal to $300.0 million; extend the due date of the loan from March 26, 2023 to March 12, 2026; amend the interest payable from LIBOR plus 2.25% with no LIBOR floor to LIBOR plus 2.50% with a LIBOR floor of 0.5%; and increase covenant flexibility (such refinancing, the "Term Loan Refinancing" and the 2023 Term Loans as so amended and refinanced the "2026 Term Loans"). The 2026 Term Loans were also amended to include customary ARRC hardwired benchmark replacement language.

The 2026 Term Loans have an incremental facility capacity in an amount of $175.0 million, plus additional potential amounts, provided that the Company meets certain conditions, including a specified leverage ratio. The 2026 Term Loans include a number of restrictive covenants that, among other things and subject to certain exceptions and baskets, impose operating and financial restrictions on the Company and certain of its subsidiaries. The 2026 Term Loans also contain customary affirmative covenants and events of default. The Company was in compliance with its debt covenants at December 31, 2022.

The Term Loan Refinancing involved multiple lenders who were considered members of a loan syndicate. In determining whether the Term Loan Refinancing was to be accounted for as a debt extinguishment or a debt modification, the Company considered whether creditors remained the same or changed and whether the changes in debt terms were substantial. A change in the

debt terms was considered to be substantial if the present value of the remaining cash flows under the new terms of the 2026 Term Loans was at least 10% different from the present value of the remaining cash flows under the 2023 Term Loans (commonly referred to as the "10% Test"). The Company performed a separate 10% Test for each individual creditor participating in the loan syndication. With the exception of three lenders, who owned between 2%-7% of the total outstanding principal amount of the 2023 Term Loans immediately prior to the Term Loan Refinancing whose holding amounts were accounted for as a debt extinguishment, the Term Loan Refinancing was otherwise accounted for as a debt modification.

The Term Loan Refinancing resulted in a $2.1 million charge in the year ended December 31, 2021, which was included in "Interest expense" in the accompanying consolidated statement of operations and comprehensive loss.

Scheduled maturities with respect to the 2026 Term Loans are as follows (in thousands):

Year Ending December 31:		
2023	$	3,000
2024		3,000
2025		3,000
2026		285,750
Total	$	294,750

The Company is subject to mandatory prepayments of principal if certain excess cash flow thresholds, as defined in the 2026 Term Loans, are met. To date, the Company has not been required to make any such mandatory prepayments.

At December 31, 2022, the Company's balance of unamortized deferred financing costs and unamortized original issue discount costs were $0.5 million and $1.0 million, respectively. These costs are being amortized to interest expense over the estimated repayment period of the 2026 Term Loans using the effective interest method. During each of the years ended December 31, 2022, 2021 and 2020, the Company had amortization expense of $0.5 million, $0.5 million and $0.7 million, respectively, related to deferred financing costs and original issue discount.

12. LOSS PER SHARE

Basic loss per ordinary share is calculated based upon net loss available to holders of ordinary shares divided by the weighted average number of shares outstanding. For the years ended December 31, 2022, 2021 and 2020, as the Company was in a net loss position, the diluted loss per share calculation did not assume conversion or exercise of stock options and restricted stock unit awards, as they would have had an anti-dilutive effect on loss per share.

The following potential ordinary share equivalents were not included in the net loss per share calculation because the effect would have been anti-dilutive:

	Year Ended December 31,		
(In thousands)	2022	2021	2020
Stock options	12,777	14,794	15,274
Restricted stock unit awards	5,040	3,981	3,279
Total	17,817	18,775	18,553

13. SHAREHOLDERS' EQUITY

Share Repurchase Program

On September 16, 2011, the Company's board of directors authorized the continuation of the Alkermes, Inc. share repurchase program to repurchase up to $215.0 million of the Company's ordinary shares at the discretion of management from time to time in the open market or through privately negotiated transactions. At December 31, 2022, approximately $101.0 million was available to repurchase ordinary shares pursuant to the repurchase program. All shares repurchased are recorded as treasury stock. The repurchase program has no set expiration date and may be suspended or discontinued at any time. During the years ended December 31, 2022 and 2021, the Company did not acquire any ordinary shares under the repurchase program.

14. SHARE-BASED COMPENSATION

Share-Based Compensation Expense

The following table presents share-based compensation expense included in the Company's consolidated statements of operations and comprehensive loss:

	Year Ended December 31,		
(In thousands)	2022	2021	2020
Cost of goods manufactured and sold	$ 10,284	$ 9,175	$ 8,430
Research and development	27,941	24,877	26,408
Selling, general and administrative	56,029	53,570	55,326
Total share-based compensation expense	$ 94,254	$ 87,622	$ 90,164

During the years ended December 31, 2022, 2021 and 2020, $3.3 million, $2.3 million and $2.6 million, respectively, of share-based compensation expense was capitalized and recorded as "Inventory" in the accompanying consolidated balance sheets.

