PORTOLA PHARMACEUTICALS INC
Form 10-K
March 01, 2019

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, 2018

or

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
Commission File Number: 001-35935

PORTOLA PHARMACEUTICALS, INC.

(Exact name of registrant as specified in its charter)

Delaware	2834	20-0216859
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification No.)

270 E. Grand Avenue

South San Francisco, California 94080

(Address of Principal Executive Offices) (Zip Code)

(650) 246-7000

(Registrant’s Telephone Number, Including Area Code)

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

Title of Each Class:	Name of Each Exchange on which Registered
Common Stock, par value $0.001 per share	The Nasdaq Global Select Market

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

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

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

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

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

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

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

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

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

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

The aggregate market value of the voting and non-voting common equity held by non-affiliates was approximately $1.4 billion computed by reference to the last sales price of $37.77 as reported by the Nasdaq Global Select Market, as of the last business day of the registrant's most recently completed second fiscal quarter, June 30, 2018. This calculation does not reflect a determination that certain persons are affiliates of the registrant for any other purpose.

As of February 15, 2019, the number of outstanding shares of the registrant's common stock, par value $0.001 per share, was 66,821,167.

DOCUMENTS INCORPORATED BY REFERENCE

Part III incorporates information by reference to the definitive proxy statement for the registrant's 2019 Annual Meeting of Stockholders to be filed within 120 days of the registrant's fiscal year ended December 31, 2018.

TABLE OF CONTENTS

Portola Pharmaceuticals, Inc.

Form 10-K

Index

i

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This report, including the sections titled “Business,” “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. In some cases you can identify these statements by forward-looking words, such as “believe,” “may,” “will,” “estimate,” “continue,” “anticipate,” “intend,” “could,” “would,” “project,” “plan,” “potential” “goal” or the negative or plural of these words or similar expressions. These forward-looking statements include, but are not limited to, statements concerning the following:

- our estimates and projections for the commercial and clinical development of our products and product candidates, including launch strategies, clinical research and trials and regulatory approval, both in the United States and abroad;
- potential indications for our product candidates;
- our expectations and projections regarding existing capital resources and our estimates of our expenses, ongoing losses, future revenue, capital requirements and our needs for or ability to obtain additional financing;
- our discussion of perceived and projected competitive advantages of our products and product candidates;
- the projected patient populations targeted by our products and product candidates;
- the projected dollar amounts of market opportunities for our products and product candidates;
- the rate and degree of market acceptance of our approved products;
- our ability to successfully build a hospital-based sales force and commercial infrastructure;
- our ability to obtain and maintain intellectual property protection for our products;
- our ability to successfully establish and successfully maintain appropriate collaborations and derive significant value from those collaborations;
- our financial performance; and
- developments and projections relating to our competitors or our industry.

These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including those described in “Risk factors.” Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. In light of these risks, uncertainties and assumptions, the forward-looking events and circumstances discussed in this report may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements.

You should not rely upon forward-looking statements as predictions of future events. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee that the future results, levels of activity, performance or events and circumstances reflected in the forward-looking statements will be achieved or occur. Moreover, except as required by law, neither we nor any other person assumes responsibility for the accuracy and completeness of the forward-looking statements. We undertake no obligation to update publicly any forward-looking statements for any reason after the date of this report to conform these statements to actual results or to changes in our expectations.

You should read this report and the documents that we reference in this report and have filed with the Securities and Exchange Commission as exhibits to this report with the understanding that our actual future results, levels of activity, performance and events and circumstances may be materially different from what we expect.

Note Regarding Use of Brand Names

We refer to our two approved drugs in this report as Andexxa® and Bevyxxa®. If approved outside of the United States, each drug may be marketed under different brand names. In addition, an international nonproprietary name ("INN") has been designated for each drug. Our previous INN for Andexxa in the United States was andexanet alfa; however, in the United States this INN has been replaced with "coagulation factor Xa (recombinant), inactivated-zhzo." For the European Union ("EU") and other parts of the world, andexanet alfa could remain the INN for Andexxa. If approved in the EU, we expect to market andexanet alfa under the brand name Ondexxya™. Our use of Andexxa or Bevyxxa in this document in the context of continued development activities or jurisdictions for which we have not yet received regulatory approval should not be read to imply that we have received regulatory approval for any indication or in any jurisdiction not reflected in our product labels or that we will use such brand names in such jurisdictions.

PART I

ITEM 1. BUSINESS

Overview

Portola Pharmaceuticals, Inc.® (the "Company" or "we" or "our" or "us") is a biopharmaceutical company focused on the development and commercialization of novel therapeutics in the areas of thrombosis, other hematologic diseases and inflammation for patients who currently have limited or no approved treatment options. Our headquarters are located in South San Francisco, California.

Our lead product is Andexxa [coagulation factor Xa (recombinant), inactivated-zhzo], the first and only antidote approved by the U.S. Food and Drug Administration ("FDA") for patients treated with rivaroxaban or apixaban, when reversal of anticoagulation is needed due to life-threatening or uncontrolled bleeding. Bevyxxa (betrixaban), the first and only oral, once-daily Factor Xa inhibitor approved by the FDA for the prevention of venous thromboembolism ("VTE") in adult patients hospitalized for an acute medical illness, is currently being marketed in a limited manner and we are evaluating potential partnership opportunities for this product. We are advancing cerdulatinib, an investigational oral, dual spleen tyrosine kinase ("Syk") and Janus kinase ("JAK") inhibitor in development to treat hematologic cancers. We also have a number of other molecules in earlier stage and pre-clinical development.

Pipeline

	Description	Approved or Investigational Indication	Stage	Commercial rights
Andexxa	Reversal agent for certain Factor Xa (fXa) inhibitors	Patients treated with rivaroxaban or apixaban, when reversal of anticoagulation is needed due to life-threatening or uncontrolled bleeding	U.S. Approval Positive CHMP Opinion	Worldwide excluding Japan
Bevyxxa	Oral fXa inhibitor	Extended duration VTE prophylaxis in acute medically ill patients in-hospital and post discharge for 35-42 days	U.S. Approval	Worldwide
Cerdulatinib	Oral, dual Syk and JAK inhibitor	Relapsed/refractory B- and T-cell malignancies	Phase 2a	Worldwide excluding topical formulation in non-oncology indications

Our strategy

We are building a global, fully integrated biopharmaceutical company. In 2018, we launched two commercial products in the United States: Andexxa and Bevyxxa. In May 2018, we received FDA approval for Andexxa, which allowed us to launch an Early Supply Program in the United States using limited quantities of drug manufactured under our clinical-scale process. On December 31, 2018, we received approval from the FDA to sell product manufactured using our commercial-scale process, and in January 2019, we commenced a full United States Andexxa launch. On March 1, 2019, the Committee for Medicinal Products for Human Use ("CHMP") communicated a positive opinion for conditional marketing approval of Andexxa in the EU, to be marketed under the brand name Ondexxya. Based on the positive CHMP opinion, we anticipate the European Commission ("EC") decision in the second quarter of 2019, although the CHMP vote is not binding on the EC and there can be no assurances that the EC will provide such decision. In January 2018, we launched our first commercial product, Bevyxxa, in the United States. In March 2018, the CHMP issued a negative opinion, recommending that the EMA reject the marketing application for Bevyxxa in

the EU. We requested a re-examination of the initial opinion and in

July 2018, we received a negative re-examination opinion from the CHMP. The European Commission adopted the CHMP opinion in September 2018. While we continue to evaluate paths for the potential approval of Bevyxxa in the EU, there are currently no applications for Bevyxxa pending before the EU regulatory authorities. Commencing in the second half of 2018, we made the decision to prioritize our resources toward the Andexxa launch and reduced marketing efforts for Bevyxxa.

During 2018 and early 2019 we hired key executive management team members, including the following:

- Scott Garland, President and Chief Executive Officer;
- Ernie Meyer, Executive Vice President and Chief Human Resources Officer;
- Glenn Brame, Executive Vice President and Chief Technical Operations Officer;
- John Moriarty, Executive Vice President, General Counsel and Secretary; and
- Sheldon Koenig, Executive Vice President and Chief Commercial Officer.

Key elements of our strategy are as follows:

- Pursue and prioritize the commercial launch of Andexxa in the United States;
- Strategically scale up our field force and increase engagement with medical, scientific and academic professionals and associations to establish Andexxa as the standard of care for life threatening bleeds;
- Obtain regulatory approval of Andexxa in the EU and pursue a commercial launch through either our own efforts or with the assistance of a marketing partner;
- Pursue additional regulatory approvals for Andexxa, including reversal of additional anticoagulants such as edoxaban and enoxaparin, and reversal of Factor Xa inhibitors for emergency surgery/urgent procedures;
- Establish and improve reimbursement and market access for Andexxa;
- Support our commercial marketing partners Bristol-Meyers Squibb Company (“BMS”) and Pfizer, Inc. (“Pfizer”) to advance development of Andexxa for the Japanese market;
- Continue limited focused commercial efforts for Bevyxxa in the United States while pursuing and evaluating other strategic options for Bevyxxa;
- Advance development of cerdulatinib into registration studies for the treatment of hematologic cancers while considering partnering opportunities for cerdulatinib; and
- Continue to advance our current development pipeline and expand it with multiple preclinical or clinical stage product candidates that align with our scientific expertise and experience.

Approved Products

Andexxa

Andexxa is approved by the FDA as a reversal agent for patients treated with rivaroxaban or apixaban, when reversal of anticoagulation is needed due to life-threatening or uncontrolled bleeding. Andexxa was approved under the FDA’s Accelerated Approval pathway based on the change from baseline in anti-Factor Xa activity in healthy volunteers. Continued approval for this indication is contingent upon post-marketing study results to demonstrate an improvement in hemostasis in patients.

We have also submitted a centralized Marketing Authorization Application (“MAA”) for Andexxa under the proposed brand name Ondexxya to the European Union’s European Medicines Agency (“EMA”). On March 1, 2019, the CHMP communicated a positive opinion for Conditional Approval of the MAA. Based on the positive CHMP opinion, we expect an EC decision in the second quarter of 2019, although the CHMP opinion is not binding on the EC and there can be no assurances that the EC will provide such decision. We expect the EC decision for Conditional Approval, if obtained, will include several post-authorization requirements, including specific

5

obligations to submit a final clinical study report for the randomized controlled trial of Andexxa (US)/Ondexxya (EU), a final clinical study report for the ANNEXA-4 study, and an obligation to provide some additional pharmacokinetic data.

In the U.S., we initially received approval from the FDA in May 2018 to market product manufactured under our Gen 1 process using the clinical-scale process at the facility that produced material for our clinical trials. We conducted a limited launch in the second half of 2018 through an Early Supply Program ("ESP") intended to reach hospitals with a large number of patients with Factor Xa bleeds and able to start using Andexxa during the ESP period. On December 31, 2018, the FDA approved our Gen 2 manufacturing process, which provides commercial scale volume that we believe is sufficient to support a global launch that can meet worldwide commercial demand for at least the next several years. In early January 2019, we began shipping Gen 2 product and commenced a full-scale commercial launch in the United States. If approved in the EU, we will launch using Gen 2 product.

The worldwide use of Factor Xa inhibitors is rapidly growing because of their efficacy and safety profile compared to warfarin and enoxaparin in preventing and treating thromboembolic conditions such as stroke, pulmonary embolism and VTE. This growth has come with a proportional increase in the incidence of hospital admissions and deaths related to bleeding, the major complication of anticoagulation. In 2017, in the U.S. alone, there were approximately 149,000 hospital admissions attributable to Factor Xa inhibitor-related bleeding. We believe that Andexxa has the potential to act as a universal reversal agent for all direct and indirect Factor Xa inhibitors. We plan to continue clinical development to support global approvals as a reversal agent for other Factor Xa inhibitors. In addition, we plan to continue clinical development to support global approvals for reversal of the anticoagulant effects in Factor Xa inhibitor-treated patients who require emergency surgery/urgent procedures.

Andexxa was granted an Accelerated Approval by the FDA with a requirement for a post-marketing study to verify and describe Andexxa's clinical benefit via an open-label, randomized, controlled trial of Andexxa in acute intracranial hemorrhage in patients receiving oral Factor Xa inhibitors. This trial was initiated in early 2019 and we anticipate that it will include approximately 440 patients and compare outcomes of patients treated with Andexxa to the usual care on a 1:1 randomized scheme. We expect to conduct this study globally over approximately four years.

In August 2018, the U.S. Centers for Medicare & Medicaid Services ("CMS") granted a New Technology Add-on Payment ("NTAP") for Andexxa. Under the NTAP, Medicare will provide an add-on payment for Andexxa of up to approximately $14,000 per qualifying case to participating acute care hospitals. This add-on payment will be incremental to the diagnosis related group reimbursement for qualifying Medicare inpatient cases. The NTAP for Andexxa became effective October 1, 2018, and is expected to remain in effect for a period of two to three years.

In February 2019, we announced full results from ANNEXA-4, our Phase 3b/4 trial of Andexxa in patients experiencing acute major bleeding while taking a Factor Xa inhibitor. Data were presented as a late-breaking oral presentation at the International Stroke Conference 2019 and published simultaneously online by The New England Journal of Medicine ("NEJM"). Full data from 352 patients (249 of which were evaluable for hemostatic efficacy; all 352 were evaluable for safety) showed that Andexxa rapidly and significantly reversed anti-Factor Xa activity when administered as a bolus, and sustained this reversal when followed by a 120-minute infusion. Anti-Factor Xa activity is a measure of the anticoagulant activity of apixaban, rivaroxaban, edoxaban and enoxaparin, the anticoagulants studied in ANNEXA-4. Among all 352 patients, 64 percent (n=227) were treated for intracranial hemorrhage ("ICH") and 26 percent (n=90) were treated for a gastrointestinal bleed. Of those evaluated for efficacy 82 percent (n=204) achieved excellent or good hemostasis (stoppage of bleeding) over the 12-hour period following treatment with Andexxa, as determined by an independent adjudication committee.

Within 30 days of enrollment, thrombotic events occurred in 34 patients (9.7 percent) and death occurred in 49 patients (13.9 percent), consistent with previously presented ANNEXA-4 trial results and with the high background

thrombotic risk of the enrolled patient population. The majority of thrombotic events occurred in patients who delayed or did not re-start anticoagulation therapy with a Factor Xa inhibitor during the follow-up period. Among the 100 patients who re-started oral anticoagulation therapy, no thrombotic events were observed. Two patients experienced an infusion reaction and none developed antibodies to Factor Xa or Factor X or neutralizing antibodies to Andexxa.

We hold worldwide commercial rights to Andexxa with the exception of Japan. In 2016, we entered into collaboration agreements with BMS and Pfizer whereby BMS and Pfizer will seek to obtain Japanese regulatory approval and to commercialize Andexxa in Japan. Under the terms of the agreement we received an upfront payment of $15.0 million and are eligible to receive potential regulatory and sales-based milestone payments of up to $90.0 million, as well as tiered single-digit to double-digit royalties based on net sales in Japan. BMS and Pfizer obtained the rights to develop and commercialize Andexxa in Japan and will be responsible for all development, regulatory and commercialization activities. Under the terms of the agreement, BMS and Pfizer will purchase drug from us at cost for both clinical studies and, upon approval, commercial sales in Japan.

Bevyxxa

Bevyxxa is the first and only anticoagulant approved in the U.S. for hospital and extended duration prophylaxis (35 to 42 days) of VTE in adult patients hospitalized for an acute medical illness who are at risk for thromboembolic complications due to moderate or severe restricted mobility and other risk factors for VTE. Bevyxxa was approved by the FDA in June 2017 and we commenced the commercial launch in the U.S. in January 2018.

Acutely ill medical patients are those hospitalized for serious medical conditions, including heart failure, stroke, infection and pulmonary disease. Because of their underlying disorder and immobilization, they are at increased risk of developing deep vein thrombosis (“DVT”) and pulmonary embolism (“PE”) blood clots. In the G7 countries, an estimated 24 million acutely ill medical patients are hospitalized each year and are at risk of VTE, either while in the hospital or following discharge. More than one million VTE events and 150,000 VTE-related deaths occur annually in acutely ill medical patients in the G7 countries, despite the standard use of injectable enoxaparin and other heparins in the hospital. More than half of VTE events occur after patients are discharged from the hospital. No other anticoagulant, including enoxaparin or any of the marketed oral Factor Xa inhibitors, is approved for in-hospital and extended-duration VTE prophylaxis in acutely ill medical patients.

In March 2018, the CHMP issued a negative opinion, recommending that the EMA reject the marketing application for Bevyxxa in the EU. We requested a re-examination of the initial opinion and in July 2018, we received a negative re-examination opinion from the CHMP. The EC adopted the CHMP decision in September 2018. While we continue to evaluate paths for the potential approval of Bevyxxa in the EU, there are currently no applications for Bevyxxa pending before the EU regulatory authorities.

We believe that Bevyxxa has significant commercial potential. We anticipate it will require significant additional effort and more resources than we currently have to drive adoption and market acceptance. Following the approval of Andexxa in May 2018, due to our limited resources, we greatly scaled back our commercial efforts for Bevyxxa in the second half of 2018 in order to focus on the commercial launch of Andexxa. We are re-evaluating our marketing strategy for Bevyxxa and also exploring potential partnership and other strategic options for Bevyxxa.

Product Candidates:

Cerdulatinib

Cerdulatinib is our investigational oral, dual spleen tyrosine kinase (Syk) and janus kinase (“JAK”) inhibitor that uniquely inhibits two key cell signaling pathways implicated in certain hematologic malignancies and autoimmune diseases. There is a rationale for inhibiting both Syk (B-cell receptor pathway) and JAK (cytokine receptors) in B-cell malignancies where both targets have been shown to promote cancer cell growth and survival. In addition, pre-clinical data suggest an important role for Syk and JAK in Peripheral T-Cell Lymphoma (“PTCL”) tumor survival.

There is a significant unmet need for the treatment of patients with relapsed/refractory PTCL. Current approved therapies for relapsed/refractory PTCL are all given via IV infusion and have limited activity with overall response rates of approximately 30%. In addition, most of these responses are partial responses. Based on the unmet need and on the activity to date with cerdulatinib, we have prioritized development in PTCL. Following our End of Phase 2 meeting with the FDA in January 2019, the FDA has requested additional data supporting the proposed dose, which we are in the process of submitting. Pending the outcome of our discussions, we hope to start a registrational

study. In addition, we remain focused on development in CTCL and Follicular Lymphoma and are exploring potential paths to approval in these diseases.