Share-Based Compensation Plans

The Company has one share-based compensation plan pursuant to which awards are currently being made: the 2018 Stock Option and Incentive Plan, as amended (the "2018 Plan"). The Company has two share-based compensation plans pursuant to which outstanding awards have been made, but from which no further awards can or will be made: the Alkermes plc Amended and Restated 2008 Stock Option and Incentive Plan, as amended, (the "2008 Plan") and the Alkermes plc 2011 Stock Option and Incentive Plan, as amended (the "2011 Plan"). Effective May 20, 2020, the 2018 Plan was amended such that any shares underlying any outstanding awards granted under the 2011 Plan or the 2008 Plan that are forfeited, canceled, repurchased or otherwise terminated (other than by exercise) from and after such date will become available for issuance pursuant to the 2018 Plan, notwithstanding anything to the contrary in the terms of the 2011 Plan or the 2008 Plan.

The 2018 Plan allows for the issuance of non-qualified and incentive stock options, restricted stock, restricted stock unit awards, cash-based awards and performance shares to employees, officers and directors of, and consultants to, the Company in such amounts and with such terms and conditions as may be determined by the compensation committee of the Company's board of directors, subject to the provisions of the 2018 Plan, as applicable.

On July 7, 2022, the Company's shareholders approved an amended version of the Alkermes plc 2018 Stock Option and Incentive Plan that served to, among other things, increase the number of ordinary shares authorized for issuance thereunder by 8.3 million. At December 31, 2022, there were 12.9 million ordinary shares available for issuance in the aggregate under the 2018 Plan. The 2018 Plan provides that awards other than stock options will be counted against the total number of shares available under the plan in a 1.8-to-1 ratio.

Stock Options

A summary of stock option activity is presented in the following table:

	Number of Shares	Weighted Average Exercise Price
Outstanding, January 1, 2022	16,747,819	$ 34.02
Granted	3,164,468	$ 25.39
Exercised	(1,108,772)	$ 17.70
Expired	(660,093)	$ 48.03
Forfeited	(546,461)	$ 22.75
Outstanding, December 31, 2022	17,596,961	$ 33.32
Exercisable, December 31, 2022	10,138,673	$ 40.52

The weighted average grant date fair value of stock options granted during the years ended December 31, 2022, 2021 and 2020 was $12.62, $10.09 and $9.52, respectively. The aggregate intrinsic value of stock options exercised during the years ended December 31, 2022, 2021 and 2020 was $11.6 million, $8.3 million and $2.0 million, respectively.

At December 31, 2022, there were 7.2 million stock options expected to vest with a weighted average exercise price of $23.46 per share, a weighted average contractual remaining life of 8.2 years with an aggregate intrinsic value of $24.8 million. At December 31, 2022, the aggregate intrinsic value of stock options exercisable was $14.8 million with a weighted average remaining contractual term of 4.6 years. The number of stock options expected to vest was determined by applying the pre-vesting forfeiture rate to the total number of outstanding options. The intrinsic value of a stock option is the amount by which the market value of the underlying shares exceeds the exercise price of the stock option.

At December 31, 2022, there was $32.7 million of unrecognized compensation cost related to unvested stock options, which is expected to be recognized over a weighted average period of 1.9 years. Included within the outstanding stock option balances at December 31, 2022 consisted of 382,200 performance-based stock options that were granted in 2019 and valued using a Monte Carlo simulation model. The weighted average grant date fair value of such performance-based stock options was $16.78. The unrecognized compensation cost related to these performance-based stock options was less than $0.1 million at December 31, 2022 and is included in the unrecognized compensation cost noted above.

Time-Based Restricted Stock Unit Awards

A summary of time-based RSU activity is presented in the following table:

	Number of Shares	Weighted Average Grant Date Fair Value
Unvested, January 1, 2022	6,322,685	$ 23.38
Granted	3,031,864	$ 25.27
Vested	(2,051,872)	$ 26.45
Forfeited	(677,255)	$ 22.96
Unvested, December 31, 2022	6,625,422	$ 23.34

The weighted average grant date fair value of time-vesting RSUs granted during the years ended December 31, 2022, 2021 and 2020 were $25.27, $20.83 and $20.22, respectively. The total fair value of time-vesting RSUs that vested during the years ended December 31, 2022, 2021 and 2020, was $54.3 million, $56.3 million and $45.9 million, respectively.

At December 31, 2022, there was $62.4 million of total unrecognized compensation cost related to unvested time-vesting RSUs, which will be recognized over a weighted average remaining contractual term of 1.9 years.