The FDA granted cerdulatinib Orphan Drug Designation for the treatment of PTCL in September 2018. The FDA's Office of Orphan Products Development grants orphan status to support development of medicines for the treatment of rare diseases. Orphan Drug Designation may provide certain benefits, including a seven-year period of market exclusivity if the drug is approved, tax credits for qualified clinical trials and an exemption from FDA market application fees. In December 2018, we presented updated interim data from the ongoing Phase 2a study at the Annual Meeting of the American Society of Hematology. Highlights of this data included the following:

- The objective response rate ("ORR") was 34 percent in the PTCL cohort and 26 percent in the cutaneous T-cell lymphoma ("CTCL") cohort.
- Among the subset of patients in the PTCL cohort with Angioimmunoblastic T-cell Lymphoma ("AITL"), the ORR was 57 percent.
- For the PTCL cohort, eleven of 41 patients (27 percent) achieved a complete response ("CR"), and three patients (7 percent) achieved a partial response ("PR"); in the subgroup of 14 patients with AITL, seven patients (50 percent) achieved a CR and one patient (7 percent) achieved a PR; one patient who achieved a CR went on to transplant; and eight responding patients have remained on drug for three to more than 12 months and five patients have had a duration of response of six months or greater.
- In the CTCL cohort, two patients (7 percent) achieved a CR and five patients (19 percent) achieved a PR; responses have been seen in patients with Mycosis Fungoides and Sezary Syndrome; eleven of 23 patients (48 percent) achieved a ≥ 50 percent reduction in skin lesions, based on the Modified Severity Weighted Assessment Tool ("mSWAT"); and rapid improvements in pruritus, or severe itching – a common and often serious condition associated with CTCL – have been observed, as measured by the Likert scale.

Cerdulatinib has demonstrated tolerability in both PTCL and CTCL. The most common grade 3 or greater adverse events across the PTCL and CTCL cohorts with a frequency > 5 percent were lipase increase (23 percent), amylase increase (18 percent), sepsis/bacteremia (8 percent), and neutropenia, pneumonia/lung infection and diarrhea (7 percent each).

In December 2016, we licensed worldwide rights for the development and commercialization of cerdulatinib in topical applications beyond oncology to Dermavant Sciences GmbH ("Dermavant"). We retain full rights to all non-topical formulations, including oral formulations. Dermavant has presented positive Phase 1 results with topical cerdulatinib in atopic dermatitis patients.

Other Early Stage Programs

We have other early research and development programs including an exclusive in-license agreement with SRX Cardio LLC to explore a novel approach to developing a drug in the field of hypercholesterolemia and a collaboration with Ora for the topical Syk inhibitor PRT2761. PRT2761 was recently evaluated in a Phase 2 study for the treatment of allergic conjunctivitis where it met one of the two primary endpoints for the study. Based on these study results, we and Ora are currently exploring the potential to pursue PRT2761 in dry eye and other ocular inflammatory diseases.

Sales and marketing

We target our U.S. sales and marketing efforts at the approximately 1,500 hospitals and out-patient acute care settings that would account for the large majority of the prescribing base for Andexxa. We market Andexxa in the United States using a hospital-based sales force of approximately 118 sales representatives. This sales force is supported by an experienced sales leadership team of regional sales managers and account managers, and our commercial team

comprised of experienced professionals in marketing, access and reimbursement, managed markets, marketing research, commercial operations, and sales force planning and management. Following approval in the EU, we plan to launch in a limited number of countries and also consider potential collaborations. To achieve

global commercialization, we anticipate using a variety of distribution agreements and commercial partnerships in those territories where we do not establish our own sales force.

Customers

Our products are purchased in the United States primarily by hospital purchasers. These hospitals purchase our products through a network of specialty and wholesale distributors. We do not believe that the loss of one of these distributors would significantly impact the ability to distribute our product as we expect that sales volume would be absorbed by the remaining distributors.

Other Key Licenses and Collaborations

As part of our business strategy, we establish collaborations with other companies, universities and medical research institutions to assist in the clinical development and/or commercialization of certain of our products and product candidates and to provide support for our research programs. We also evaluate opportunities for acquiring products or rights to products and technologies that are complementary to our business from other companies, universities and medical research institutions. For more information regarding certain of these relationships, including their ongoing financial and accounting impact on our business, see Notes 3 and 8, Revenue Recognition and Asset Acquisition and License Agreements of the Notes to Consolidated Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K.

Andexxa

- BMS and Pfizer

In January 2014, we entered into an agreement with BMS and Pfizer to further study Andexxa as a reversal agent for their jointly-owned, FDA-approved oral Factor Xa inhibitor, apixaban, through Phase 3 studies. We are responsible for the cost of conducting this clinical study. Pursuant to our agreement with BMS and Pfizer, we are obligated to provide research, development and regulatory approval services and participate in the Joint Collaboration Committee.

In February 2016, we entered into a collaboration and license agreement with BMS and Pfizer whereby BMS and Pfizer obtained exclusive rights to develop and commercialize Andexxa in Japan. BMS and Pfizer are responsible for all development, regulatory and commercial activities in Japan and we will reimburse BMS and Pfizer for expenses they incur for research and development activities specific to Factor Xa inhibitors other than apixaban. Pursuant to this agreement, we are obligated to provide certain research and development activities outside of Japan, provide clinical drug supply and related manufacturing services and to participate on various committees in exchange for a non-refundable upfront fee of $15.0 million. We are also eligible to receive, contingent payments totaling up to $20.0 million which may be earned upon achievement of certain regulatory events and up to $70.0 million which may be earned upon achievement of specified annual net sales volumes in Japan. We are also entitled to receive royalties ranging from 5% to 15% on net sales of Andexxa in Japan. As provided in this agreement, we have agreed to provide Andexxa at cost in order to supply clinical and commercial demand in Japan.

- Daiichi Sankyo, Inc. (“Daiichi Sankyo”)

In 2013, we entered into an agreement with Daiichi Sankyo to include subjects dosed with edoxaban, its Factor Xa inhibitor product, in one of our Phase 2 proof-of-concept studies of Andexxa. In July 2014, we entered into a second collaboration agreement with Daiichi Sankyo to perform the necessary development and regulatory activities to support potential U.S. and EU regulatory approval of andexanet alfa as a reversal agent for edoxaban. Under this Phase 3 collaboration agreement we received an upfront payment of $15.0 million. So far, we have received $5 million in milestone payments and are eligible to receive additional development and regulatory milestone payments of up to $2.5 million. In 2016, we amended the 2014 agreement to expedite development activities in exchange for

$15.0 million and a net increase in total

eligible milestones of $8.0 million. We have received $4 million in milestone payments under this amended agreement. This amended collaboration agreement will continue in force until the approval of andexanet alfa as a reversal agent for edoxaban by the FDA and EMA.

In 2016, we entered into a collaboration agreement with Daiichi Sankyo to include edoxoban in the clinical studies necessary for approval of Andexxa in Japan. Under the terms of the agreement, we received an upfront payment of $5.0 million and are eligible to receive up to $10.0 million in additional milestone payments based on Japanese regulatory approval of Andexxa as an antidote for edoxaban.

- We have also entered into collaboration agreements with Bayer Pharma, AG and Janssen Pharmaceuticals, Inc. ("Janssen").

Other Programs

- We have a number of license and collaborations with several partners – Millennium Pharmaceuticals, Inc. ("Millennium"), SRX Cardio, LLC, Ora, and Astellas Pharma Inc. ("Astellas").

Competition

Our industry is highly competitive and subject to rapid and significant technological change. While we believe that our development experience and scientific knowledge provide us with competitive advantages, we may face competition from large pharmaceutical and biotechnology companies, smaller pharmaceutical and biotechnology companies, specialty pharmaceutical companies, generic drug companies, academic institutions, government agencies and research institutions and others.

Many of our competitors may have significantly greater financial, technical and human resources than we have. Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources being concentrated among a smaller number of our competitors. Our commercial opportunity could be reduced or eliminated if our competitors develop or market products or other novel technologies that are more effective, safer or less costly than any that will be commercialized by us, or obtain regulatory approval for their products more rapidly than we may obtain approval for ours. Our success will be based in part on our ability to identify, develop and manage a portfolio of drugs that are safer, more efficacious and/or more cost-effective than alternative therapies.

Andexxa

Currently there are no therapies approved as antidotes for Factor Xa inhibitors. However, Andexxa competes with the off-label use of treatments designed to enhance coagulation including Fresh Frozen Plasma ("FFP"), 4-factor Prothrombin Complex Concentrates ("PCCs"), recombinant activated Factor VII ("rFVIIa"), Vitamin K, protamine or whole blood. In addition, several companies have conducted clinical research on compounds that are intended to reverse the effects of one or more direct Factor Xa inhibitors and which, if developed, may be competitive with Andexxa.

Bevyxxa

In the market for VTE prophylaxis in acute medically ill patients, Bevyxxa competes primarily with enoxaparin, which is marketed as Lovenox® by Sanofi-Aventis U.S. LLC and as a generic pharmaceutical by several manufacturers, and to a lesser extent with other low molecular weight heparins. In addition, Bevyxxa may face competition in the market for acute medically ill patients from the off-label use of other Factor Xa inhibitors. In addition, Janssen has announced its intention to pursue approval for Xarelto® for prevention of VTE in certain acute medically ill patients following hospital discharge based on the results from its Mariner and Magellan trials.

10

Cerdulatinib

In the market for the treatment of Follicular Lymphoma ("FL"), PTCL, CTCL, and cerdulatinib, if approved, will compete with existing therapies, such as rituximab and obinutuzumab which are marketed by Chugai Pharmaceutical Co., F. Hoffmann-LaRoche Ltd. and Genentech, Inc., idelalisib, which is marketed by Gilead, brentuximab, which is marketed by Seattle Genetics, Inc. and Takeda Pharmaceutical Company, Ltd, copanlisib, which is marketed by Bayer AG, duvelisib, which is marketed by Verastem, Inc., romidepsin, which is marketed by Celgene Corporation, pralatrexate and belinostat, which are marketed by Spectrum Pharmaceuticals, Inc., mogamulizumab, which is marketed by Kyowa Hakko Kirin; and potentially other therapies currently in development by a number of different companies.

Intellectual property

Our success will significantly depend upon our ability to obtain and maintain patent and other intellectual property and proprietary protection for our drug candidates, including composition-of-matter, dosage and formulation patents, as well as patent and other intellectual property and proprietary protection for our novel biological discoveries and other important technology inventions and know-how. In addition to patents, we rely upon unpatented trade secrets, know-how, and continuing technological innovation to develop and maintain our competitive position. We protect our proprietary information, in part, using confidentiality agreements with our commercial partners, collaborators, employees and consultants and invention assignment agreements with our employees. We also have confidentiality agreements or invention assignment agreements with our commercial partners and selected consultants. Despite these measures, any of our intellectual property and proprietary rights could be challenged, invalidated, circumvented, infringed or misappropriated, or such intellectual property and proprietary rights may not be sufficient to permit us to take advantage of current market trends or otherwise to provide competitive advantages. For more information, please see the section of this Report entitled "Risk factors—Risks related to intellectual property."

Andexanet alfa

Our Factor Xa inhibitor antidote patent portfolio is wholly owned by us and includes 12 issued U.S. patents and ten U.S. patent applications covering the composition of and methods of making and using andexanet alfa or its analogs. We retain full commercialization rights to andexanet alfa on a worldwide basis except for Japan where commercial rights have been licensed to BMS and Pfizer.

The last to expire of the U.S. patents relating to the composition of matter is not expected to expire before June 2030. Related international patent applications have issued in 44 countries, and additional related international patent applications are pending. These international patents and patent applications, if issued, would not be due to expire before September 2028. Several other international patent applications have issued in Europe, Japan, and other countries, and international patent applications are still pending in Europe and a number of other countries.

Betrixaban

Our betrixaban patent portfolio includes 24 issued U.S. patents and eight U.S. patent applications covering the composition of and methods of making and using betrixaban or its analogs, including those owned by us and those licensed from Millennium. The U.S. issued patents relating to the composition of matter of betrixaban are not due to expire before September 2020 and may be extended up to September 2025, if betrixaban receives the patent term extension we have timely petitioned with the U.S. Patent Office, pursuant to the Drug Price Competition and Patent Term Restoration Act of 1984, commonly referred to as the Hatch-Waxman Act. Related international patent applications have issued in 38 countries. These related international patents would not be due to expire before September 2020.

11

In the United States, the Hatch-Waxman Act permits a patent term extension of up to five years for one patent related to an approved therapy. We believe that we are eligible for a full five-year patent term extension for one patent relating to betrixaban.

In addition, the Best Pharmaceuticals for Children Act provides that the period of patent exclusivity for a drug may be extended for six months if the owner of the drug conducts studies of the drug in children pursuant to a request from the FDA. We have commenced a pediatric study of bextrixaban in the United States.

Cerdulatinib

Our dual Syk-JAK inhibitor patent portfolio is owned in part by us and licensed in part from Astellas and includes six issued U.S. patents covering the composition of and methods of making and using cerdulatinib or its analogs. The last to expire of the U.S. patents is not expected to expire before July 2029. Related international patent applications have issued in 51 countries and a related patent application is pending in Brazil. These international patents and patent applications, if issued, would not be due to expire before April 2029.

Trademarks

We plan to market all of our products under a trademark or trademarks we select and we will own all rights, title and interest, including goodwill, associated with such trademarks. In the U.S., Andexxa, Annexa, Bevyxxa and Portola Pharmaceuticals, Inc. are our registered trademarks. Trademark registration is pending for Ondexxya in the U.S. and has been registered in the EU. Andexxa and Ondexxya are our registered trademarks in Japan.

Manufacturing

We rely exclusively on contract manufacturing organizations to manufacture our drugs and drug candidates. The manufacture of pharmaceuticals is subject to extensive U.S. and foreign regulations, which impose various procedural and documentation requirements and govern all areas of record keeping, production processes and controls, personnel and quality control. We currently have no plans to build our own clinical or commercial scale manufacturing capabilities. We believe that our current agreements and purchase orders with third-party manufacturers provide for sufficient operating capacity to support anticipated commercial and clinical supply needs for the next several years.

Andexxa

Andexxa is a recombinant biologic molecule produced in living cells, a process that is inherently complex and requires specialized knowledge and extensive process optimization and product characterization to transform laboratory scale processes into reproducible commercial manufacturing processes.

Primary commercial manufacturing of Andexxa bulk drug substance is conducted at Lonza AG (“Lonza”). Drug product manufacturing is conducted at Baxter Pharmaceutical Solutions LLC (“Baxter”). We expect that future clinical studies of Andexxa will also be conducted primarily using product manufactured by these third party manufacturing organizations. We continue to sell inventory from our legacy Gen 1 clinical-scale manufacturing process during our transition of our customer base to Gen 2 manufacturing process, but do not expect to enter into any future commercial manufacturing commitments associated with that Gen 1 process or supplier. We also rely on other third-party manufacturers for packaging, testing and shipping.

Bevyxxa

Bevyxxa is manufactured using common chemical engineering and synthetic processes from readily available raw materials. We have relied on Hovione, Limited ("Hovione"), to manufacture active pharmaceutical ingredient ("API") for Bevyxxa at commercial scale. We also rely on Patheon to manufacture drug product to supply Bevyxxa.

See Note 7 in the Notes to Consolidated Financial Statements contained in the section of this report entitled "Financial Statements and Supplementary Data" and refer to the "Off-balance sheet arrangements and contractual

obligations" portion of this report in the section entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations" for a more detailed description of the agreements, obligations and accounting assessments.

Government regulation

Healthcare and reimbursement regulation

Our sales, promotion, medical education and other activities are subject to regulation by numerous regulatory and law enforcement authorities in the United States, including the FDA, the Federal Trade Commission, the Department of Justice, the CMS, other divisions of the Department of Health and Human Services ("HHS") and state and local governments. Our promotional and scientific/educational programs must comply with, among other laws, federal and state price reporting laws, the anti-kickback provisions of the Social Security Act and state counterparts, the Foreign Corrupt Practices Act, federal and state false claims laws including the federal civil False Claims Act, the Veterans Health Care Act and federal and state transparency laws.

The FDA closely regulates the marketing and promotion of drugs, and a company's failure to comply with FDA requirements may result in adverse publicity, warning letters, corrective advertising, and potential civil and criminal penalties. Physicians may prescribe legally available products for uses that are not described in the product's labeling and that differ from those tested by us and approved by the FDA. Such off-label uses are common across medical specialties. Physicians may believe that such off-label uses are the best treatment for many patients in varied circumstances. The FDA does not regulate the behavior of physicians in their choice of treatments. The FDA does, however, restrict manufacturer's communications on the subject of off-label use.

Depending on the circumstances, failure to meet these applicable regulatory requirements can result in criminal prosecution, fines or other penalties, injunctions, recall or seizure of products, total or partial suspension of production, denial or withdrawal of pre-marketing product approvals, private "qui tam" actions brought by individual whistleblowers in the name of the government, refusal to allow us to enter into supply contracts, including government contracts, or integrity oversight and reporting obligations.

Sales of pharmaceutical products depend significantly on the availability of third-party coverage and reimbursement. Third-party payors include government health administrative authorities, managed care providers, private health insurers and other organizations. We anticipate third-party payors will provide reimbursement for our products. However, these third-party payors are increasingly challenging the price and examining the cost-effectiveness of medical products and services. In addition, significant uncertainty exists as to the reimbursement status of newly approved healthcare products. We may need to conduct expensive studies to demonstrate the cost-effectiveness of our products and the product candidates that we develop may not ultimately be considered cost-effective. It is time consuming and expensive for us to seek reimbursement from third-party payors. Reimbursement may not be available or sufficient to allow us to sell our products on a competitive and profitable basis.

In the EU, pricing and reimbursement schemes vary widely from country to country. Some countries provide that drug products may be marketed only after a reimbursement price has been agreed. Some countries may require the completion of additional studies that compare the cost effectiveness of a particular drug candidate to currently available therapies. For example, the EU provides options for its member states to restrict the range of drug products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. EU member states may approve a specific price for a drug product or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the drug product on the market. Other member states allow companies to fix their own prices for drug products, but monitor and control company profits. The downward pressure on healthcare costs in general, particularly prescription drugs, has become intense. As a result, increasingly high barriers are being erected to the entry of new products. In addition, in some countries, cross

border imports from low priced markets exert competitive pressure that may reduce pricing within a country. Any country that has price controls or reimbursement limitations for drug products may not allow favorable reimbursement and pricing arrangements.