Performance-Based Restricted Stock Unit Awards

In February 2022, 2021 and 2020, the compensation committee of the Company's board of directors approved awards of performance-based RSUs to employees of the Company at the Senior Vice President level and above, in each case subject to vesting based on the achievement of certain financial, commercial and/or R&D performance criteria to be assessed over a performance period of three years from the date of the grant, and subject, at the end of such three-year performance period, to upward or downward adjustment based on a market condition tied to relative share price performance over the three-year performance period.

A summary of performance-based RSU activity is presented in the following table:

	Number of Shares	Weighted Average Grant Date Fair Value
Unvested, January 1, 2022	877,862	$ 23.20
Granted	517,683	$ 30.73
Forfeited	(45,911)	$ 24.46
Vested	—	$ —
Unvested, December 31, 2022	1,349,634	$ 26.05

The weighted average grant date fair value of performance-based RSUs granted during the years ended December 31, 2022, 2021 and 2020 were $30.73, $23.09 and $23.43, respectively. The total fair value of performance-based RSUs that vested during the years ended December 31, 2022, 2021 and 2020 were none, $4.2 million and none, respectively. At December 31, 2022, there was $5.1 million of unrecognized compensation cost related to the performance-based RSUs, which would be recognized in accordance with the terms of the award when the Company deems it probable that the performance criteria will be met. The unvested awards will expire if it is determined that the performance criteria have not been met during the applicable three-year performance period.

15. COLLABORATIVE ARRANGEMENTS

The Company has entered into several collaborative arrangements to develop and commercialize products and, in connection with such arrangements, to access technologies, financial, marketing, manufacturing and other resources. Refer to the "Patents and Proprietary Rights" section in "Item 1— Business" of this Annual Report for information with respect to IP protection for these products. The collaboration revenue the Company has earned in the years ended December 31, 2022, 2021 and 2020 is summarized in Note 3, *Revenue from Contracts with Customers* within the notes to the consolidated financial statements in this Annual Report.

The Company's significant collaborative arrangements are described below:

Janssen

INVEGA SUSTENNA/XEPLION, INVEGA TRINZA/TREVICTA and INVEGA HAFYERA/BYANNLI

In November 2021, the Company received notice of partial termination of an exclusive license agreement with Janssen. Under this license agreement, the Company provided Janssen with rights to, and know-how, training and technical assistance in respect of, the Company's small particle pharmaceutical compound technology, known as NanoCrystal technology, which was used to develop INVEGA SUSTENNA/XEPLION, INVEGA TRINZA/TREVICTA, and INVEGA HAFYERA/BYANNLI. When the partial termination became effective in February 2022, Janssen ceased paying royalties related to sales of INVEGA SUSTENNA, INVEGA TRINZA and INVEGA HAFYERA in the U.S. and the Company stopped recognizing royalty revenue related to net sales of these products. In April 2022, the Company commenced binding arbitration proceedings related to, among other things, Janssen's partial termination of this license agreement and Janssen's royalty and other obligations under the agreement. On December 21, 2022, we received the Interim Award in these proceedings from the Tribunal, in which the Tribunal agreed with our position that, while Janssen may terminate the agreement, it may not continue to sell Products (as defined in the agreement) developed during the term of the agreement without paying royalties pursuant to the term of the agreement. This award is not yet final. We will engage with Janssen and the Tribunal in additional proceedings prior to the Tribunal's issuance of a final award. Accordingly, the Company has not recognized royalty revenue related to U.S. sales of the long-acting INVEGA products since February 2022. For additional information about these proceedings, see Note 17, *Commitments and Contingent Liabilities* in the "Notes to Consolidated Financial Statements" in this Annual Report.

Under this license agreement, the Company granted Janssen a worldwide exclusive license under the Company's NanoCrystal technology to develop, commercialize and manufacture injectable pharmaceutical products containing paliperidone palmitate, which include the long-acting INVEGA products, and the Company received milestone payments from Janssen upon the achievement of certain development goals from Janssen; there are no further milestones to be earned under this agreement. The agreement also provides for tiered royalty payments between 5% and 9% of net sales of products subject to this agreement in each country where the license is in effect, with the exact royalty percentage determined based on aggregate worldwide net sales. The tiered royalty payments consist of a patent royalty and a know-how royalty, both of which are determined on a country-by-country basis. The patent royalty, which equals 1.5% of net sales, is payable in each country until the expiration of the last of the patents claiming the product in such country. The know-how royalty is a tiered royalty of 3.5%, 5.5% and 7.5% on aggregate worldwide net sales of below $250 million, between $250 million and $500 million, and greater than $500 million, respectively. The know-how royalty rate resets to 3.5% at the beginning of each calendar year and is payable until 15 years from first commercial sale of a product in each individual country, subject to expiry of the agreement. These royalty payments may be reduced in any country based on patent litigation or on competing products achieving certain minimum sales thresholds. The license agreement, unless earlier terminated, terminates upon the expiration of the last of the patents subject to the agreement. After expiration, Janssen retains a non-exclusive, royalty-free license to develop, manufacture and commercialize the products, subject to certain surviving obligations.