The United States and some foreign jurisdictions are considering or have enacted a number of legislative and regulatory proposals to change the healthcare system in ways that could affect our ability to sell our products profitably. Among policy makers and payors in the United States and elsewhere, there is significant interest in promoting changes in healthcare systems with the stated goals of containing healthcare costs, improving quality and/or expanding access. In the United States, the pharmaceutical industry has been a particular focus of these efforts and has been significantly affected by major legislative initiatives.

For example, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010 (collectively, "Affordable Care Act"), was passed in March 2010, and substantially changed the way healthcare is financed by both governmental and private insurers, and continues to significantly impact the U.S. pharmaceutical industry. On December 14, 2018, a Texas U.S. District Court Judge ruled that the Affordable Care Act is unconstitutional in its entirety because the "individual mandate" was repealed by Congress as part of the Tax Cuts and Jobs Act of 2017. The Texas U.S. District Court Judge, as well as the Presidential administration and CMS, have stated that the ruling will have no immediate effect pending appeal of the decision. Additionally, there has recently been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products, which has resulted in several Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drug products.

Foreign regulation

In addition to regulations in the United States, we will be subject to a variety of foreign regulations governing clinical trials and commercial sales and distribution of our products to the extent we choose to develop or sell any products outside of the United States. The approval process varies from country to country and the time may be longer or shorter than that required to obtain FDA approval. The requirements governing the conduct of clinical trials, product licensing, pricing and reimbursement vary greatly from country to country.

Under European Union regulatory systems, marketing authorization applications may be submitted under a centralized or decentralized procedure. The centralized procedure, which is compulsory for medicines produced by certain biotechnological processes and optional for those that are highly innovative, provides for the grant of a single marketing authorization that is valid for all European Union member states. For drugs without approval in a European Union member state, the decentralized procedure provides for assessment of a marketing application by one member state, known as the reference member state, and review and possible approval of that assessment by one or more other, or concerned, member states. Under this procedure, an applicant submits an application and related materials to the reference member state and concerned member states. The reference member state prepares a draft assessment and drafts of related materials within 120 days after receipt the application. Within 90 days of receiving the reference member state's assessment report, each concerned member state must decide whether to approve the assessment report and related materials. If a member state cannot approve the assessment report and related materials on grounds of potential serious risk to public health, the disputed points may be referred to the European Commission, whose decision is binding on all member states.

Clinical Development and Marketing Approvals

The FDA and comparable regulatory agencies in state and local jurisdictions and in foreign countries impose substantial requirements upon the clinical development, manufacture and marketing of pharmaceutical products. These agencies and other federal, state and local entities regulate research and development activities and the testing, manufacture, quality control, safety, effectiveness, labeling, storage, record keeping, approval, advertising and promotion of our products.

The process required by the regulatory authorities before product candidates may be marketed generally involves the following:

- nonclinical laboratory and animal testing of the product including some that must be conducted in accordance with Good Laboratory Practices;

- submission of an investigational new drug application ("IND") which must become effective before human clinical trials may begin;
- adequate and well-controlled human clinical trials to establish the safety and efficacy of the proposed drug candidate for its intended use;
- pre-approval inspection of manufacturing facilities and selected clinical investigators for their compliance with regulatory requirements; and
- Approval of an NDA, for a drug or a BLA, for a biologic prior to commercial marketing for specific indications for use.

The testing and approval process requires substantial time, effort and financial resources. For example, an independent institutional review board for each medical center proposing to conduct the clinical trial must review and approve the plan for any clinical trial and its informed consent form before the clinical trial commences at that center. Regulatory authorities or an institutional review board or the sponsor may suspend a clinical trial at any time on various grounds, including a finding that the subjects or patients are being exposed to an unacceptable health risk. Some studies also include an Independent Data Monitoring Committee ("IDMC") which receives special access to unblinded data during the clinical trial and may halt the clinical trial if it determines that there is an unacceptable safety risk for subjects or other grounds, such as no demonstration of efficacy. The IDMC may halt a trial if it feels that the data demonstrate efficacy of the drug and it is no longer ethical to withhold the drug from patients in the control arm of the study. Human clinical trials are typically conducted in three sequential phases that may overlap.

- Phase 1 – Studies are initially conducted to test the product candidate for safety, dosage tolerance, absorption, metabolism, distribution and excretion in healthy volunteers or patients.
- Phase 2 – Studies are conducted with groups of patients with a specified disease or condition to provide enough data to evaluate the preliminary efficacy, optimal dosages and dosing schedule and expanded evidence of safety. Multiple Phase 2 clinical trials may be conducted to obtain information prior to beginning larger and more expensive Phase 3 clinical trials.
- Phase 3 – Phase 3 clinical trials are undertaken in large patient populations to further evaluate dosage, to provide statistically significant evidence of clinical efficacy and to further test for safety in an expanded patient population at multiple clinical trial sites. These clinical trials are intended to establish the overall risk/benefit ratio of the product compared to placebo or current standard of care and provide an adequate basis for product labeling. These trials may be done globally to support global registrations.
- The regulatory authorities may require, or companies may pursue, additional clinical trials after a product is approved. These so-called Phase 4 studies may be made a condition to be satisfied after approval. The results of Phase 4 studies can confirm the effectiveness of a product candidate and can provide important safety information gathered in routine medical practice.

Concurrent with clinical trials, companies usually complete additional animal studies and must also develop additional information about the chemistry and physical characteristics of the product candidate as well as finalize a process for manufacturing the product in commercial quantities in accordance with regulatory manufacturing requirements. The manufacturing process must be capable of consistently producing quality batches of the product candidate and, among other things, the sponsor must also develop methods for testing the identity, strength, quality and purity of the final product. Additionally, appropriate packaging must be selected and tested and stability studies must be conducted to establish an appropriate shelf life for the product candidate including data demonstrating that the product candidate does not undergo unacceptable deterioration over its shelf life.

Post-approval requirements

Any products manufactured or distributed by us pursuant to regulatory approvals are subject to continuing regulation, including record-keeping requirements and reporting of adverse experiences. Drug and biologic manufacturers and their subcontractors are required to register their establishments with the regulatory authorities and certain state agencies, and are subject to periodic unannounced inspections by the regulatory authorities and certain state agencies

for compliance with regulatory manufacturing requirements, which impose certain procedural and documentation requirements upon us and our third-party contract manufacturers. We cannot be certain that we

or our present or future suppliers will be able to comply with regulatory manufacturing regulations and other regulatory requirements. If our present or future suppliers are not able to comply with these requirements, the regulatory authorities may halt our clinical trials, require us to recall a product from distribution, or withdraw approval of the marketing application.

Andexxa was granted an Accelerated Approval by the FDA with a requirement for a post-marketing study to verify and describe Andexxa's clinical benefit via an open-label, randomized, controlled trial of Andexxa in acute intracranial hemorrhage in patients receiving oral Factor Xa inhibitors. We expect our anticipated approval in the E.U. will also include several post-approval commitments, including an obligation to submit a final clinical study report from the randomized controlled trial of Andexxa and an obligation to provide some additional pharmacokinetic data.

Research and Development

We invested $216.2 million, $203.7 million and $246.9 million in research and development during the years ended December 31, 2018, 2017 and 2016, respectively.

Employees

As of December 31, 2018, we had 324 full-time employees, 115 of whom were engaged in sales and marketing. Our employees are not represented by labor unions or covered by collective bargaining agreements. We consider our relationship with our employees to be good.

Legal proceedings

We are not currently a party to any material legal proceedings.

Corporate and Available Information

Our principal corporate offices are located at 270 E. Grand Avenue, South San Francisco, California 94080 and our telephone number is (650) 246-7000. We were incorporated in Delaware in September 2003. Our internet address is www.portola.com. We make available on our website, free of charge, our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and any amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the Securities and Exchange Commission, or the SEC. Our SEC reports can be accessed through the Investors section of our internet website. Further, a copy of this Annual Report on Form 10-K is located at the SEC's Public Reference Rooms at 100 F Street, N.E., Washington, D. C. 20549. Information on the operation of the Public Reference Room can be obtained by calling the SEC at 1-800-SEC-0330. The SEC maintains a website that contains reports, proxy and information statements and other information regarding our filings at http://www.sec.gov. The information found on our internet website is not incorporated by reference into this Annual Report on Form 10-K or any other report we file with or furnish to the SEC.

Item 1A. RISK FACTORS.

Investing in our common stock involves a high degree of risk. You should consider carefully the following risks, together with all the other information in this report, including our financial statements and notes thereto, before you invest in our common stock. If any of the following risks actually materializes, our operating results, financial condition and liquidity could be materially adversely affected. As a result, the trading price of our common stock could decline and you could lose part or all of your investment.

In assessing these risks, you should also refer to other information contained in this annual report on Form 10-K, including our Consolidated Financial Statements and related Notes.

1) RISKS RELATED TO OUR FINANCIAL CONDITION AND NEED FOR ADDITIONAL CAPITAL

We have incurred significant losses, and expect to incur substantial and increasing losses as we continue to develop and commercialize our product candidates.

We are an early stage commercial biopharmaceutical company. We launched our first commercial products in 2018 and continue to incur significant expenses related to commercialization, our ongoing and planned future clinical studies, research and development activities, selling, general and administrative activities and charges relating to Bevyxxa. Our operating expenses increased during the year of 2018, and we do not anticipate a significant decrease in the near term. As of December 31, 2018, we had an accumulated deficit of approximately $1.5 billion.

To date, we have financed our operations primarily through sales of our equity securities, collaborations, including a loan from one of our collaboration partners, a sale of a royalty stream from future product sales, sales of commercial and development rights to some of our product candidates, and to a lesser extent, government grants, equipment leases, venture debt and with the benefit of tax credits made available under a federal stimulus program supporting drug development. We have devoted substantially all of our efforts to product commercialization, research and development, including manufacturing and clinical studies. We anticipate that we will continue to incur substantial expenses as we:

- establish and scale-up manufacturing capabilities and a sales, marketing and distribution infrastructure to commercialize our products in the U.S. and abroad;
- initiate or continue clinical studies, including a post-marketing randomized controlled trial of Andexxa;
- continue the research and development of our product candidates;
- seek to discover or in-license additional product candidates;
- seek regulatory approvals for our product candidates that successfully complete clinical studies; and
- enhance operational, compliance, financial, quality and information management systems and hire more personnel, including personnel to support development of our product candidates and support our commercialization efforts.

To be profitable in the future, we must succeed in commercializing our products and developing and commercializing other products with significant market potential. This will require us to be successful in a range of activities, including manufacturing, marketing and selling our products and any other products for which we may obtain regulatory approval, obtaining additional regulatory approvals and successfully completing clinical studies. We are only in the preliminary stages of some of these activities. We may not succeed in these activities and may never generate revenue that is sufficient to be profitable in the future. Even if we are profitable, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to achieve sustained profitability would depress the value of our company and could impair our ability to raise capital, expand our business, diversify our product candidates, market our product candidates, if approved, or continue our operations.

17

Our operating results may fluctuate significantly, which makes our future operating results difficult to predict and could cause our operating results to fall below expectations or our guidance.

Our operating results are difficult to predict and will likely fluctuate from quarter to quarter and year to year. Due to the recent approval by the FDA of our products and the absence of historical sales data, our product sales will be difficult to predict from period to period and as a result, you should not rely on sales results in any period as being indicative of future performance and sales may be below the expectation of securities analysts or investors in the future. We believe that our quarterly and annual results of operations may be affected by a variety of factors, including:

- the level of demand and market acceptance;
- the results of our clinical trials;
- our abilities to obtain desired regulatory approvals in the U.S., EU and other foreign jurisdictions;
- the extent to which coverage and reimbursement is available from government and health administration authorities, private health insurers, managed care programs and other third-party payors;
- rebates, discount, other pricing concessions and fees that we may provide to integrated delivery networks, group purchasing organizations, other purchasers and pharmacy benefits managers and other third-party payors;
- the timing, cost and level of investment in our marketing efforts to support sales;
- the timing, cost and level of investment in our research and development activities involving approved products and product candidates;
- the cost of manufacturing, distribution and the amount of legally mandated discounts to government entities, other discounts and rebates, product returns and other gross-to-net deductions;
- the risk/benefit profile, cost and reimbursement of existing and potential future drugs which compete with approved products;
- the timing and amount of non-cash items such as stock compensation expenses, reserves, cost of goods sold and non-recurring charges such as inventory write-offs; and
- expenditures that we will or may incur to acquire or develop additional product candidates and technologies.

The cumulative effects of these factors could result in large fluctuations and unpredictability in our quarterly and annual operating results. As a result, comparing our operating results on a period-to-period basis may not be meaningful. Investors should not rely on our past results as an indication of our future performance. This variability and unpredictability could also result in our failing to meet the expectations of industry or financial analysts or investors for any period. If our revenue or operating results fall below the expectations of analysts or investors or below any forecasts we may provide to the market, or if the forecasts we provide to the market are below the expectations of analysts or investors, the price of our common stock could decline substantially. Such a stock price decline could occur even when we have met any previously publicly stated revenue or earnings guidance we may provide.

We will need additional funds to support our operations, and such funding may not be available to us on acceptable terms, or at all, which would force us to delay, reduce or suspend our research and development programs and other operations or commercialization efforts. Raising additional capital may subject us to unfavorable terms, cause dilution to our existing stockholders, restrict our operations, reduce future profitability or require us to relinquish rights to our product candidates and technologies.

We will continue to require substantial funds to support commercial operations and pursue further research and development efforts. Our financing requirements will depend on many factors, some of which are beyond our control, including the following:

- product sales of Andexxa, and if approved for commercial marketing, our product candidates;
- the costs of commercialization activities, including product sales, marketing, manufacturing and distribution and general corporate and commercial infrastructure;
- the costs and timing of international expansion;
- the timing of, and costs involved in, seeking and obtaining approvals from the FDA and other regulatory authorities;
- the possible development of additional product candidates, including through in-licensing and acquisitions;
- the degree and rate of market acceptance of any products launched by us or partners;
- our ability to enter into additional collaboration, licensing, commercialization or other financing arrangements and the terms and timing of such arrangements;
- the rate of progress and cost of our clinical studies; and
- the emergence of competing technologies or other adverse market developments.

Until we can generate a sufficient amount of product revenue to finance our cash requirements, which we may never do, we expect to finance future cash needs through a combination of public or private equity offerings, debt financings, collaborations, strategic alliances, licensing arrangements and other financing, marketing and distribution arrangements. Additional financing may not be available to us when we need it or it may not be available on favorable terms.

If we raise additional capital through financing, marketing and distribution arrangements or other collaborations, strategic alliances, licensing or other financial arrangements with third parties, we may have to relinquish certain valuable rights to our product candidates, technologies, future revenue streams or research programs or grant licenses on terms that may not be favorable to us. If we raise additional capital through public or private equity offerings, the ownership interest of our existing stockholders will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect our stockholders' rights. If we raise additional capital through debt financing, we may be subject to covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends and our repayment obligations may reduce future financial performance. If we are unable to obtain adequate financing when needed, we may have to delay, reduce the scope of, or suspend one or more of our clinical studies, research and development programs or commercialization efforts.

Our obligations under our credit facility are secured by substantially all of our assets, so if we default on those obligations, the lenders could foreclose on our assets. As a result of these security interests, such assets would only be available to satisfy claims of our general creditors or to holders of our equity securities if we were to become insolvent at a time when the value of such assets exceeded the amount of our indebtedness and other obligations. Additionally, our credit facility contains restrictions and limitations that could significantly affect our ability to operate our business.

Pursuant to the Credit Agreement by and among us, the guarantor and lenders ("Lenders") party thereto, and HCR Collateral Management, LLC, as Administrative Agent, dated February 28, 2019 (the "Credit Facility"), the Administrative Agent, in its capacity as Collateral Agent for the Lenders, has been granted a security interest in

19

substantially all of our assets. As a result, if we default under our obligations to the Lenders, the Collateral Agent could foreclose on its security interest and liquidate some or all of these assets, which would harm our business, financial condition and results of operations.

In the event of a default in connection with our bankruptcy, insolvency, liquidation, or reorganization, the Collateral Agent would have a prior right to substantially all of our assets to the exclusion of our general unsecured creditors. In that event, our assets would first be used to repay in full all indebtedness and other obligations under the Credit Facility, resulting in all or a portion of our assets being unavailable to satisfy the claims of any unsecured indebtedness. Only after satisfying the claims of the Lenders and any unsecured creditors would any amount be available for our equity holders. Events of default under the Credit Facility include, among other things, our failure to pay any amounts due under the Credit Facility or any of the other loan documents, a breach of covenants under the Credit Facility, our insolvency, a material adverse effect occurring, the occurrence of certain defaults under certain other indebtedness for which we are obligated or certain final judgments against us.

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

If we are unable to comply with certain financial and operating restrictions in the Credit Facility, we may be limited in our business activities and access to credit or may default under the Credit Facility.

Provisions in the Credit Facility impose restrictions or require prior approval on our ability, and the ability of certain of our subsidiaries to, among other things:

•Incur additional debt;

•Make certain investments and acquisitions;

•Guarantee the indebtedness of others or our subsidiaries;

•Create liens or encumbrances;

•Engage in new lines of business;

•Enter into transactions with affiliates;

•Pay cash dividends and make distributions;

•Redeem or repurchase capital shares;

•Sell, lease or transfer certain parts of our business or property;

•Prepay other indebtedness; and

•Acquire new companies and merge or consolidate.

The Credit Facility also contains other customary covenants, including covenants that require us to maintain a minimum cash balance of up to $40 million, dependent on borrowings and levels of sales of Andexxa. We may not be

able to comply with these covenants in the future. Our failure to comply with these covenants may result in the declaration of an event of default, which, if not cured or waived, may result in the acceleration of the maturity of indebtedness outstanding under the Credit Facility and would require us to pay all amounts outstanding. If the maturity of our indebtedness is accelerated, we may not have sufficient funds then available for repayment or we may not have the ability to borrow or obtain sufficient funds to replace the accelerated indebtedness on terms

acceptable to us or at all. Our failure to repay our indebtedness would result in the Collateral Agent foreclosing on all or a portion of our assets and possibly force us to curtail or cease our operations.

2) RISKS RELATED TO COMMERCIAL AND MARKETING OPERATIONS AND THE DEVELOPMENT AND COMMERCIALIZATION OF OUR PRODUCTS AND PRODUCT CANDIDATES

Our products may fail to achieve the degree of market acceptance by physicians, patients, healthcare payors and others in the medical community necessary for commercial success.

Our success depends heavily on the launch and commercialization of our products. The commercial success of our products will depend upon their acceptance by the medical community and third-party payors as clinically useful, cost-effective and safe. The degree of market acceptance of any drug depends on a number of factors, such as:

- the prevalence and severity of any side effects;
- efficacy and potential advantages compared to alternative treatments;
- the price we charge for our products;
- interpretations of the results of our clinical trials;
- the willingness of physicians and healthcare organizations to change their current treatment practices;
- the willingness of hospitals and hospital systems to include our products as treatment options;
- convenience and ease of administration compared to alternative treatments;
- the willingness of the target patient population to try new therapies and of physicians to prescribe these therapies;
- the willingness of the target patient population to pay for our products, including co-pays under their health coverage plans;
- the strength of marketing and distribution support; and
- the availability of third-party coverage and adequate reimbursement.

Failure to attain market acceptance among the medical community and third-party payors may have an adverse impact on our operations and profitability. If we are not successful in commercializing Andexxa, our future product revenue will suffer, we may incur significant additional losses and our business will be materially harmed.

If we are unable to develop effective sales, marketing and distribution capabilities on our own or through collaborations or other marketing partners, we will not be successful in commercializing our products or our other future products.

We are still in the early stages of developing our sales and marketing infrastructure. To achieve commercial success for our products or any current or potential product candidate, we must continue to develop a sales and marketing organization or outsource these functions to third parties. We plan to market expand our hospital-based sales force in other major markets and work with partners in other parts of the world to commercialize our products globally. There are risks involved with both establishing our own sales and marketing capabilities and entering into arrangements with third parties to perform these services.

We also may not be successful entering into arrangements with third parties to sell and market our product candidates or may be unable to do so on terms that are favorable to us. We likely will have little control over such third parties, and any of them may fail to devote the necessary resources and attention to sell and market our products effectively, which could damage our reputation. If we do not establish sales and marketing capabilities successfully, either on our own or in collaboration with third parties, we will not be successful in commercializing our product candidates.

We face substantial competition, which may result in others discovering, developing or commercializing competing products more successfully than we do.

The development and commercialization of new therapeutic products is highly competitive. We face competition with respect to commercializing our products and developing our current product candidates, and we will face competition with respect to any products that we may seek to develop or commercialize in the future, from major pharmaceutical companies, specialty pharmaceutical companies and biotechnology companies worldwide.

While there are no therapies other than Andexxa approved specifically as antidotes for Factor Xa inhibitors, we are aware of at least one drug candidate that has been studied in early stage clinical trials as a potential antidote to Factor Xa inhibitors. In addition, Andexxa may compete with the off-label use of other treatments designed to enhance coagulation, such as FFP, PCCs, rFVIIa or whole blood. Although there is no approved indication for these products in patients taking Factor Xa inhibitors, physicians may choose to use them because of familiarity, cost or other reasons. In addition, we are aware that several companies have conducted preclinical research on compounds intended to be antidotes for Factor Xa inhibitors.

For Bevyxxa, several large pharmaceutical and biotechnology companies currently market and sell direct or indirect anticoagulants for use in various disease states, including injectable anticoagulants for the prevention of VTE in acutely ill medical patients. Potential competitors also include academic institutions, government agencies and other public and private research organizations that conduct research, seek patent protection and establish collaborative arrangements for research, development, manufacturing and commercialization. Some of these competitors are or may be attempting to develop therapeutics for our target indications.

In addition, most of our competitors are large pharmaceutical companies that will have a greater ability to reduce prices for their competing drugs in an effort to gain or maintain market share and undermine the value proposition that we might otherwise be able to offer to payors. Bevyxxa is indicated for the prophylaxis of VTE in adult patients hospitalized for an acute medical illness who are at risk for thromboembolic complications due to moderate or severe restricted mobility and other risk factors. The current standard of care for VTE prophylaxis in acute medically ill patients in the United States is a 6- to 14-day administration of enoxaparin, marketed as Lovenox and also available in generic form. Enoxaparin is a low cost therapy that is widely accepted by physicians, patients and third-party payors. As a result of this and other factors, we have faced initial difficulties in marketing Bevyxxa in this patient population. Additionally, our competitors may have the financial and other resources to conduct additional clinical studies in an effort to obtain regulatory approval for use of their drugs for VTE prophylaxis in acutely ill medical patients. For example, Bayer and Janssen recently published results from their Phase 3 MARINER clinical trial evaluating the safety and efficacy of rivaroxaban for up to 45 days post hospital discharge (after enoxaparin in hospital) to reduce the risk of symptomatic VTE in medical ill patients. If the results of Bayer and Janssen’s clinical studies support a successful path to regulatory approval, Bevyxxa is expected to face increased competition in the marketplace from a drug that would be used as a different treatment strategy (post discharge only) in an overlapping patient population. Such treatment strategy would not require physicians, patients and third-party payors to replace enoxaparin with a new or higher priced therapy in the hospital.

There are also a number of products in clinical development for hematologic cancer, ophthalmological diseases, allergic rhinitis, allergic asthma and other inflammatory or autoimmune diseases that are potential indications for cerdulatinib or selective Syk inhibitors. Our competitors may develop products that are more effective, safer, more convenient or less costly than any that we are developing or that would render our product candidates obsolete or noncompetitive. Many competing products are in later stages of development than our products and, therefore, may obtain FDA or other regulatory approval for their products before we obtain approval for ours.

Many of our competitors, including a number of large pharmaceutical companies that compete directly with us, have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials, obtaining regulatory approvals and marketing approved products than we do. Mergers and acquisitions in the pharmaceutical, biotechnology and diagnostic industries may result in even more resources being concentrated among a smaller number of our competitors. Smaller or early stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These third parties compete with us in recruiting and retaining qualified scientific and management personnel, establishing clinical study sites and patient registration for clinical studies, as well as in acquiring technologies complementary to, or necessary for, our programs.

We obtained regulatory approval of Andexxa in the United States through an Accelerated Approval process. Continued approval is contingent upon post-marketing study.

The Accelerated Approval regulations allow drugs that are being developed to treat an unmet medical need to be approved substantially based on evidence of an effect on a biomarker endpoint that is considered reasonably likely to predict clinical benefit rather than a clinical endpoint such as survival or irreversible morbidity. Our approval of Andexxa was supported by data from two Phase 3 ANNEXA studies (ANNEXA-R and ANNEXA-A), which evaluated the safety and efficacy of Andexxa in reversing the anticoagulant activity of the Factor Xa inhibitors rivaroxaban and apixaban in healthy volunteers, and interim patient data from our ongoing ANNEXA-4 single-arm, open-label study in patients on a Factor Xa inhibitor experiencing a life threatening or uncontrolled bleeding episode. However, these studies have inherent limitations as compared with a randomized controlled trial. As a condition to approval, the FDA has required us to conduct a post-marketing randomized controlled trial of Andexxa. This trial will randomize patients to receive either Andexxa or the type of care the enrolling institution would provide in the absence of Andexxa. This study has been opened to enrollment and we expect it to be reported in 2023. We expect the practical implementation and ethical considerations of a randomized controlled trial for Andexxa to present challenges, and we cannot be sure that we will be able to successfully conduct and enroll such a trial in a manner satisfactory to the FDA or within the time period required by the FDA. Further, if the randomized controlled trial is not successful, the FDA could modify or withdraw our marketing approval for Andexxa.

If clinical studies of our product candidates fail to demonstrate safety and efficacy to the satisfaction of the FDA or similar regulatory authorities outside the United States or do not otherwise produce positive results, we may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of our future product candidates.

Before obtaining regulatory approval for the sale of our product candidates, we must conduct extensive clinical studies to demonstrate the safety and efficacy of our product candidates in humans. Clinical studies are expensive, difficult to design and implement, can take many years to complete and are uncertain as to outcome. A failure of one or more of our clinical studies could occur at any stage of testing. We may experience numerous unforeseen events during, or as a result of, clinical studies that could delay or prevent our ability to receive regulatory approval or commercialize our product candidates, including the following:

- the number of patients required for clinical studies of our product candidates may be larger than we anticipate, enrollment in these clinical studies may be insufficient or slower than we anticipate or patients may drop out of these clinical studies at a higher rate than we anticipate;
- clinical studies of our product candidates may produce negative or inconclusive results, and we may decide, or regulators may require us, to conduct additional clinical studies or abandon product development programs;
- the cost of clinical studies or the manufacturing of our product candidates may be greater than we anticipate;
- our third-party contractors may fail to comply with regulatory requirements or meet their contractual obligations to us in a timely manner, or at all;
- we might have to suspend or terminate clinical studies of our product candidates for various reasons, including unanticipated serious side effects, other unexpected characteristics or unacceptable health risks;
- regulators may not approve our proposed clinical development plans;
- regulators or institutional review boards may not authorize us or our investigators to commence a clinical study or conduct a clinical study at a prospective study site;
    - regulators or institutional review boards may require that we or our investigators suspend or terminate clinical research for various reasons, including noncompliance with regulatory requirements; and
- the supply or quality of our product candidates or other materials necessary to conduct clinical studies of our product candidates may be insufficient or inadequate.

23

If we are required to conduct additional clinical studies or other testing of our product candidates beyond those that we currently contemplate, if we are unable to successfully complete clinical studies of our product candidates or other testing, if the results of these studies or tests are not positive or are only modestly positive or if there are safety concerns, we may:

- be delayed in obtaining marketing approval for our product candidates;
- not obtain marketing approval at all;
- obtain approval for indications that are not as broad as intended;
- have the product removed from the market after obtaining marketing approval;
- be subject to additional post-marketing testing requirements; or
- be subject to restrictions on how the product is distributed or used.

Our product development costs may also increase if we experience delays in testing or approvals. We do not know whether any anticipated clinical studies will begin as planned, or whether anticipated or ongoing clinical studies will need to be restructured or will be completed on schedule, or at all. Significant clinical study delays also could shorten any periods during which we may have the exclusive right to commercialize our product candidates or allow our competitors to bring products to market before we do, which would impair our ability to commercialize our product candidates and harm our business and results of operations.

Failure to obtain regulatory approvals in foreign jurisdictions will prevent us from marketing our products internationally. Following the negative decision by the European Commission, we will not obtain marketing approval to commercialize Bevyxxa in the EU at this time, or potentially ever.

In order to market Andexxa, Bevyxxa or our future products in the European Economic Area ("EEA"), and many other foreign jurisdictions, we must obtain separate regulatory approvals. Specifically, in the EEA, medicinal products can only be commercialized after obtaining a Marketing Authorization ("MA"). Before granting the MA, the EMA or the competent authorities of the member states of the EEA make an assessment of the risk-benefit balance of the product on the basis of scientific criteria concerning its quality, safety and efficacy.

The approval procedures vary among countries and can involve additional clinical testing, and the time required to obtain approval may differ from that required to obtain FDA approval. Clinical studies conducted in one country may not be accepted by regulatory authorities in other countries. Approval by the FDA does not ensure approval by regulatory authorities in other countries, and approval by one or more foreign regulatory authorities does not ensure approval by regulatory authorities in other foreign countries or by the FDA. In addition, a failure or delay in obtaining regulatory approval in one country may have a negative effect on the regulatory process in others. The foreign regulatory approval process may include all of the risks associated with obtaining FDA approval. We may not obtain foreign regulatory approvals on a timely basis, if at all. We may not be able to submit for regulatory approvals and even if we submit we may not receive necessary approvals to commercialize our products in any market.

On March 1, 2019, the CHMP communicated a positive opinion for Conditional Approval of our MAA for Andexxa, to be marketed under the brand name Ondexxya in the EU. Based on the positive CHMP opinion, we expect an EC decision in the second quarter of 2019, although the CHMP opinion is not binding on the EC and there can be no assurance that the EC will provide such decision. We expect the EC decision for Conditional Approval, if obtained, will include several post-authorization requirements, including specific obligations to submit a final clinical study report for the randomized controlled trial of Andexxa (U.S.)/Ondexxya (EU), a final clinical study report for the ANNEXA-4 study, and an obligation to provide some additional pharmacokinetic data. The EC may not provide a positive decision and may also delay or further condition such decision. A negative EU outcome or significant delays in EU approval would materially harm our business.

In March 2018, the CHMP issued a negative opinion, recommending that the EMA reject the marketing application for Bevyxxa in the EU. We requested a re-examination of the initial opinion and in July 2018, we received a negative re-examination opinion from the CHMP. The European Commission adopted the CHMP decision in September 2018. Failure to obtain marketing approval of Bevyxxa in the EU will reduce the commercial potential of Bevyxxa and could also have a negative impact on our efforts to commercialize and obtain market acceptance for Bevyxxa in the US market.

If serious adverse side effects are identified with respect to any of our product candidates or either of our approved products, we may need to abandon our development of that product candidate or discontinue sale of that product.

It is impossible to guarantee when or if any of our product candidates will prove safe enough to receive regulatory approval. In addition, there can be no assurance that our clinical studies will identify all relevant safety issues. Known or previously unidentified adverse side effects can adversely affect regulatory approvals or marketing of approved products. In such an event, we might need to abandon marketing efforts or development of that product or product candidate or enter into a partnership to continue development.

While no serious adverse side effects have been observed in our completed healthy subject studies with Andexxa, adverse effects have been observed in our ANNEXA-4 study in bleeding patients. Additionally, there is a risk that adverse events may be reported in our post-marketing randomized controlled trial of Andexxa, additional clinical experience or repeat doses that are determined to have been caused by Andexxa. Some protein-based biologics have encountered problems with immunogenicity, that is, their tendency to trigger an unwanted immune response against themselves. To date, no neutralizing antibodies against Andexxa or antibodies to Factor X or Xa have been detected; however there is still a risk that such antibodies could be identified through our ANNEXA-4 patient study results, additional clinical experience or from repeat doses. In addition, in our ANNEXA-4 patient trial, reversing the anticoagulant activity of Factor Xa inhibitors in patients with life threatening or uncontrolled bleeding who have underlying medical conditions requiring anticoagulation has been associated with thromboembolic events, ischemic events, cardiac arrest and sudden deaths, and the FDA has included a boxed warning in the Andexxa label to this effect.

Bevyxxa, like all currently marketed inhibitors of Factor Xa, carries some risk of life-threatening bleeding. In addition, patients taking Bevyxxa in our Phase 2 studies had an increased rate of gastrointestinal issues, such as diarrhea, nausea and vomiting, and other side effects such as back pain, dizziness, headaches, rashes and insomnia as compared to subjects taking a placebo or an active comparator.

If a regulatory agency discovers adverse events of unanticipated severity or frequency it may impose restrictions on that product or us, including requiring withdrawal of the product from the market. Among other legal and administrative actions, a regulatory agency may:

- mandate modifications to product labelling or promotional materials or require us to provide corrective information to healthcare practitioners;
- suspend any regulatory approvals;
- suspend any ongoing clinical trials;
- refuse to approve pending applications or supplements to approved applications filed by us, our partners or our potential future partners;
- impose restrictions on operations, including costly new manufacturing requirements; or
- seize or detain products or require a product recall.

In addition, the occurrence of any of the foregoing, even if promptly remedied, could negatively impact the perception of us or the relevant product among the medical community, patients or third-party payors.

The FDA’s approval of Andexxa was limited to patients treated with rivaroxaban and apixaban, when reversal of anticoagulation is needed due to life-threatening or uncontrolled bleeding, and additional clinical studies and regulatory applications will be required to expand Andexxa indications. We can provide no assurances that such clinical studies or regulatory applications will be successful.

We are developing Andexxa as a universal antidote for patients receiving a Factor Xa inhibitor when reversal of anticoagulation is needed, such as in life-threatening or uncontrolled bleeding or for emergency surgery/urgent

procedures. Our approval of Andexxa was limited to patients treated with rivaroxaban and apixaban, when reversal of anticoagulation is needed due to life-threatening or uncontrolled bleeding. Our studies have not yet included patients requiring emergency surgery or urgent procedures and we do not anticipate obtaining this indication without clinical data. We expect that we will also be required to provide additional clinical data to support addition to our label of other Factor Xa inhibitors, including Bevyxxa, edoxaban and enoxaparin. Additional clinical studies will

require additional time and expense and may not prove successful. Limitations in our label for Andexxa will reduce the number of patients for whom Andexxa is indicated and could reduce the size of the anticipated market and our financial prospects. In addition, our label for Andexxa includes a boxed warning that treatment with Andexxa has been associated with serious and life threatening adverse events, thromboembolic events, ischemic events, cardiac arrest and sudden deaths. This boxed warning may adversely impact market acceptance and the commercial potential of Andexxa. There can be no assurance that further clinical experience will provide a basis to remove this boxed warning.

3) RISKS RELATED TO OUR RELIANCE ON THIRD PARTIES

We rely on single source third-party contract manufacturing organizations to manufacture and supply Andexxa, Bevyxxa and our product candidates for us. If one of our suppliers or manufacturers fails to perform adequately or fulfill our needs, we may be required to incur significant costs and devote significant efforts to find new suppliers or manufacturers. We may also face significant delays in the development and commercialization of our product candidates.