Janssen may terminate the license agreement in whole or in part upon three months' notice to the Company. The Company and Janssen have the right to terminate the agreement upon a material breach of the other party, which is not cured within a certain time period, or upon the other party's bankruptcy or insolvency.

RISPERDAL CONSTA

Under a product development agreement, the Company collaborated with Janssen on the development of RISPERDAL CONSTA. Under the development agreement, Janssen provided funding to the Company for the development of RISPERDAL CONSTA and Janssen is responsible for securing all necessary regulatory approvals for the product.

Under two license agreements, the Company granted Janssen and an affiliate of Janssen exclusive worldwide licenses to use and sell RISPERDAL CONSTA. Under its license agreements with Janssen, the Company receives royalty payments equal to 2.5% of Janssen's end-market net sales of RISPERDAL CONSTA in each country where the license is in effect based on the quarter when the product is sold by Janssen. This royalty may be reduced in any country based on lack of patent coverage and significant competition from generic versions of the product. Janssen can terminate the license agreements upon 30 days' prior written notice to the Company. Either party may terminate the license agreements by written notice following a breach which continues for 90 days after the delivery of written notice thereof or upon the other party's insolvency. The licenses granted to Janssen expire on a country-by-country basis upon the later of: (i) the expiration of the last patent claiming the product in such country; or (ii) 15 years after the date of the first commercial sale of the product in such country, provided that in no event will the license granted to Janssen expire later than the twentieth anniversary of the first commercial sale of the product in each such country, with the exception of Canada, France, Germany, Italy, Japan, Spain and the United Kingdom, in each case where the fifteen-year minimum shall pertain regardless. After expiration, Janssen retains a non-exclusive, royalty-free license to manufacture, use and sell RISPERDAL CONSTA.

The Company exclusively manufactures RISPERDAL CONSTA for commercial sale. Under its manufacturing and supply agreement with Janssen, the Company records manufacturing revenues when product is fully manufactured and approved for shipment by both Janssen and the Company. Revenue is based on a percentage of Janssen's net unit sales price for RISPERDAL CONSTA for the applicable calendar year. This percentage is determined based on Janssen's unit demand for such calendar year and varies based on the volume of units shipped, with a minimum manufacturing fee of 7.5%. Either party may terminate the manufacturing and supply agreement upon a material breach by the other party, which is not resolved within 60 days after receipt of a written notice specifying the material breach or upon written notice in the event of the other party's insolvency or bankruptcy. Janssen may terminate the agreement upon six months' written notice to the Company. In the event that Janssen terminates the manufacturing and supply agreement without terminating the license agreements, the royalty rate payable to the Company on Janssen's net sales of RISPERDAL CONSTA would increase from 2.5% to 5.0%.

Biogen

Under a license and collaboration agreement with Biogen, the Company granted Biogen a worldwide, exclusive, sublicensable license to develop, manufacture and commercialize VUMERITY and other products covered by patents licensed to Biogen under the agreement.

Under this license and collaboration agreement, the Company received an upfront cash payment and milestone payments related to the achievement of certain milestones, including FDA approval of the NDA for VUMERITY and amendment of the license and collaboration agreement. The Company is also eligible to receive additional payments upon achievement of certain milestones, including milestones relating to the first two products, other than VUMERITY, covered by patents licensed to Biogen under the license and collaboration agreement.

In addition, the Company receives a 15% royalty on worldwide net sales of VUMERITY, subject to increases for VUMERITY manufactured and/or packaged by Biogen or its designees, and subject to, under certain circumstances, minimum annual payments for the first five years following FDA approval of VUMERITY. The Company is also entitled to receive royalties on net sales of products other than VUMERITY covered by patents licensed to Biogen under the license and collaboration agreement, at tiered royalty rates calculated as percentages of net sales ranging from high-single digits to sub-teen double digits. All royalties are payable on a product-by-product and country-by-country basis until the later of (i) the last-to-expire patent right covering the applicable product in the applicable country and (ii) a specified period of time from the first commercial sale of the applicable product in the applicable country. Royalties for all products and the minimum annual payments for VUMERITY are subject to customary reductions, as set forth in the license and collaboration agreement.