We do not own facilities for clinical-scale or commercial manufacturing of our product candidates and we rely on third-party suppliers to manufacture Andexxa, Bevyxxa and our product candidates. For example, we have contracted with Lonza to manufacture Andexxa bulk drug substance and Baxter to manufacture drug product to support our commercial launch. We rely on Hovione to manufacture the active pharmaceutical ingredient for Bevyxxa and Patheon Inc. (part of Thermo Fisher Scientific) to manufacture drug product to supply Bevyxxa. We also rely or expect to rely on other third party providers for raw materials, packaging, labeling and supply chain warehousing and distribution. If we and our suppliers cannot agree to the terms and conditions for them to provide the drug supply necessary for our clinical and commercial needs, or if any single source supplier breaches an agreement with us, or terminates the agreement in response to an alleged breach by us or otherwise becomes unable to fulfill its supply obligations, we would not be able to manufacture and distribute the product candidate until a qualified alternative supplier is identified, which could also significantly disrupt, delay the development of, and impair our ability to commercialize, our product candidates. In addition, lead times for our manufacturing and contractual requirements of our third-party manufacturers require us to estimate product demand in advance. If our forecasts are not accurate, we may experience shortfalls or surplus of product. If we do not manufacture enough product, we may experience stock-outs and interruption of supply of our products. If we manufacture a surplus of product, we may experience spoilage from product expiration and incur manufacturing expenses which were not required. We have fixed manufacturing commitments with our third-party manufacturers which are on a “take-or-pay” basis which could require us to pay for manufacturing costs even if we eventually do not need the capacity forecasted at the time we entered into such commitments. The financial impact of either stock-outs or a product surplus could be significant with respect to financial commitments and the effect on our financial performance.

The manufacture of pharmaceutical products in compliance U.S. and foreign regulatory manufacturing requirements, requires significant expertise and capital investment, including the development of advanced manufacturing techniques and process controls. Manufacturers of pharmaceutical products often encounter difficulties in production, including difficulties with production costs and yields, quality assurance, including stability of the product candidate and quality control testing, shortages of qualified personnel, as well as compliance with strictly enforced regulatory requirements, other federal and state regulatory requirements and foreign regulations. If our manufacturers were to encounter any of these difficulties or otherwise fail to comply with their obligations to us or under applicable regulations and agreements, our ability to provide the drug supply necessary for our clinical studies and commercial needs would be jeopardized. Any delay or interruption in the supply of clinical study materials could delay the completion of our clinical studies, increase the costs associated with maintaining our clinical study programs and, depending upon the period of delay, require us to commence new studies at significant additional expense or terminate the studies completely.

All manufacturers of our product candidates must comply with regulatory manufacturing requirements enforced by the U.S. and foreign regulatory authorities through their facilities inspection programs. These requirements include, among other things, quality control, quality assurance and the maintenance of records and documentation. Manufacturers of our product candidates may be unable to comply with these manufacturing requirements and with other FDA, state and foreign regulatory requirements. The FDA or similar foreign regulatory agencies may also

implement new standards at any time, or change their interpretation and enforcement of existing standards for manufacturing, packaging or testing of products. We have limited control over our manufacturers' compliance with these regulations and standards. A failure to comply with these requirements may result in fines and civil penalties, suspension of production, suspension or delay in product approval, product seizure or recall or withdrawal of product approval. If the safety of any product supplied is compromised due to our manufacturers' failure to adhere to applicable laws or for other reasons, we may not be able to obtain regulatory approval for or successfully commercialize our products and we may be held liable for any injuries sustained as a result. Any of these factors could cause a delay or interruption of clinical studies, regulatory submissions, approvals or commercialization of our product candidates, entail higher costs or adversely affect our reputation.

Although alternative sources of supply exist, the number of third-party suppliers with the necessary manufacturing and regulatory expertise and facilities to manufacture biologics is limited, and it could be expensive and take a significant amount of time to arrange for alternative suppliers, which could have a material adverse effect on our business. New suppliers of any product candidate would be required to qualify under applicable regulatory requirements and would need to have sufficient rights under applicable intellectual property laws to the method of manufacturing the product candidate. Obtaining the necessary regulatory approvals or other qualifications under applicable regulatory requirements and ensuring non-infringement of third-party intellectual property rights could result in a significant interruption of supply and could require the new manufacturer to bear significant additional costs which may be passed on to us.

We rely on third parties to conduct our clinical studies, and those third parties may not perform satisfactorily, including failing to meet deadlines for the completion of such studies.

We do not independently conduct clinical studies of our product candidates. We rely on third parties, such as contract research organizations ("CROs"), clinical data management organizations, medical institutions and clinical investigators, to perform this function. Our reliance on these third parties for clinical development activities reduces our control over these activities but does not relieve us of our responsibilities. We remain responsible for ensuring that each of our clinical studies is conducted in accordance with the general investigational plan and protocols for the study.

Moreover, the regulatory authorities require us to comply with standards, commonly referred to as good clinical practices, for conducting, recording and reporting the results of clinical studies to assure that data and reported results are credible and accurate and that the rights, integrity and confidentiality of patients in clinical studies are protected. Furthermore, these third parties may also have relationships with other entities, some of which may be our competitors. If these third parties do not successfully carry out their contractual duties, meet expected deadlines or conduct our clinical studies in accordance with regulatory requirements or our stated protocols, we will not be able to obtain, or may be delayed in obtaining, regulatory approvals for our product candidates and will not be able to, or may be delayed in our efforts to, successfully develop our products and our product candidates.

We also rely on other third parties to store and distribute supplies for our clinical studies. Any performance failure on the part of our existing or future distributors could delay clinical development or regulatory approval of our product candidates or commercialization of our products, producing additional losses and depriving us of potential product revenue.

We may enter into collaborations that place the development and commercialization of our products and product candidates outside our control, require us to relinquish important rights or may otherwise be on terms unfavorable to us, and if our collaborations are not successful, our product candidates may not reach their full market potential.

We may enter into additional collaboration agreements with third parties with respect to our product candidates for the commercialization of the candidates both inside and outside the United States, or for other purposes. For example, we have out-licensed development and commercial rights to Andexxa in Japan. In addition, depending on our capital requirements, development and commercialization costs, need for additional therapeutic expertise and other factors, it is possible that we will enter into broader development and commercialization arrangements with respect to our product candidates. Our likely collaborators for any distribution, marketing, licensing or broader collaboration arrangements include large and mid-size pharmaceutical companies, regional and national pharmaceutical companies and biotechnology companies. We will have limited control over the amount and timing

of resources that our collaborators dedicate to the development or commercialization of our product candidates. Our ability to generate revenue from these arrangements will depend in part on our collaborators' abilities to successfully perform the functions assigned to them in these arrangements.

Collaborations involving our product candidates are subject to numerous risks, which may include the following:

- collaborators have significant discretion in determining the efforts and resources that they will apply to any such collaborations;
- collaborators may not pursue development and commercialization of our product candidates or may elect not to continue or renew development or commercialization programs based on clinical study results, changes in their strategic focus due to the acquisition of competitive products, availability of funding or other external factors, such as a business combination that diverts resources or creates competing priorities;
- collaborators may delay clinical studies, provide insufficient funding for a clinical study program, stop a clinical study, abandon a product candidate, repeat or conduct new clinical studies or require a new formulation of a product candidate for clinical testing;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our products or product candidates;
- a collaborator with marketing and distribution rights to one or more products may not commit sufficient resources to their marketing and distribution;
- collaborators may not properly maintain or defend our intellectual property rights or may use our intellectual property or proprietary information in a way that gives rise to actual or threatened litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential liability;
- disputes may arise between us and a collaborator that causes the delay or termination of the research, development or commercialization of our product candidates or that results in costly litigation or arbitration that diverts management attention and resources;
- collaborations may be terminated and, if terminated, may result in a need for additional capital to pursue further development or commercialization of the applicable product candidates; and
- collaborators may own or co-own intellectual property covering our products that results from our collaborating with them, and in such cases, we may not have the exclusive right to commercialize such intellectual property.

Any termination or disruption of our collaboration with potential collaborators could result in delays in the development and commercialization of our product candidates, increases in our costs to develop and commercialize the product candidate, or the termination of development of a product candidate.

4) RISKS RELATED TO THE OPERATION OF OUR BUSINESS

Our future success depends on our ability to retain our key executives, and if we are not able to retain these members of our management, or retain or recruit additional management and other key personnel, our business will suffer.

Recruiting and retaining leadership and other key personnel is critical to our success. Our former Chief Executive Officer, William Lis, retired in 2018 and our board of directors appointed Scott Garland to serve as our President and Chief Executive Officer. We are highly dependent on Mr. Garland and the other principal members of our executive and leadership teams. We may not be able to attract and retain management and other key personnel in the future, due to the intense competition for qualified personnel among biotechnology, pharmaceutical and other businesses, particularly in the San Francisco Bay Area. We also may not be able to attract and retain these personnel on acceptable terms given the competition among numerous pharmaceutical and biotechnology companies for similar personnel. We also experience competition for the hiring of personnel from universities, research institutions

28

and technology companies. In addition, we rely on consultants and advisors to assist us in formulating our business strategies. Our consultants and advisors may also perform services for companies other than us and may have commitments under consulting or advisory contracts with other entities that may limit their availability to us. If we are not able to attract, retain and motivate necessary personnel to accomplish our business objectives, we may experience constraints that will significantly impede the achievement of our development objectives, our ability to raise additional capital and our ability to implement our business strategy.

Under the terms of their employment, our executives may terminate their employment with us at any time. The loss of the services of any of these people could impede the achievement of our research, development and commercialization objectives.

We expect to expand our development, regulatory and sales and marketing capabilities, and as a result, we may encounter difficulties in managing our growth, which could disrupt our operations.

Over the next several years, we may experience significant growth in the number of our employees and the scope of our operations, particularly in the areas of drug development, regulatory affairs, quality, commercial compliance, medical affairs, and sales and marketing. To manage our anticipated future growth, we must continue to implement and improve our managerial, operational and financial systems, expand our facilities and continue to recruit and train additional qualified personnel. Due to our limited financial resources and the limited experience of our management team in managing a company with such anticipated growth, we may not be able to effectively manage the expansion of our operations or recruit and train additional qualified personnel. The physical expansion of our operations may lead to significant costs and may divert our management and business development resources. Any inability to manage growth could delay the execution of our business plans or disrupt our operations.

We incur significant costs as a result of operating as a public company, and our management is required to devote substantial time to existing and new public company compliance and reporting regulations.

As a public company, we incur significant legal, accounting and other expenses. For example, the Sarbanes-Oxley Act, and rules of the Securities and Exchange Commission (“SEC”) and those of The Nasdaq Stock Market, or the Nasdaq, have imposed various requirements on public companies including requiring establishment and maintenance of effective disclosure and financial controls. Our management and other personnel have and will need to continue to devote a substantial amount of time to these compliance initiatives. Moreover, these rules and regulations are continuously being revised, have increased and will continue to increase our legal and financial compliance costs and will make some activities more time-consuming and costly.

The Sarbanes-Oxley Act requires, among other things, that we maintain effective internal control over financial reporting and disclosure controls and procedures. In particular, we must perform system and process evaluation and testing of our internal control over financial reporting to allow management to report on the effectiveness of our internal control over financial reporting, as required by Section 404 of the Sarbanes-Oxley Act. In addition, we are required to have our independent registered public accounting firm attest to the effectiveness of our internal control over financial reporting. Our compliance with Section 404 of the Sarbanes-Oxley Act, as applicable, requires us to incur substantial accounting expense and expend significant management efforts. We currently do not have an internal audit group, and we will need to continue to hire additional accounting and financial staff with appropriate public company experience and technical accounting knowledge. If we or our independent registered public accounting firm identify deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, the market price of our stock could decline and we could be subject to sanctions or investigations by the Nasdaq, the SEC or other regulatory authorities, which would require additional financial and management resources.

Our ability to successfully implement our business plan and comply with Section 404 of the Sarbanes-Oxley Act, as applicable, requires us to be able to prepare timely and accurate financial statements. We expect that we will need to continue to improve existing, and implement new operational and financial systems, procedures and controls to manage our business effectively. Any delay in the implementation of, or disruption in the transition to, new or enhanced systems, procedures or controls, may cause our operations to suffer and we may be unable to conclude that our internal control over financial reporting is effective and to obtain an unqualified report on internal controls from our auditors as required under Section 404 of the Sarbanes-Oxley Act. If we fail to maintain an effective system of

internal control over financial reporting, we may not be able to accurately report our financial results, and current and potential stockholders may lose confidence in our financial reporting. This, in turn, could have an adverse impact on trading prices for our common stock, and could adversely affect our ability to access the capital markets.

Product liability lawsuits and claims against us could cause us to incur substantial liabilities and could limit product sales.

We face an inherent risk of product liability exposure related to the testing of our product candidates in human clinical studies, and the commercial manufacturing, distribution and sale of Andexxa and Bevyxxa. For example, the manufacturers of currently marketed Factor Xa inhibitors and other manufacturers of anticoagulants have faced substantial litigation due to certain alleged bleeding risks. In addition, in our ANNEXA-4 patient trial, reversing the anticoagulant activity of Factor Xa inhibitors in patients with underlying medical conditions requiring anticoagulation has been associated with thromboembolic events, ischemic events, cardiac arrest and sudden deaths, and the FDA has included a boxed warning in the Andexxa label to this effect. If we cannot successfully defend ourselves against claims that Andexxa, Bevyxxa or our product candidates or products caused injuries, we will incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

- decreased demand for our products;
- injury to our reputation and significant negative media attention;
- withdrawal of patients from clinical studies or cancellation of studies;
- significant costs to defend the related litigation;
- substantial monetary awards to patients;
- loss of revenue; and
- the inability to commercialize any additional products that we may develop.

We may not have sufficient insurance coverage for future product liability claims. We may not be able to obtain insurance in amounts or scope sufficient to provide us with adequate coverage against all potential liabilities. Any product liability claims brought against us, with or without merit, could increase our product liability insurance rates or prevent us from securing continuing coverage, harm our reputation in the industry, significantly increase our expenses, and reduce product sales. Product liability claims in excess of our insurance coverage would be paid out of cash reserves, harming our financial condition and operating results.

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

Because we have limited financial and managerial resources, we focus on sales, marketing and research programs and products and product candidates for specific indications. As a result, we may forego or delay pursuit of opportunities with other products or product candidates or other indications that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. Our spending on current and future research and development programs and product candidates for specific indications may not yield any commercially viable products.

If we do not accurately evaluate the commercial potential or target market for a particular product or product candidate, we may relinquish valuable rights through collaboration, licensing, or other royalty arrangements in cases in which it would have been advantageous for us to retain sole development and commercialization rights.

If we fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could have a material adverse effect on the success of our business.

We are subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. Our operations involve the use of hazardous and flammable materials, including chemicals and biological materials. Our

operations also produce hazardous waste products. We generally contract with third parties for the disposal of these materials and wastes. We cannot eliminate the risk of contamination or injury from these materials. In the event of contamination or injury resulting from our use of hazardous materials, we could be held liable for any resulting damages, and any liability could exceed our resources. We also could incur significant costs associated with civil or criminal fines and penalties.

Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, this insurance may not provide adequate coverage against potential liabilities. We do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of biological or hazardous materials. In addition, we may be required to incur substantial costs to comply with current or future environmental, health and safety laws and regulations. These current or future laws and regulations may impair our research, development or production efforts. Failure to comply with these laws and regulations also may result in substantial fines, penalties or other sanctions.

Business disruptions could seriously harm our future revenue and financial condition and increase our costs and expenses.

Our operations could be subject to earthquakes, power shortages, telecommunications failures, floods, hurricanes, typhoons, fires, extreme weather conditions, medical epidemics and other natural or manmade disasters or business interruptions. The occurrence of any of these business disruptions could seriously harm our operations and financial condition and increase our costs and expenses. Our corporate headquarters is located in California near major earthquake faults. Our operations and financial condition could suffer in the event of a major earthquake, fire or other natural or manmade disaster.

If we obtain approval to commercialize any approved products outside of the United States, a variety of risks associated with international operations could materially adversely affect our business. If any product candidates that we may develop are approved for commercialization outside the United States, we will be subject to additional risks related to entering into international business relationships, including:

- different regulatory requirements for drug approvals in foreign countries;
- differing payor reimbursement regimes, governmental payors or patient self-pay systems and price control;
- reduced protection for intellectual property rights;
- unexpected changes in tariffs, trade barriers and regulatory requirements;
- economic weakness, including inflation or political instability in particular foreign economies and markets;
- compliance with tax, employment, immigration and labor laws for employees living or traveling abroad;
- foreign taxes, including withholding of payroll taxes;
- foreign currency fluctuations, which could result in increased operating expenses and reduced revenue, and other obligations incident to doing business in another country;
- workforce uncertainty in countries where labor unrest is more common than in the United States;
- production shortages resulting from any events affecting raw material supply or manufacturing capabilities abroad; and
- business interruptions resulting from geopolitical actions, including war and terrorism, or natural disasters including earthquakes, typhoons, floods and fires.

In connection with our Andexxa and Bevyxxa development, we are currently utilizing certain suppliers outside of the United States, which subjects us to certain of the above risks.

31

We may be subject to information technology system failures, network disruptions and breaches in data security.

We are increasingly dependent upon information technology systems and infrastructure to conduct critical operations and generally operate our business, which includes using information technology systems to process, transmit and store electronic information in our day-to-day operations, including customer, employee and company data. The size and complexity of our computer systems make them potentially vulnerable to breakdown, malicious intrusion and random attack. We also store certain information with third parties. Our information systems and those of our third-party vendors are subjected to computer viruses or other malicious codes, unauthorized access attempts, and cyber- or phishing-attacks and also are vulnerable to an increasing threat of continually evolving cybersecurity risks and external hazards. Disruption, degradation, or manipulation of these systems and infrastructure through intentional or accidental means could impact key business processes. Cyber-attacks against the Company's systems and infrastructure could result in exposure of confidential information, the modification of critical data, and/or the failure of critical operations. Likewise, improper or inadvertent employee behavior, including data privacy breaches by employees and others with permitted access to our systems, may pose a risk that sensitive data may be exposed to unauthorized persons or to the public. Any such breach could compromise our networks, and the information stored therein could be accessed, publicly disclosed, lost or stolen. Such attacks could result in our intellectual property and other confidential information being lost or stolen, disruption of our operations, and other negative consequences, such as increased costs for security measures or remediation costs, and diversion of management attention. If such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our drug development programs. For example, the loss of clinical study data from completed or ongoing clinical studies for any of our product candidates could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. To the extent that any disruption or security breach was to result in a loss of or damage to our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability and the further development of our product candidates could be delayed. In addition, with planned operations in EU, we will need to comply with the General Data Protection Regulation ("GDPR") provisions relating to personal data, use of third party processors, data breach notifications and transfer of personal data out of the EU to the United States. The GDPR imposes large penalties for noncompliance and has the potential to increase our responsibility and liability in relation of personal data that we process, including in clinical trials, and we are required to put in place and maintain additional mechanisms to ensure compliance with the GDPR, including increased company and vendor technology and data management measures and cybersecurity investments.

5) RISKS RELATED TO INTELLECTUAL PROPERTY

If we fail to comply with our obligations in our intellectual property licenses from third parties, we could lose license rights that are important to our business.

We are a party to intellectual property license agreements with third parties, including with respect to Bevyxxa, cerdulatinib, and other early stage programs, and we expect to enter into additional license agreements in the future. Our existing license agreements impose, and we expect that our future license agreements will impose, various supply, support, diligence, milestone payment, royalty, insurance and other obligations on us. If we fail to comply with these obligations, our licensors may have the right to terminate these agreements or pursue other remedies, in which event we may not be able to develop and market any product that is covered by these agreements or be liable for damages. Termination of licenses or reduction or elimination of our licensed rights may result in our having to negotiate new or reinstated licenses with less favorable terms or our not having sufficient intellectual property rights to operate our business. The occurrence of such events could materially harm our business.

Our ability to successfully commercialize our technology and products may be materially adversely affected if we are unable to obtain and maintain effective intellectual property rights for our technologies and product candidates.

Our success depends in large part on our and our licensors' ability to obtain and maintain patent and other intellectual property protection in the United States and in other countries with respect to our proprietary technology and products. In some circumstances, we may not have the right to control the preparation, filing and prosecution of patent applications, or to maintain the patents, covering technology or products that we license from third parties. Therefore, we cannot be certain that these patents and applications will be prosecuted and enforced in a manner consistent with the best interests of our business. In addition, if our current or future licensors, licensees, or

collaboration partners fail to establish or maintain such patents and other intellectual property rights, or lose rights to those patents and other intellectual property rights, such rights may be reduced or eliminated.

We have sought to protect our proprietary position by filing patent applications in the United States and abroad related to our novel technologies and products that are important to our business. This process is expensive and time-consuming, and we may not be able to file and prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner. It is also possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection. Our existing patents and any future patents we obtain may not be sufficiently broad to prevent others from using our technologies or from developing competing products and technologies.

The patent position of biotechnology and pharmaceutical companies generally is highly uncertain and involves complex legal and factual questions for which legal principles remain unresolved. In recent years patent rights have been the subject of significant litigation. As a result, the issuance, scope, validity, enforceability and commercial value of our and our licensors' patent rights are highly uncertain. Our and our licensors' pending and future patent applications may not result in patents being issued that protect our technology or products or that effectively prevent others from commercializing competitive technologies and products. Changes in either the patent laws or interpretation of the patent laws in the United States and other countries may diminish the value of our patents or narrow the scope of our patent protection. The laws of foreign countries may not protect our rights to the same extent as the laws of the United States, or vice versa. Further, we may not be aware of all third-party intellectual property rights potentially relating to our product candidates. Publications of discoveries in the scientific literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing, or in some cases not at all. Therefore, we cannot be certain that we or our licensors were the first to make the inventions claimed in our owned and licensed patents or pending patent applications, or that we or our licensors were the first to file for patent protection of such inventions.

The Leahy-Smith America Invents Act, or the America Invents Act ("AIA") implemented significant changes to United States patent law. The AIA could increase the uncertainties and costs surrounding the prosecution of our owned or in-licensed patent applications and the enforcement or defense of our owned or in-licensed issued patents, all of which could have a material adverse effect on our business, financial condition, results of operations, and prospects.

We have been and may again become involved in opposition, derivation, reexamination, inter partes review, post-grant review, or other proceedings challenging our patent rights or the patent rights of our licensors, and the outcome of any proceedings are highly uncertain. For example, in November 2013, Zentiva k.s. and Günter SÖLCH separately filed papers with the European Patent Office opposing European Patent 2101760, assigned to Millennium to which we have an exclusive license. The European Patent Office decided in favor of revoking the European patent. Portola has appealed this revocation. Should any of these proceedings or appeals be unsuccessful, this could reduce the scope of, or invalidate, our patent rights, allow third parties to commercialize our technology or products and compete directly with us, without payment to us, or result in our inability to manufacture or commercialize products without infringing third-party patent rights.

Even if our owned and licensed patent applications issue as patents, they may not issue in a form that will provide us with any meaningful protection, prevent competitors from competing with us or otherwise provide us with any competitive advantage. Our competitors may be able to circumvent our owned or licensed patents by developing similar or alternative technologies or products in a non-infringing manner, or by successfully seeking to narrow or invalidate our patents or render them unenforceable. The issuance of a patent is not conclusive as to its inventorship scope, validity or enforceability, and our owned and licensed patents may be challenged in the courts or patent offices in the United States and abroad. Such challenges may result in substantial cost and require significant time from our scientists and management, even if the eventual outcome is favorable to us, and may result in loss of exclusivity or

freedom to operate or in patent claims being narrowed, invalidated or held unenforceable, which could limit our ability to stop or prevent us from stopping others from using or commercializing similar or identical technology and products, or limit the duration of the patent protection of our technology and products.

Given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. As a

result, our owned and licensed patent portfolio may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours or otherwise provide us with a competitive advantage.

If we do not obtain patent term extension and data exclusivity for any product candidates we may develop, our business may be materially harmed.

Depending upon the timing, duration and specifics of any FDA marketing approval of any product candidates we may develop, one or more of our owned or licensed U.S. patents may be eligible for limited patent term extension under the Hatch-Waxman Act. Similar extensions as compensation for patent term lost during regulatory review processes are also available in certain foreign countries and territories, such as in Europe under a Supplementary Patent Certificate. However, we may not be granted an extension in the United States and/or foreign countries and territories because of, for example, failing to exercise due diligence during the testing phase or regulatory review process, failing to apply within applicable deadlines, failing to apply prior to expiration of relevant patents, or otherwise failing to satisfy applicable requirements. Moreover, the applicable time period or the scope of patent protection afforded could be less than we request. For example, we have applied for patent term extensions at the U.S. Patent and Trademark Office (USPTO) within the applicable deadline after receiving approval for Andexxa and Bevyxxa, but have not yet received a final determination. If we are unable to obtain patent term extension or the term of any such extension is shorter than what we request or we fail to choose the most optimal patents to extend, our competitors may obtain approval of competing products following our patent expiration, and our business, financial condition, results of operations and prospects could be materially harmed.

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

Competitors or other parties may infringe our patents. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time-consuming. In addition, in an infringement proceeding, a court may decide that a patent of ours is invalid or unenforceable, or may refuse to stop the other party from using the technology at issue on the grounds that our patents do not cover the technology in question. An adverse result in any litigation proceeding could put one or more of our patents at risk of being invalidated or interpreted narrowly. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, there could be public announcements of the results of hearings, motions, or other interim proceedings or developments, and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock.

Third parties may initiate legal proceedings alleging that we are infringing their intellectual property rights, the outcome of which would be uncertain and could have a material adverse effect on the success of our business.

Our commercial success depends upon our ability and the ability of our collaborators to develop, manufacture, market and sell our products and product candidates and use our proprietary technologies without infringing, misappropriating or otherwise violating the proprietary rights or intellectual property of third parties. We may become party to, or be threatened with, future adversarial proceedings or litigation regarding third party intellectual property rights with respect to our products, product candidates, and technology, including interference proceedings before the USPTO. An interference proceeding is a proceeding before the USPTO to determine the priority among multiple patents or patent applications. Third parties may assert infringement claims against us based on existing patents or patents that may be granted in the future. Any litigation involving defense against claims of infringement, misappropriation or other violation of proprietary or intellectual property rights, regardless of the merit of such claims, would involve substantial litigation expense and would be a substantial diversion of management time. If we are found to infringe a third-party’s intellectual property rights, we could be required to pay substantial damages, including

treble damages and attorneys' fees if we are found to be willfully infringing a third party's patents. We may also be required to indemnify parties with whom we have contractual relationships against such claims. If a patent infringement suit were brought against us, we could be forced to stop or delay research, development, manufacturing or sales of the product or product candidate that is the subject of the suit. We also could be required to obtain a license from such third-party to continue developing and marketing our products and technology. However, we may not be able to obtain any required license on commercially reasonable terms or at all.

Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. We could be forced, including by court order, to cease commercializing the infringing technology or product. A finding of infringement could prevent us from commercializing our products or

product candidates or force us to cease some of our business operations, which could materially harm our business. Claims that we have misappropriated the confidential information or trade secrets of third parties can have a similar negative impact on our business.

We may be unable to protect the confidentiality of our trade secrets, thus harming our business and competitive position.

In addition to our patented technology and products, we rely upon trade secrets, including unpatented know-how, technology and other proprietary information to develop and maintain our competitive position, which we seek to protect, in part, by confidentiality agreements with our employees and our collaborators and consultants. We also have agreements with our employees and consultants that obligate them to assign their inventions to us. However, it is possible that technology relevant to our business will be independently developed by a person that is not a party to such an agreement. Furthermore, if the employees, consultants or collaborators that are parties to these agreements breach or violate the terms of these agreements, we may not have adequate remedies for any such breach or violation, and we could lose our trade secrets through such breaches or violations. Further, our trade secrets could be disclosed, misappropriated or otherwise become known or be independently discovered by our competitors. In addition, intellectual property laws in foreign countries may not protect our intellectual property to the same extent as the laws of the United States. If our trade secrets are disclosed or misappropriated, it would harm our ability to protect our rights and have a material adverse effect on our business.

We may be subject to claims that our employees have wrongfully used or disclosed intellectual property of their former employers. Intellectual property litigation or proceedings could cause us to spend substantial resources and distract our personnel from their normal responsibilities.

Many of our employees were previously employed at universities or other biotechnology or pharmaceutical companies, including our competitors or potential competitors. Although we try to ensure that our employees do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that we or these employees have used or disclosed intellectual property, including trade secrets or other proprietary information, of any such employee’s former employer. Litigation may be necessary to defend against these claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. Even if we are successful in defending against such claims, litigation or other legal proceedings relating to intellectual property claims may cause us to incur significant expenses, and could distract our technical and management personnel from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Such litigation or proceedings could substantially increase our operating losses and reduce our resources available for development activities. We may not have sufficient financial or other resources to adequately conduct such litigation or proceedings. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their substantially greater financial resources. Uncertainties resulting from the initiation and continuation of patent litigation or other intellectual property-related proceedings could have a material adverse effect on our ability to compete in the marketplace.

6) RISKS RELATED TO GOVERNMENT REGULATION

The regulatory approval process is expensive, time consuming and uncertain and may prevent us from obtaining approvals for the commercialization of some or all of our product candidates.

The research, testing, manufacturing, labeling, approval, selling, import, export, marketing and distribution of drug products are subject to extensive regulation by the FDA and other regulatory authorities in the United States and other

countries, which regulations differ from country to country. We will not be permitted to market our product candidates in the United States until we receive approval of an NDA or a BLA, from the FDA. Obtaining approval of an NDA or BLA can be a lengthy, expensive and uncertain process that may not be successful. In addition, failure to comply with FDA and other applicable U.S. and foreign regulatory requirements may subject us to administrative or judicially imposed sanctions, including the following:

- warning letters;
- civil or criminal penalties and fines;
- injunctions;

- suspension or withdrawal of regulatory approval;
- suspension of any ongoing clinical studies;
- voluntary or mandatory product recalls and publicity requirements;
- refusal to accept or approve applications for marketing approval of new drugs or biologics or supplements to approved applications submitted by us;
- restrictions on operations, including costly new manufacturing requirements; or
- seizure or detention of our products or import bans.

Prior to receiving approval to commercialize any of our product candidates in the United States or abroad, we must demonstrate with substantial evidence from well-controlled clinical studies, and to the satisfaction of the FDA and other regulatory authorities abroad, that such product candidates are safe and effective for their intended uses. Results from preclinical studies and clinical studies can be interpreted in different ways. Even if we and our collaboration partners believe the preclinical or clinical data for our product candidates are promising, such data may not be sufficient to support approval by the FDA and other regulatory authorities. Administering any of our product candidates to humans may produce undesirable side effects, which could interrupt, delay or cause suspension of clinical studies of our product candidates and result in the FDA or other regulatory authorities denying approval of our product candidates for any or all targeted indications.

Regulatory approval of an NDA or BLA is not guaranteed, and the approval process is expensive and may take several years. The regulatory authorities also have substantial discretion in the approval process. Despite the time and expense exerted, failure can occur at any stage, and we could encounter problems that cause us to abandon or repeat clinical studies, or perform additional preclinical studies and clinical studies. The number of preclinical studies and clinical studies that will be required for FDA approval varies depending on the product candidate, the disease or condition that the product candidate is designed to address and the regulations applicable to any particular product candidate. The FDA can delay, limit or deny approval of a product candidate for many reasons, including, but not limited to, the following:

- a product candidate may not be deemed safe or effective;
- FDA officials may not find the data from preclinical studies and clinical studies sufficient;
- the FDA may find our manufacturing data insufficient to support approval
- the FDA might not approve our or our third-party manufacturer's processes or facilities; or
- the FDA may change its approval policies or adopt new regulations.

If any of our product candidates fails to demonstrate safety and efficacy in clinical studies or does not gain regulatory approval, our business and results of operations will be materially and adversely harmed.

Unfavorable pricing regulations, third-party reimbursement practices or healthcare reform initiatives could harm our business.

There is increasing pressure on biotechnology companies to reduce healthcare costs. In the U.S., these pressures come from a variety of sources, such as managed care groups, institutional, and government purchasers. Increased purchasing power of entities that negotiate on behalf of federal healthcare programs and private sector beneficiaries could increase pricing pressures in the future. Such pressures may also increase the risk of litigation or investigation by the government regarding pricing calculations. The biotechnology industry will likely face greater regulation and political and legal action in the future.

The regulations that govern marketing approvals, pricing and reimbursement for new therapeutic products vary widely from country to country. Some countries, including many EU member countries, require approval of the sale price of a product before it can be marketed. In many countries, including EU member countries, the pricing review period begins after marketing or product licensing approval is granted. In some foreign markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. In

36

some foreign markets, including the EU member countries, current standard of care and/or competitive products may be used as a benchmark or reference to determine pricing and reimbursement level for novel products such as Andexxa and Bevyxxa. To the extent that comparators are available at lower prices than our anticipated pricing for Andexxa or Bevyxxa, the pricing and reimbursement level of our products in the EU could be negatively impacted. As a result, we might obtain regulatory approval for a product in a particular country, but then be subject to price regulations that delay our commercial launch of the product and negatively impact the revenue we are able to generate from the sale of the product in that country, or even reduce the commercial viability of the product to an extent that prevents the launch altogether.

Adverse pricing limitations may hinder our ability to recoup our investment in Andexxa, Bevyxxa or one or more product candidates, even if our product candidates obtain regulatory approval. Adverse pricing limitations prior to approval will also adversely affect us by reducing our commercial potential. Our ability to commercialize any products successfully also will depend in part on the extent to which coverage and reimbursement for these products and related treatments becomes available from government health administration authorities, private health insurers and other organizations. Government authorities and third-party payors, such as private health insurers and health maintenance organizations, decide which medications they will cover and establish reimbursement levels.

A primary trend in the U.S. healthcare industry and elsewhere is cost containment. Government authorities and these third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. Increasingly, third-party payors are requiring that companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. We are engaged in ongoing negotiations with hospitals and third-party payors regarding coverage, reimbursement and formulary placement. We cannot be sure that coverage and reimbursement will be available for any product that we commercialize and, if reimbursement is available, what the level of reimbursement will be. Reimbursement may impact the demand for, or the price of, any product for which we obtain marketing approval. Obtaining reimbursement for our products may be particularly difficult because of the higher prices often associated with products administered under the supervision of a physician. If reimbursement is not available or is available only to limited levels, we may not be able to successfully commercialize any product candidate that we successfully develop.

There may be significant delays in obtaining reimbursement for approved products, and coverage may be more limited than the purposes for which the product is approved by the FDA or regulatory authorities in other countries. Moreover, eligibility for reimbursement does not imply that any product will be paid for in all cases or at a rate that covers our costs, including research, development, manufacture, sale and distribution. Interim payments for new products, if applicable, may also not be sufficient to cover our costs and may not be made permanent. Payment rates may vary according to the use of the product and the clinical setting in which it is used, may be based on payments allowed for lower cost products that are already reimbursed and may be incorporated into existing payments for other services. Net prices for products may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of products from countries where they may be sold at lower prices than in the United States. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement policies. Our inability to promptly obtain coverage and profitable payment rates from both government funded and private payors for our existing or new products that we develop could have a material adverse effect on our operating results, our ability to raise capital needed to commercialize products and our overall financial condition.

Healthcare reform measures could hinder or prevent the commercial success of our products or our product candidates.

In the United States, there have been and we expect there will continue to be a number of legislative and regulatory changes to the healthcare system in ways that could affect our future revenue and profitability and the future revenue

and profitability of our potential customers. Federal and state lawmakers regularly propose and, at times, enact legislation that would result in significant changes to the healthcare system, some of which are intended to contain or reduce the costs of medical products and services. For example, one of the most significant healthcare reform measures in decades, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, collectively, the Affordable Care Act, was enacted in 2010. The Affordable Care Act contains a number of provisions, including those governing enrollment in federal healthcare programs, reimbursement changes

and fraud and abuse measures, all of which will impact existing government healthcare programs and will result in the development of new programs. The Affordable Care Act, among other things:

- imposed a non-deductible annual fee on pharmaceutical manufacturers or importers who sell "branded prescription drugs," effective 2011;
- increased the minimum level of Medicaid rebates payable by manufacturers of brand-name drugs from 15.1% to 23.1% of the "average manufacturer price", effective 2011;
- expanded Medicaid drug rebates to cover drugs paid by Medicaid managed care organizations;
- changed the Medicaid rebate rates for line extensions or new formulations of oral solid dosage form;
- expanded the types of entities eligible for the "Section 340B discounts" for outpatient drugs;
- required manufacturers to participate in a coverage gap discount program, under which they must now agree to offer 70% point-of-sale discounts off negotiated prices of applicable branded drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer's outpatient drugs to be covered under Medicare Part D; and
- created a process for approval of biologic therapies that are similar or identical to approved biologics and provides 12 years of regulatory exclusivity for biologics.