Under the license and collaboration agreement, Biogen appointed the Company as the toll manufacturer of clinical and commercial supplies of VUMERITY, subject to Biogen's right to manufacture or have manufactured commercial supplies as a back-up manufacturer and subject to good faith agreement by the parties on the terms of such manufacturing arrangements. In October 2019, the Company entered into a commercial supply agreement with Biogen for the commercial supply of VUMERITY, an amendment to such commercial supply agreement and an amendment to the license and collaboration agreement with Biogen, pursuant to which Biogen has elected to conduct a technology transfer and, following a transition period, assume responsibility for the manufacture (itself or through a designee) of clinical supplies of VUMERITY and up to 100% of commercial supplies of VUMERITY in exchange for an increase in the royalty rate to be paid by Biogen to the Company on net sales of that portion of product that is manufactured by Biogen or its designee.

Unless earlier terminated, the license and collaboration agreement will remain in effect until the expiry of all royalty obligations. Biogen has the right to terminate the license and collaboration agreement at will, on a product-by-product basis or in its entirety upon 180 days' prior notice to the Company. Either party has the right to terminate the license and collaboration agreement following any governmental prohibition of the transactions effected by the agreement, or in connection with an insolvency event involving the other party. Upon termination of the license and collaboration agreement by either party, then, at the Company's request, the VUMERITY program will revert to the Company.

16. INCOME TAXES

The Company's (benefit) provision for income taxes consists of the following:

	Year Ended December 31,		
(In thousands)	2022	2021	2020
Current income tax provision:			
U.S. federal	$ 18,105	$ 2,700	$ 2,943
U.S. state	5,653	1,079	1,396
Rest of world	—	3	—
Deferred income tax (benefit) provision:			
U.S. federal	(28,123)	5,908	9,876
U.S. state	(4,672)	(827)	109
Ireland	—	—	—
Total tax (benefit) provision	$ (9,037)	$ 8,863	$ 14,324

The income tax benefit in 2022 was primarily due to an enhanced foreign derived intangible income deduction as a result of a change to Section 174 of the Tax Cuts and Jobs Act in relation to capitalization and amortization of R&D expenses. The income tax provisions in 2021 and 2020 were primarily due to U.S. federal and state taxes on income earned in the U.S. and the tax impact of employee equity activity.

No provision for income tax has been provided on undistributed earnings of the Company's foreign subsidiaries because such earnings are indefinitely reinvested in the foreign operations. Cumulative unremitted earnings of U.S. subsidiaries totaled approximately $812.8 million at December 31, 2022. In the event of a repatriation of those earnings in the form of dividends or otherwise, the Company may be liable for income taxes, subject to adjustment, if any, for foreign tax credits and foreign withholding taxes payable to foreign tax authorities. The Company estimates that approximately $55.0 million of income taxes would be payable on the repatriation of the unremitted earnings to Ireland.

The distribution of the Company's loss before income taxes by geographical area consists of the following:

	Year Ended December 31,		
(In thousands)	2022	2021	2020
Ireland	$ (183,828)	$ (54,070)	$ (138,070)
U.S.	16,524	14,764	41,599
Rest of world	—	—	(66)
Loss before income taxes	$ (167,304)	$ (39,306)	$ (96,537)

The components of the Company's net deferred tax assets consist of the following:

(In thousands)	December 31, 2022	December 31, 2021
Deferred tax assets:		
NOL carryforwards	$ 238,128	$ 222,508
Research and development expenses	66,464	—
Accrued expenses and reserves	55,755	52,308
Share-based compensation	41,075	40,455
Tax credits	22,932	58,704
Other	9,993	7,758
Less: valuation allowance	(271,517)	(249,112)
Total deferred tax assets	162,830	132,621
Deferred tax liabilities:		
Property, plant and equipment	(46,274)	(50,187)
Other	(1,502)	(1,150)
Total deferred tax liabilities	(47,776)	(51,337)
Net deferred tax assets	$ 115,054	$ 81,284

The activity in the valuation allowance associated with deferred taxes consists of the following:

(In thousands)	Balance at Beginning of Period	(Additions) / Reductions [1]	Balance at End of Period
Deferred tax asset valuation allowance for the year ended December 31, 2020	$ (242,059)	$ (11,590)	$ (253,649)
Deferred tax asset valuation allowance for the year ended December 31, 2021	$ (253,649)	$ 4,537	$ (249,112)
Deferred tax asset valuation allowance for the year ended December 31, 2022	$ (249,112)	$ (22,405)	$ (271,517)

(1) The (additions)/reductions in each of the periods presented relate primarily to Irish NOLs.

At December 31, 2022, the Company maintained a valuation allowance of $25.7 million against certain U.S. state deferred tax assets and $245.8 million against certain Irish deferred tax assets as the Company has determined that it is more-likely-than-not that these net deferred tax assets will not be realized. If the Company demonstrates consistent profitability in the future, the evaluation of the recoverability of these deferred tax assets could change and the remaining valuation allowances could be released in part or in whole. If the Company incurs losses in the U.S. in the future, the evaluation of the recoverability of the U.S. deferred tax assets could change and a valuation allowance against the U.S. deferred tax assets may be required in part or in whole.