Legislative changes to or regulatory changes under the Affordable Care Act remain possible and appear likely in the 116th U.S. Congress and under the current administration. In addition, since January 2017, the President has signed two Executive Orders and other directives designed to delay the implementation of certain provisions of the Affordable Care Act or otherwise circumvent some of the requirements for health insurance mandated by the Affordable Care Act. Concurrently, Congress has considered legislation that would repeal or repeal and replace all or part of the Affordable Care Act. While Congress has not passed comprehensive repeal legislation, two bills affecting the implementation of certain taxes under the Affordable Care Act have been signed into law. The Tax Cuts and Jobs Act of 2017, or Tax Act included a provision which repealed, effective January 1, 2019, the tax-based shared responsibility payment imposed by the Affordable Care Act on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the "individual mandate". On January 22, 2018, the President signed a continuing resolution on appropriations for fiscal year 2018 delayed the implementation of certain Affordable Care Act-mandated fees, including the so-called "Cadillac" tax on certain high cost employer-sponsored insurance plans, the annual fee imposed on certain health insurance providers based on market share, and the medical device excise tax on non-exempt medical devices. The Bipartisan Budget Act of 2018 ("BBA"), among other things, amended the Affordable Care Act, effective January 1, 2019, to close the coverage gap in most Medicare drug plans, commonly referred to as the "donut hole". On December 14, 2018, a Texas U.S. District Court Judge ruled that the Affordable Care Act is unconstitutional in its entirety because the "individual mandate" was repealed by Congress as part of the Tax Act. While the Texas U.S. District Court Judge, as well as the Presidential administration and the Centers for Medicare & Medicaid Services, or CMS, have stated that the ruling will have no immediate effect pending appeal of the decision, it is unclear how this decision, subsequent appeals, and other efforts to repeal and replace the Affordable Care Act will impact the Affordable Care Act and our business. Moreover, several attempts have been made to reduce the length of exclusivity for biologic therapies, via federal government budget proposals and proposed legislation. For example, the Price Relief, Innovation, and Competition for Essential Drugs ("PRICED") Act, introduced in 2016, would have reduced exclusivity for biological drugs from 12 to seven years. We cannot predict how future federal or state legislative or administrative changes relating to healthcare reform will affect our business.

In addition, other legislative changes have been proposed and adopted since the Affordable Care Act was enacted. For example, the Budget Control Act of 2011, or Budget Control Act, among other things, created the Joint Select Committee on Deficit Reduction to recommend proposals in spending reductions to Congress. The Joint Select Committee did not achieve a targeted deficit reduction of at least $1.2 trillion for the years 2013 through 2021, which triggered the legislation's automatic reduction to several government programs, including aggregate reductions to Medicare payments to providers of up to 2% per fiscal year, starting in April 2013, and due to subsequent legislative amendments to the statute, including the BBA, will remain in effect through 2027 unless additional Congressional

action is taken. The American Taxpayer Relief Act of 2012, among other things, reduced

Medicare payments to several providers, including hospitals, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

Further, there has been heightened governmental scrutiny in the United States of pharmaceutical pricing practices in light of the rising cost of prescription drugs and biologics. Such scrutiny has resulted in several recent congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for products. At the federal level, the administration's budget proposal for fiscal year 2019 contains further drug price control measures that could be enacted during the 2019 budget process or in other future legislation, including, for example, measures to permit Medicare Part D plans to negotiate the price of certain drugs under Medicare Part B, to allow some states to negotiate drug prices under Medicaid, and to eliminate cost sharing for generic drugs for low-income patients. While some of these and other proposed measures may require additional authorization to become effective, Congress and the Presidential administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs. At the state level, legislatures are increasingly passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing.

There likely will continue to be legislative and regulatory proposals at the federal and state levels directed at containing or lowering the cost of healthcare. We cannot predict the initiatives that may be adopted in the future or their full impact. The continuing efforts of the government, insurance companies, managed care organizations and other payors of healthcare services to contain or reduce costs of healthcare may adversely affect:

- our ability to set a price we believe is fair for our products;
- our ability to generate revenue and achieve or maintain profitability; and
- the availability of capital.

If we fail to comply with healthcare regulations, we could face substantial penalties and our business, operations and financial condition could be adversely affected.

Pharmaceutical companies are heavily regulated by federal, state and local regulations in the countries in which business activities occur. Even though we do not and will not control referrals of healthcare services or bill directly to Medicare, Medicaid or other third-party payors, certain federal and state healthcare laws and regulations pertaining to fraud and abuse and patients' rights are and will be applicable to our business. We could be subject to laws and regulations governing healthcare fraud and abuse, advertising and other promotional activities, data privacy and patient rights by both the federal government and the states in which we conduct our business. The regulations that may affect our ability to operate include, without limitation:

- the federal Anti-Kickback Statute, which prohibits, among other things, any person or entity from knowingly and willfully offering, soliciting, receiving or providing remuneration, directly or indirectly, in exchange for or to induce either the referral of an individual for, or the purchase, order or recommendation of, any good or service for which payment may be made under federal healthcare programs, such as the Medicare and Medicaid programs;
- the federal Physician Payments Sunshine Act or Open Payments Program provisions and the implementing regulations which will require, among other things, extensive tracking of physician and teaching hospital payments, maintenance of a payments database, and public reporting of the payment data;
- the federal civil False Claims Act, which prohibits, among other things, individuals or entities from knowingly presenting, or causing to be presented, false claims, or knowingly using false statements, to obtain payment from the federal government;
-

federal criminal laws that prohibit executing a scheme to defraud any healthcare benefit program or making false statements relating to healthcare matters;

- federal and state laws governing data privacy and the EU general data privacy regulation ("GDPR");
- the Foreign Corrupt Practices Act and similar statutes and regulations in foreign jurisdictions, which makes it unlawful for certain classes of persons and entities to make payments to foreign government officials to assist in obtaining or retaining business;
- the federal Health Insurance Portability and Accountability Act of 1996, as amended by the Health Information Technology for Economic and Clinical Health Act, and their implementing regulations which governs the conduct of certain electronic healthcare transactions and protects the security and privacy of protected health information;
- the Drug Quality and Security Act which requires manufacturers and other distribution parties to create systems to trace certain prescription drugs as they are distributed in the United States; and
- state law equivalents of each of the above federal laws, such as anti-kickback and false claims laws which may apply to items or services reimbursed by any third-party payor, including commercial insurers; state laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government; state and local laws that require pharmaceutical companies to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures; state laws that require the reporting of information related to drug pricing; and state and local laws requiring the registration of pharmaceutical sales and medical representatives.

The Affordable Care Act, among other things, amended the intent requirement of the federal Anti-Kickback Statute and criminal healthcare fraud statutes. A person or entity no longer needs to have actual knowledge of this statute or specific intent to violate it in order to have committed a violation. In addition, the Affordable Care Act provides that the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal civil False Claims Act.

If our operations are found to be in violation of any of the laws described above or any other governmental regulations that apply to us, we may be subject to substantial penalties, including civil and criminal penalties, damages, fines, possible exclusion from participation in Medicare, Medicaid, and other federal healthcare programs, integrity oversight and reporting obligations to resolve allegations of non-compliance with these laws, and the curtailment or restructuring of our operations. Any penalties, damages, fines, curtailment or restructuring of our operations could adversely affect our ability to operate our business and our financial results. Any action against us for violation of these laws, even if we successfully defend against it, could cause us to incur significant legal expenses and divert our management's attention from the operation of our business. Moreover, achieving and sustaining compliance with applicable federal and state privacy, security and fraud laws may prove costly.

The United Kingdom's planned withdrawal from the EU may have a negative effect on our business, global economic conditions, and financial markets.

As a result of the United Kingdom's vote to leave the EU in March 2019, the EMA announced that it will relocate its headquarters from London to Amsterdam by March 30, 2019. Since a significant proportion of the regulatory framework in the United Kingdom is derived from EU directives and regulations, Brexit could materially impact the regulatory regime with respect to the approval of product candidates, disrupt the manufacture of our products and product candidates in the United Kingdom or the EU, disrupt the importation and export of active substances and other components of drug formulations, and disrupt the supply chain for clinical trial product and final authorized formulations. While negotiations continue regarding the terms of the United Kingdom's withdrawal from the EU, the specific impact to the supervision, regulation and supply of medicines in the United Kingdom and Europe remain unclear. The cumulative effect of disruptions to the regulatory framework or supply chains may add considerably to the development lead time to, and expense of, marketing authorization and commercialization of products in the EU and/or the United Kingdom. In view of the uncertainty surrounding the Brexit implementation, we are unable to predict the effects of such disruption to the regulatory framework and supply chain in Europe.

7) RISKS RELATED TO OWNERSHIP OF OUR COMMON STOCK

40

Our stock price may be volatile, and investors in our common stock could incur substantial losses.

Our stock price has fluctuated in the past and may be volatile in the future. The stock market in general, and the market for biotechnology companies in particular, have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. As a result of this volatility, investors may experience losses on their investment in our stock. The market price for our common stock may be influenced by many factors, including the following:

- the timing and amount of revenues generated from sale of our products or product candidates;
- our ability to meet the expectations of investors related to the commercialization of our products and product candidates;
- regulatory actions or decisions, including the timing and outcome of any potential future FDA or EMA decision, or other products or product candidates, including those of our competitors;
- inaccurate sales or cash forecasting of our products or product candidates;
- changes in laws or regulations;
- announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures or capital commitments;
- results of clinical trials or regulatory actions with respect to our products or product candidates;
- market conditions in the pharmaceutical and biotechnology sectors;
- changes in the structure of healthcare payment systems;
- actual or anticipated changes in earnings estimates or changes in stock market analyst recommendations regarding our common stock, other comparable companies or our industry generally;
- trading volume of our common stock;
- sales of our common stock by us or our stockholders;
- general economic, industry and market conditions; and
- the other risks described in this “Risk factors” section.

These broad market and industry factors may seriously harm the market price of our common stock, regardless of our operating performance. In the past, following periods of volatility in the market, securities class-action litigation has often been instituted against companies. In addition, following our update call on September 5, 2017, at least three plaintiffs’ securities litigation firms publicly announced that they are investigating potential securities fraud claims that they may wish to make against us. Such litigation, if instituted against us, could result in substantial costs and diversion of management’s attention and resources, which could materially and adversely affect our business, financial condition, results of operations and growth prospects.

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

The trading market for our common stock depends, in part, on the research and reports that securities or industry analysts publish about us or our business. Securities and industry analysts may cease to publish research on our company at any time in their discretion. If one or more of these analysts cease coverage of our company or fail to publish reports on us regularly, demand for our stock could decrease, which might cause our stock price and trading volume to decline. In addition, if one or more of the analysts who cover us downgrade our stock or publish inaccurate or unfavorable research about our business, our stock price would likely decline. If our operating results fail to meet the forecasts of analysts, our stock price will likely decline.

41

Provisions in our corporate charter documents and under Delaware law could make an acquisition of us more difficult and may prevent attempts by our stockholders to replace or remove our current management.

Provisions in our corporate charter and our bylaws may discourage, delay or prevent a merger, acquisition or other change in control of us that stockholders may consider favorable, including transactions in which stockholders might otherwise receive a premium for their shares. These provisions could also limit the price that investors might be willing to pay in the future for shares of our common stock, thereby depressing the market price of our common stock. In addition, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors. Because our board of directors is responsible for appointing the members of our management team, these provisions could in turn affect any attempt by our stockholders to replace current members of our management team. Among others, these provisions include the following:

- our board of directors is divided into three classes with staggered three-year terms which may delay or prevent a change of our management or a change in control;
- our board of directors has the right to elect directors to fill a vacancy created by the expansion of the board of directors or the resignation, death or removal of a director, which prevents stockholders from being able to fill vacancies on our board of directors;
- our stockholders may not act by written consent or call special stockholders' meetings; as a result, a holder, or holders, controlling a majority of our capital stock would not be able to take certain actions other than at annual stockholders' meetings or special stockholders' meetings called by the board of directors, the chairman of the board, the chief executive officer or the president;
- our certificate of incorporation prohibits cumulative voting in the election of directors, which limits the ability of minority stockholders to elect director candidates;
- stockholders must provide advance notice and additional disclosures in order to nominate individuals for election to the board of directors or to propose matters that can be acted upon at a stockholders' meeting, which may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of our company; and
- our board of directors may issue, without stockholder approval, shares of undesignated preferred stock; the ability to issue undesignated preferred stock makes it possible for our board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to acquire us.

Moreover, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which prohibits a person who owns in excess of 15% of our outstanding voting stock from merging or combining with us for a period of three years after the date of the transaction in which the person acquired in excess of 15% of our outstanding voting stock, unless the merger or combination is approved in a prescribed manner.

Our agreements with our executive officers may require us to pay severance benefits to any of those persons who are terminated in connection with a change in control of us, which could harm our financial condition or results or discourage third parties from seeking business combinations.

Our executive officers are parties to agreements that contain change in control and severance provisions providing for aggregate cash payments of up to approximately $6.6 million for severance and other benefits and acceleration of vesting of equity awards with a value of approximately $5.3 million as of December 31, 2018, based on the closing price of our common stock of $19.52 on such date in the event of a termination of employment in connection with a change in control of us. The accelerated vesting of equity awards could result in dilution to our existing stockholders and harm the market price of our common stock. The payment of these severance benefits could harm our financial condition and results. In addition, these potential severance payments may discourage or prevent third parties from seeking a business combination with us.

42

Because we do not anticipate paying any cash dividends on our common stock in the foreseeable future, capital appreciation, if any, will be our stockholders' sole source of gain.

We have never declared or paid cash dividends on our common stock. We currently intend to retain all of our future earnings, if any, to finance the growth and development of our business. In addition, the terms of existing or any future debt agreements may preclude us from paying dividends. As a result, capital appreciation, if any, of our common stock will be our stockholders' sole source of gain for the foreseeable future.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

We lease approximately 74,000 square feet of research and office space in South San Francisco, California under a lease that expires in March 2020. Thereafter, at our option, we may extend the term for an additional three years to March 2023. We believe that our existing facilities are sufficient for our current needs for the foreseeable future.

ITEM 3. LEGAL PROCEEDINGS

We are not currently a party to any material legal proceedings.

ITEM 4. MINE SAFETY DISCLOSURES

None.

PART II

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

PRICE RANGE OF COMMON STOCK

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

On February 15, 2019, the last reported sale price of our common stock as reported on The Nasdaq Global Select Market was $30.96 per share. As of February 15, 2019, there were 66,821,167 shares of our common stock issued and outstanding with 14 holders of record of our common stock. The actual number of stockholders is greater than this number of record holders, and includes stockholders who are beneficial owners, but whose shares are held in street name by brokers and other nominees. This number of holders of record also does not include stockholders whose shares may be held in trust by other entities.

STOCK PRICE PERFORMANCE GRAPH

The following stock performance graph compares our total stock return with the total return for (i) the Nasdaq Composite Index and the (ii) the Nasdaq Biotechnology Index for the period from May 22, 2013 (the date our common stock commenced trading on the Nasdaq Global Select Market) through December 31, 2018. The figures represented below assume an investment of $100 in our common stock at the closing price of $15.15 on May 22, 2013 and in the Nasdaq Composite Index and the Nasdaq Biotechnology Index on May 22, 2013 and the reinvestment of dividends into shares of common stock. The comparisons in the table are required by the Securities and Exchange Commission, or SEC, and are not intended to forecast or be indicative of possible future performance of our common stock. This graph shall not be deemed "soliciting material" or be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or the Exchange Act, or otherwise subject to the liabilities under that Section, and shall not be deemed to be incorporated by reference into any of our filings under the Securities Act of 1933, as amended, or the Securities Act, whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.

$100 investment in stock or index	Ticker	May 22, 2013	June 30, 2013	September 30, 2013	December 31, 2013
Portola Pharmaceuticals, Inc.	PTLA	$100.00	$162.08	$ 176.57	$ 169.97
Nasdaq Composite Index	IXIC	$100.00	$96.08	$ 115.99	$ 125.56
Nasdaq Biotechnology Index	^NBI	$100.00	$98.27	$ 108.90	$ 120.60

$100 investment in stock or index	Ticker	March 31, 2014	June 30, 2014	September 30, 2014	December 31, 2014
Portola Pharmaceuticals, Inc.	PTLA	$170.96	$192.61	$ 166.86	$ 186.93
Nasdaq Composite Index	IXIC	$121.24	$127.28	$ 129.74	$ 136.75
Nasdaq Biotechnology Index	^NBI	$130.83	$142.35	$ 151.50	$ 168.38

$100 investment in stock or index	Ticker	March 31, 2015	June 30, 2015	September 30, 2015	December 31, 2015
Portola Pharmaceuticals, Inc.	PTLA	$250.56	$300.66	$ 281.32	$ 339.60
Nasdaq Composite Index	IXIC	$141.51	$143.99	$ 133.40	$ 144.58
Nasdaq Biotechnology Index	^NBI	$190.61	$204.79	$ 167.93	$ 187.61

$100 investment in stock or index	Ticker	March 31, 2016	June 30, 2016	September 30, 2016	December 31, 2016
Portola Pharmaceuticals, Inc.	PTLA	$134.65	$155.78	$ 149.90	$ 148.12
Nasdaq Composite Index	IXIC	$140.61	$139.83	$ 153.38	$ 155.43
Nasdaq Biotechnology Index	^NBI	$144.50	$142.73	$ 160.41	$ 146.93

$100 investment in stock or index	Ticker	March 31, 2017	June 30, 2017	September 30, 2017	December 31, 2017
Portola Pharmaceuticals, Inc.	PTLA	$258.68	$370.76	$ 356.63	$ 321.32
Nasdaq Composite Index	IXIC	$170.70	$177.30	$ 187.57	$ 199.33
Nasdaq Biotechnology Index	^NBI	$162.64	$171.99	$ 185.09	$ 177.87

$100 investment in stock or index	Ticker	March 31, 2018	June 30, 2018	September 30, 2018	December 31, 2018
Portola Pharmaceuticals, Inc.	PTLA	$215.58	$249.31	$ 175.78	$ 128.84
Nasdaq Composite Index	IXIC	$203.95	$216.85	$ 232.33	$ 191.59
Nasdaq Biotechnology Index	^NBI	$177.75	$183.00	$ 203.24	$ 161.28

DIVIDEND POLICY

We have never declared or paid, and do not anticipate declaring, or paying in the foreseeable future, any cash dividends on our capital stock. Future determination as to the declaration and payment of dividends, if any, will be at the discretion of our board of directors and will depend on then existing conditions, including our operating results,

financial conditions, contractual restrictions, capital requirements, business prospects and other factors our board of directors may deem relevant.