As of December 31, 2022, the Company had $1.7 billion of Irish NOL carryforwards, $15.1 million of U.S. federal NOL carryforwards, $43.2 million of state NOL carryforwards, $5.7 million of federal R&D credits and $29.0 million of state tax credits which will either expire on various dates through 2042 or can be carried forward indefinitely. These loss and credit carryforwards are available to reduce certain future Irish and foreign taxable income and tax. These loss and credit carryforwards are subject to review and possible adjustment by the appropriate taxing authorities. These loss and credit carryforwards, which may be utilized in a future period, may be subject to limitations based upon changes in the ownership of the Company's ordinary shares. Included within these loss and credit carryforwards are $15.1 million of U.S. federal NOL carryforwards and $6.8 million of state NOL carryforwards, acquired as part of the acquisition of Rodin, each of which are subject to a $0.5 million annual limitation.

A reconciliation of the Company's statutory tax rate to its effective tax rate is as follows:

(In thousands, except percentage amounts)	Year Ended December 31, 2022	2021	2020
Statutory tax rate	12.5 %	12.5 %	12.5 %
Loss before income taxes at statutory rate	$ (20,913)	$ (4,913)	$ (12,067)
Share-based compensation	4,461	7,841	8,972
Foreign rate differential[1]	(2,122)	5,811	7,798
Change in valuation allowance	21,455	(4,537)	11,590
Intercompany amounts[2]	(1,694)	10,707	6,234
Irish rate differential[3]	4,926	1,817	2,511
Uncertain tax positions	602	704	811
Non-deductible lobbying expenses	775	637	683
U.S. state income taxes, net of U.S. federal benefit	598	248	1,298
In-process R&D[4]	—	2,724	332
Foreign derived intangible income	(10,405)	(3,875)	(3,125)
R&D credit	(7,863)	(8,488)	(11,198)
Other permanent items[5]	1,143	187	485
Income tax (benefit) provision	$ (9,037)	$ 8,863	$ 14,324
Effective tax rate	5.4 %	(22.5) %	(14.8) %

(1) Represents income or losses of U.S. subsidiaries, subject to tax at a rate other than the Irish statutory rate.
(2) Intercompany amounts include cross-territory eliminations, the pre-tax effect of which has been eliminated in arriving at the Company's consolidated loss before taxes.
(3) Represents income or losses of Irish companies subject to tax at a rate other than the Irish statutory rate.
(4) Represents the tax effect of the research and development expense recorded in connection with the acquisition of Rodin.
(5) Other permanent items include, but are not limited to, non-deductible meals and entertainment expenses and non-deductible compensation of senior officers of the Company.

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows:

(In thousands)	Unrecognized Tax Benefits
Balance, December 31, 2019	$ 6,857
Additions based on tax positions related to prior periods	15
Additions based on tax positions related to the current period	796
Balance, December 31, 2020	$ 7,668
Reductions based on tax positions related to prior periods	(27)
Additions based on tax positions related to the current period	731
Balance, December 31, 2021	$ 8,372
Reductions based on the lapse of applicable statues of limitations	(438)
Additions based on tax positions related to prior periods	449
Additions based on tax positions related to the current period	590
Balance, December 31, 2022	$ 8,973

The unrecognized tax benefits at December 31, 2022, if recognized, would affect the Company's effective tax rate. The Company does not anticipate that the amount of existing unrecognized tax benefits will materially increase or decrease within the next 12 months. The Company has elected to include interest and penalties related to uncertain tax positions as a component of its provision for taxes. For the years ended December 31, 2022, 2021 and 2020, the Company's accrued interest and penalties related to uncertain tax positions were not material.

The Company's major taxing jurisdictions include Ireland and the U.S. (federal and state). These jurisdictions have varying statutes of limitations. In the U.S., the 2019 through 2022 fiscal years remain subject to examination by the respective tax authorities, however, some states have longer statutes of limitations and additional fiscal years remain subject to examination. In Ireland, the 2018 through 2022 fiscal years remain subject to examination by the Irish tax authorities. Additionally, because of the Company's Irish and U.S. loss carryforwards and credit carryforwards, certain tax returns from fiscal years 2002 onward may also be examined. These years generally remain open for three to four years after the loss carryforwards and credit carryforwards have been utilized.

The years ended December 31, 2018 and 2017 for Alkermes Finance S.à.r.l, a former indirect subsidiary of Alkermes plc that was liquidated during the year ended December 31, 2020, are currently under examination by the Tax Authorities in Luxembourg (the "LTA"). In November 2022, the Company received a notice of assessment in the amount of €2.2 million for the year ended December 31, 2017 from the LTA. The Company disagrees with this assessment and believes this assessment to be incorrect. The Company will timely appeal the notice of assessment and pursue available administrative and judicial avenues as may be necessary or appropriate. As of December 31, 2022, the Company had not received a notice of assessment from the LTA in relation to the year ended December 31, 2018.

17. COMMITMENTS AND CONTINGENT LIABILITIES

Litigation

From time to time, the Company may be subject to legal proceedings and claims in the ordinary course of business. On a quarterly basis, the Company reviews the status of each significant matter and assesses its potential financial exposure. If the potential loss from any claim, asserted or unasserted, or legal proceeding is considered probable and the amount can be reasonably estimated, the Company would accrue a liability for the estimated loss. Because of uncertainties related to claims and litigation, accruals are based on the Company's best estimates, utilizing all available information. On a periodic basis, as additional information becomes available, or based on specific events such as the outcome of litigation or settlement of claims, the Company may reassess the potential liability related to these matters and may revise these estimates, which could result in material adverse adjustments to the Company's operating results. At December 31, 2022, there were no potential material losses from claims, asserted or unasserted, or legal proceedings that the Company determined were probable of occurring.

Janssen Arbitration Proceedings

In April 2022, Alkermes Pharma Ireland Limited commenced binding arbitration proceedings to settle, among other things, whether, notwithstanding Janssen Pharmaceutica N.V.'s partial termination of two license agreements with the Company, Janssen Pharmaceutica has a continuing obligation to pay royalties on sales in the U.S. of INVEGA SUSTENNA, INVEGA TRINZA, INVEGA HAFYERA and CABENUVA. The request for arbitration seeks, among other remedies, a declaration that Janssen Pharmaceutica N.V. is in breach of the license agreements and a resumption of royalty payments for sales of the relevant products in the U.S. On December 21, 2022, the Company received the Interim Award in these proceedings from the Tribunal. In the Interim Award, the Tribunal agreed with the Company's position that, while Janssen Pharmaceutica N.V. may terminate the agreements, it may not continue to sell Products (as defined in the agreements) developed during the term of the agreements without paying royalties pursuant to the terms of the respective agreements. The Company will engage with Janssen Pharmaceutica N.V. and the Tribunal in additional proceedings prior to the Tribunal's issuance of a final award. The arbitration is to be conducted pursuant to the Institute for Conflict Prevention and Resolution (CPR) Rules for Non-Administered Arbitration.

INVEGA SUSTENNA ANDA Litigation

Janssen Pharmaceutica N.V. and Janssen Pharmaceuticals, Inc. initiated patent infringement lawsuits in the U.S. District Court for the District of New Jersey (the "NJ District Court") in January 2018 against Teva Pharmaceuticals USA, Inc. ("Teva") and Teva Pharmaceuticals Industries, Ltd. ("Teva PI") (such lawsuit, the "Teva Lawsuit"), in August 2019 against Mylan Laboratories Limited ("Mylan Labs") and other Mylan entities (the "Mylan Lawsuit") and in December 2019 against Pharmascience, Inc. ("Pharmascience"), Mallinckrodt plc, and SpecGX LLC (the "Pharmascience Lawsuit"), and in the U.S. District Court for the District of Delaware in December 2021 against Tolmar Holding, Inc., Tolmar Pharmaceuticals, Inc., Tolmar Therapeutics, Inc., and Tolmar, Inc. ("Tolmar" and such lawsuit, the "Tolmar Lawsuit"), following the respective filings by each of Teva, Mylan Labs, Pharmascience and Tolmar of an Abbreviated New Drug Application ("ANDA") seeking approval from the FDA to market a generic version of INVEGA SUSTENNA before the expiration of U.S. Patent No. 9,439,906. In October 2021, the NJ District Court entered a judgment in favor of the Janssen entities in the Teva Lawsuit. In December 2021, the NJ District Court entered a judgment in favor of the Janssen entities in the Mylan Lawsuit, based on the parties' prior stipulation to be bound by the judgment in the Teva Lawsuit. The Teva entities and Mylan Labs each filed notices of appeal of their respective judgments with the U.S. Court of Appeals for the Federal Circuit, which were consolidated in January 2022 (the "Teva Appeal"). A trial has been scheduled in the Tolmar Lawsuit for October 2023. The Pharmascience Lawsuit was administratively terminated in July 2022, pending the outcome of the Teva Appeal. The Company is not a party to any of these proceedings.

INVEGA TRINZA ANDA Litigation

In September 2020, Janssen Pharmaceutica N.V., Janssen Pharmaceuticals, Inc., and Janssen Research & Development, LLC, initiated a patent infringement lawsuit in the NJ District Court against Mylan Labs, Mylan, and Mylan Institutional LLC following the filing by Mylan Labs of an ANDA seeking approval from the FDA to market a generic version of INVEGA TRINZA before the expiration of U.S. Patent No. 10,143,693. Requested judicial remedies include recovery of litigation costs and injunctive relief. A bench trial concluded on December 9, 2022. The Company is not a party to this proceeding.

VIVITROL ANDA Litigation

In September 2020, Alkermes, Inc. and Alkermes Pharma Ireland Limited filed a patent infringement lawsuit in the NJ District Court against Teva and Teva PI following the filing by Teva of an ANDA seeking approval from the FDA to engage in the commercial manufacture, use or sale of a generic version of VIVITROL (naltrexone for extended-release injectable suspension) before the expiration of the Company's U.S. Patent No. 7,919,499. A bench trial, adjourned from its prior scheduled start date due to COVID-19, is now scheduled to begin on February 16, 2023. The Company intends to vigorously defend its IP.

Government Matters

The Company has received a subpoena and civil investigative demands from U.S. state and federal governmental authorities for documents related to VIVITROL. The Company is cooperating with the investigations.

Product Liability and Other Legal Proceedings

The Company is involved in litigation and other legal proceedings incidental to its normal business activities, including product liability cases alleging that the FDA-approved VIVITROL labeling was inadequate and caused the users of the product to suffer from opioid overdose and death. The Company intends to vigorously defend itself in these matters. In addition, on January 10, 2023, Acorda filed a petition with the U.S. District Court for the Southern District of New York asking the court to confirm in part and modify in part the final arbitral award rendered by an arbitration panel in October 2022 and, as part of the requested modification, seeking an additional approximately $66.0 million in damages. The Company intends to contest this petition and believes it is without merit. While the outcome of any of these proceedings cannot be accurately predicted, the Company does not believe the ultimate resolution of any of these existing proceedings would have a material adverse effect on the Company's business or financial condition.

Purchase Commitments

The Company has open purchase orders for plant and equipment as part of its normal course of business. At December 31, 2022, the Company's open purchase orders were $9.9 million for capital commitments.

Executive Officers

Richard F. Pops
Chairman and Chief Executive Officer

Iain M. Brown
Senior Vice President, Chief Financial Officer

David J. Gaffin
Executive Vice President, Chief Legal Officer, Chief Compliance Officer and Secretary

Craig C. Hopkinson, M.D.
Executive Vice President, Research and Development and Chief Medical Officer

Blair C. Jackson
Executive Vice President, Chief Operating Officer

Michael J. Landine
Senior Vice President, Corporate Development and Chief Risk Officer

C. Todd Nichols
Senior Vice President, Chief Commercial Officer

Board of Directors

Richard F. Pops
Chairman and Chief Executive Officer of Alkermes

Emily Peterson Alva
Strategic Advisor, Constellis; Former Investment Banker and M&A Partner at Lazard

Shane M. Cooke
Former President of Alkermes and Alkermes Pharma Ireland Limited

David A. Daglio, Jr.
Former Executive Vice President, Chief Investment Officer and Executive Director of Mellon Investments Corporation

Richard B. Gaynor, M.D.
President, Chief of Research and Development at BioNTech US Inc.

Cato T. Laurencin, M.D., Ph.D.
University Professor and Albert and Wilda Van Dusen Distinguished Endowed Professor of Orthopaedic Surgery at the University of Connecticut; Chief Executive Officer of the Cato T. Laurencin Institute for Regenerative Engineering

Brian P. McKeon
Executive Vice President, Chief Financial Officer, and Treasurer of IDEXX Laboratories, Inc.

Nancy L. Snyderman, M.D.
Consulting Professor, Stanford University Center for Innovation in Global Health; Former Chief Medical Editor at NBC News, practicing Otolaryngologist-Head and Neck Surgeon and Clinical Professor of Otolaryngology at the University of Pennsylvania

Frank Anders "Andy" Wilson
Former Chief Financial Officer and Senior Vice President of PerkinElmer, Inc.

Christopher I. Wright, M.D., Ph.D.
Chief Medical Officer, Head of Translational Research of Ring Therapeutics

Nancy J. Wysenski
Former Executive Vice President and Chief Commercial Officer of Vertex Pharmaceuticals Incorporated

Transfer Agent

Computershare Trust Company, N.A.
P.O. Box 43006
Providence, RI 02940-3006
Phone (toll free in U.S.): +1 (866) 281-3760
Phone (toll): +1 (781) 575 2879

Independent Registered Public Accounting Firm

PricewaterhouseCoopers LLP
Boston, Massachusetts

Corporate Headquarters

Connaught House
1 Burlington Road
Dublin 4, Ireland, D04 C5Y6
Phone: +353 90 649 5000

Alkermes Investor Inquiries

Investor_relations@alkermes.com

Stock Listing

Nasdaq Global Select Market: ALKS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