Issuer Purchases of Equity Securities

None.

ITEM 6. SELECTED FINANCIAL DATA

You should read the following consolidated selected financial data together with the section of this report entitled "Management's discussion and analysis of financial condition and results of operations" and our consolidated financial statements and the related notes included in this report. The consolidated statement of operations data for the years ended December 31, 2018, 2017 and 2016 and the consolidated balance sheet data as of December 31, 2018 and 2017 are derived from our audited consolidated financial statements included elsewhere in this Annual Report on Form 10-K. The consolidated statements of operations data for the years ended December 31, 2015 and 2014, and the consolidated balance sheet data as of December 31, 2016, 2015 and 2014 were derived from our audited consolidated financial statements that are not included in this Annual Report on Form 10-K.

	Year Ended December 31,				
	2018	2017	2016	2015	2014
Consolidated statements of operations data:					
Revenues:					
Product revenue, net	$24,117	$—	$—	$—	$—
Collaboration and license revenue	16,013	22,546	35,504	12,070	9,625
Total revenues	40,130	22,546	35,504	12,070	9,625
Operating expenses:					
Cost of sales	18,081	415	–	–	–
Research and development	216,205	203,701	246,854	200,376	123,639
Selling general and administrative	151,164	91,109	58,235	38,869	23,552
Total operating expenses	385,450	295,225	305,089	239,245	147,191
Loss from operations	(345,320)	(272,679)	(269,585)	(227,175)	(137,566)
Interest and other income (expense), net	13,516	(1,338)	1,533	305	441
Interest expense	(18,740)	(11,603)	(61)	–	–
Loss before income taxes	(350,544)	(285,620)	(268,113)	(226,870)	(137,125)
Income tax benefit	–	–	–	(365)	–
Net loss	(350,544)	(285,620)	(268,113)	(226,505)	(137,125)
Net loss (income) attributable to noncontrolling interest (SRX Cardio)	321	(470)	(930)	–	–
Net loss attributable to Portola	$(350,223)	$(286,090)	$(269,043)	$(226,505)	$(137,125)
Net loss per share attributable to Portola stockholders:					
Basic and Diluted	$(5.31)	$(4.81)	$(4.76)	$(4.36)	$(3.19)
Shares used to compute net loss per share attributable to Portola common stockholders:					
Basic and Diluted	66,017,330	59,508,156	56,480,647	51,981,463	42,977,463

	As of December 31,				
	2018	2017	2016	2015	2014
Consolidated balance sheet data:					
Cash, cash equivalents and investments	$316,964	$534,233	$318,771	$460,161	$392,303
Working capital	284,322	397,399	263,264	414,431	273,946
Total assets	386,419	571,676	343,436	502,924	416,495

Notes Payable	48,298	50,565	49,815	–	–
Long term debt	155,256	54,251	–	–	–
Noncontrolling interest (SRX Cardio)	2,166	2,627	2,157	2,927	–
Total stockholders' equity	90,567	349,493	192,689	430,323	347,802

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion and analysis of our financial condition and results of operations together with the section of this report entitled "Selected financial data" and our financial statements and related notes included elsewhere in this report. This discussion and other parts of this report contain forward-looking statements that involve risk and uncertainties, such as statements of our plans, objectives, expectations and intentions. Our actual results could differ materially from those discussed in these forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to; those discussed in the section of this report entitled "Risk factors."

Overview

Portola Pharmaceuticals, Inc. (the "Company" or "we" or "our" or "us") is a biopharmaceutical company focused on the development and commercialization of novel therapeutics in the areas of thrombosis, other hematologic diseases and inflammation for patients who currently have limited or no approved treatment options. Our headquarters are located in South San Francisco, California. Our lead product is Andexxa® [coagulation factor Xa (recombinant), inactivated-zhzo], the first and only antidote approved by the U.S. Food and Drug Administration ("FDA") for patients treated with rivaroxaban or apixaban, when reversal of anticoagulation is needed due to life-threatening or uncontrolled bleeding. Bevyxxa® (betrixaban), the first and only oral, once-daily Factor Xa inhibitor approved by the FDA for the prevention of venous thromboembolism ("VTE") in adult patients hospitalized for an acute medical illness. Bevyxxa is currently being marketed in a limited manner and we are evaluating potential partnership opportunities for this product. We are advancing cerdulatinib, an investigational oral, dual spleen tyrosine kinase ("Syk") and Janus kinase ("JAK") inhibitor in development to treat hematologic cancers. We also have a number of other molecules in earlier stage and pre-clinical development.

2018 Business Highlights:

We added key executive management team members, including the following:

- Scott Garland, President and Chief Executive Officer;
- Ernie Meyer, Executive Vice President and Chief Human Resources Officer;
- Glenn Brame, Executive Vice President and Chief Technical Operations Officer; and
- John Moriarty, Executive Vice President, General Counsel and Secretary.

Andexxa

- Andexxa was approved by the FDA on May 3, 2018 as a reversal agent for patients treated with rivaroxaban and apixaban, when reversal of anticoagulation is needed due to life-threatening or uncontrolled bleeding. We began marketing Andexxa to a limited number of hospitals through an Early Supply Program ("ESP") while we continued to advance the Gen 2 manufacturing process through the regulatory approval process.
- In August 2018, the U.S. Centers for Medicare and Medicaid Services ("CMS") granted a New Technology Add-on Payment ("NTAP") for Andexxa. Under the NTAP, Medicare will provide an add-on payment for Andexxa of up to approximately $14,000 per qualifying case to participating acute care hospitals.
- The FDA approved our Prior Approval Supplement ("PAS") for our Gen 2 manufacturing process on December 31, 2018.

Bevyxxa

- We launched Bevyxxa in the United States in January 2018 when drug supply became commercially available. Following the approval of Andexxa in May 2018, due to our limited resources, we greatly scaled back our commercial efforts for Bevyxxa in the second half of 2018 in order to focus on the commercial launch of Andexxa.
- We are re-evaluating our marketing strategy for Bevyxxa and also exploring potential partnership and other strategic options for Bevyxxa.

Cerdulatinib

- The U.S. Food and Drug Administration granted cerdulatinib Orphan Drug Designation for the treatment of PTCL in September 2018.
- In December 2018, we presented updated interim data from the ongoing Phase 2a study at the Annual Meeting of the American Society of Hematology.

Financial Operations Overview

Revenue

Product revenue is currently derived from sales of our two commercial products, Andexxa and Bevyxxa, in the United States. Collaboration and license revenue relates primarily to agreements with multiple parties centered around the advancement of our Andexxa program and regulatory approval in the U.S., EU and Japan. For further discussion of our revenue recognition policy, see “Critical Accounting Policies and Significant Judgments and Estimates” below. Our ability to generate revenue and become profitable depends upon our ability to successfully commercialize products, including any of our products and product candidates that we have in-licensed or other products or product candidates that we may in-license or acquire in the future.

We adopted new revenue accounting guidance effective January 1, 2018 (Accounting Standards Codification Topic 606, Revenues from Contracts with Customers, or Topic 606) that impacts the amount and timing of our revenue recognition in 2018 compared to revenues previously recognized in our published financial statements. For further discussion, see Note 2, “Revenue Recognition” in the Notes to Consolidated Financial Statements included in Part II, Item 8, “Financial Statements and Supplementary Data” of this Annual Report on Form 10-K.

Cost of Sales

Cost of sales represents primarily the costs associated with manufacturing of Andexxa and Bevyxxa, Bevyxxa net sales-based royalties payable to Millennium, amortization of an intangible asset associated with a capitalized milestone payment made to Millennium upon FDA approval of Bevyxxa, write-offs of product and prepayments for product to be manufactured that may not be recoverable based on future sales and fixed costs to our contract manufacturers, if any, for anticipated shortfall in product demand relative to committed volumes.

Research and development expenses

Research and development expenses represent costs incurred to conduct research, such as the discovery and development of our un-partnered product candidates, discovery and development of clinical candidates pursuant to our collaboration agreements, as well as costs to conduct clinical trials required by our regulators as a condition of our marketing approval. We recognize all research and development costs as they are incurred.

We expect our research and development expenses to decrease in the near term as our current Bevyxxa and Andexxa manufacturing processes qualify for capitalization as inventory and will be expensed as costs of sales when the inventory is sold. The timing and amount of expenses incurred will depend on the outcomes of current or future preclinical and clinical studies for our products and product candidates, related regulatory requirements and further initiatives that may be undertaken to enhance or expand our current manufacturing processes.

The following table summarizes our research and development expenses by product candidate:

	Phase of Development	Year Ended December 31, 2018	2017	2016
Product candidate				
Andexanet alfa	Phase 2/3/4	$159,773	$138,800	$171,460
Betrixaban	Phase 1/3	23,641	45,105	58,438
Cerdulatinib	Phase 1/2a	25,233	13,858	12,900
Syk selective inhibitor	Pre-clinical	425	155	172
Other research and development expenses(1)		7,133	5,783	3,884
Total research and development expenses		$216,205	$203,701	$246,854

(1) Amounts in all periods include costs for other potential product candidates.

For further discussion of the changes in our research and development expenses with respect to the year ended December 31, 2018 and the corresponding period of 2017, see “Comparison of the years ended December 31, 2018 and 2017 — Research and development expenses” below.

The program-specific expenses summarized in the table above include costs directly attributable to our product candidates. We allocate research and development salaries, benefits, stock-based compensation and indirect costs to our product candidates on a program-specific basis, and we include these costs in the program-specific expenses. The largest component of our total operating expenses has historically been our investment in research and development activities, including the clinical development and manufacturing of our product candidates.

Selling, general and administrative expenses

Selling, general and administrative expenses consist primarily of personnel costs, allocated facilities costs and other expenses for outside professional services, including legal, compliance, human resources, audit and accounting services and sales and marketing expenses related to commercial launch preparation. Personnel costs consist of salaries, benefits and stock-based compensation.

We expect selling, general and administrative expenses to increase in the future as we incur additional expenses associated with the establishment of a hospital-based sales force in the United States and possibly other major markets such as Europe, as well as commercial infrastructure initiatives including information technology systems, quality and compliance systems, and personnel support for the commercial organization.

Interest and other income, net

Interest and other income, net consists primarily of interest received on our cash, cash equivalents and investments, unrealized gains and losses from the remeasurement of our embedded derivatives associated with BMS and Pfizer promissory notes and a royalty-based financing arrangement with HealthCare Royalty Partners and its affiliates (“HCR”), and remeasurement of foreign currency deposits.

Interest expense

Interest expense represents interest from our BMS and Pfizer promissory notes and a royalty-based financing arrangement with HCR.

Comparison of the years ended December 31, 2018 and 2017

Revenue

	Year Ended December 31,			
	2018	2017	Change	% Change
	(in thousands, except percentages)			
Andexxa	$23,995	$—	$23,995	*
Bevyxxa	122	—	122	*
Total product revenue, net	24,117	—	24,117	*
Total collaboration and license revenue	16,013	22,546	(6,533)	-29%
Total revenues	$40,130	$22,546	17,584	78%

* Percentage not meaningful

The increase in total revenues during 2018 compared to 2017 was primarily attributable to:

- commercial product revenue earned from U.S. net sales of Andexxa and Bevyxxa, which we began shipping to customers in May 2018 and January 2018, respectively; offset by
- a decrease in collaboration and license revenue primarily due to recognition of revenue using the cost-to-completion method under the new standard, in contrast to recognizing revenue on a straight-line basis over the estimated performance period under the previous standard.

Cost of Sales

	Year Ended December 31,			
	2018	2017	Increase	% Increase
	(in thousands, except percentages)			
Cost of sales	$18,081	$415	$17,666	*

* Percentage not meaningful

During the year ended December 31, 2018, we recognized $18.1 million of cost of sales related to Andexxa and Bevyxxa. Cost of sales includes the costs associated with manufacturing Andexxa and Bevyxxa, as well as other routine periodic costs such as Bevyxxa net sales-based royalties payable to Millennium and amortization of an intangible asset associated with the approval of Bevyxxa. Additionally, we recorded the following non-routine charges associated with our products:

- Andexxa - $10.3 million charge associated with our Gen 1 manufacturing process as a result of our commercial plans and related timelines to transition our customer base to product manufactured on our Gen 2 manufacturing process which was approved by the FDA on December 31, 2018; and

- Bevyxxa - $3.5 million charge comprised of a $1.3 million charge associated with one of our contract manufacturers for a shortfall in production during the year and a provision of $2.2 million for excess and obsolete inventory.

Prior to FDA approval, manufacturing and related costs were recorded as research and development expenses. Accordingly, these costs were not capitalized and as a result are not fully reflected in the cost of sales during the current period. Inventories manufactured prior to the FDA's approval of Andexxa (Gen 1) and Bevyxxa, totaling approximately $22.5 million and $21.2 million, respectively, were expensed as research and development expense as incurred. Andexxa inventory manufactured using our Gen 2 manufacturing process totaling $152.4 million has been expensed as research and development expense as regulatory approval was not received until December 31, 2018. Once we have depleted all inventories that were previously expensed, we expect the portion of cost of sales relating to manufacturing to increase on a per unit basis as we begin selling products that have inventoried costs that reflect our full cost of manufacturing.

Research and development expenses

Product candidate	Phase of Development	Year Ended December 31, 2018	2017	Change	% Change
		(in thousands, except percentages)			
Andexanet alfa	Phase 2/3/4	$159,773	$138,800	$20,973	15%
Betrixaban	Phase 1/3	23,641	45,105	(21,464)	-48%
Cerdulatinib	Phase 1/2a	25,233	13,858	11,375	82%
Syk selective inhibitor	Pre-clinical	425	155	270	174%
Other research and development expenses(1)		7,133	5,783	1,350	23%
Total research and development expenses		$216,205	$203,701	$12,504	6%

(1) Amounts in all periods include costs for other potential product candidates.

The increase in research and development expenses during 2018 compared to 2017 was primarily attributable to:

- increased program costs of $21.0 million related to Andexxa, which was primarily driven by manufacturing activities associated with our Gen 2 product with our contract manufacturer, Lonza, including a $9.2 million non-cash charge associated with the valuation of stock purchase rights probable of being earned pursuant to our commercial manufacturing agreement;
- decreased program costs of $21.5 million related to Bevyxxa, which was largely the result of capitalizing manufacturing expenses that were recorded as research and development expenses in 2017; and
- increased program costs of $11.4 million related to cerdulatinib, primarily due to increased manufacturing expenses.

Selling, general and administrative expenses

	Year Ended December 31, 2018	2017	Increase	% Increase
	(in thousands, except percentages)			
Selling, general and administrative expenses	$151,164	$91,109	$60,055	66%

The increase in selling, general and administrative expenses during 2018 compared to 2017 was primarily attributable to:

- increased headcount-related costs of $34.7 million resulting from the hiring of our sales force and supporting commercial functions; and
- increased external costs of $17.6 million associated with commercial initiatives to support the launch of Andexxa and Bevyxxa.

Interest and other income (expense), net

	Year Ended December 31,			
	2018	2017	Increase	% Increase
	(in thousands, except percentages)			
Interest and other income (expense), net	$13,516	$(1,338)	$14,854	*

The increase in interest and other income (expense), net during 2018 compared to 2017 was primarily due to:

- $10.9 million increase in gain recognized upon remeasurement of embedded derivative liabilities; and
- $3.8 million greater interest income earned from higher investment balances in the current period.

Interest expense

	Year Ended December 31,			
	2018	2017	Increase	% Increase
	(in thousands, except percentages)			
Interest expense	$18,740	$11,603	$7,137	62%

The increase in interest expense during 2018 compared to 2017 was primarily due to:

- An additional $95.0 million of funding received in May 2018 under the Andexxa Royalty Sales Agreement with HCR; and
- The initial $50.0 million in funding under the Andexxa Royalty Sales Agreement with HCR that was outstanding for one year during 2018 as compared to eight months in 2017.

Comparison of the years ended December 31, 2017 and 2016

Revenue

	Year Ended December 31,			
	2017	2016	Decrease	% Decrease
	(in thousands, except percentages)			
Collaboration and license revenue	$22,546	$35,504	$(12,958)	-36 %

The decrease in collaboration and license revenue during 2017 compared to 2016 was primarily due to:

- a decrease of $7.0 million in milestone achievement from our Phase 3 agreements as the amounts ascribed to acceptance of our BLA and MAA filing in 2016 were greater than the manufacturing-related milestone achieved in 2017; and
- a decrease of $5.0 million driven by our license agreement with Dermavant owing to the difference between the upfront payment earned in 2016 and the milestone achieved in 2017 upon Dermavant’s filing an IND.

Research and development expenses

	Year Ended December 31,		
	2017	2016	Decrease

				% Decrease
	(in thousands, except percentages)			
Research and development expenses	$203,701	$246,854	$(43,153)	-17 %

The decrease in research and development expenses during 2017 compared to 2016 was primarily due to:

- decreased program costs of $32.7 million related to andexanet alfa driven by our decision in 2016 to cease activity on CMC ICOS Biologics, Inc. ("CMC")'s "Line C" manufacturing line. This decision resulted in a $27.3 million write-off of prepaid manufacturing costs related to the discontinued manufacturing process;
- decreased program costs of $13.3 million related to betrixaban, largely due to a decrease in regulatory filing costs after FDA approval; offset by
- increased program costs of $1.8 million related to early-stage research programs that are not related to our primary development programs.

Selling, general and administrative expenses

	Year Ended December 31,			
	2017	2016	Increase	% Increase
	(in thousands, except percentages)			
Selling, general and administrative expenses	$91,109	$58,235	$32,874	56 %

The increase in selling, general and administrative expenses during 2017 compared to 2016 was primarily due to:

- increased headcount-related costs of $20.0 million which includes an increase in stock-based compensation expense of $6.0 million;
- increased commercial launch preparation activities and business development related costs of $8.4 million; and
- increased costs associated with legal, professional and accounting fees of $3.1 million.

Interest and other income (expense), net

	Year Ended December 31,			
	2017	2016	Decrease	% Decrease
	(in thousands, except percentages)			
Interest and other income (expense), net	$(1,338)	$1,533	$(2,871)	-187 %

The decrease in interest and other income (expense), net, during 2017 compared to 2016 was primarily due to:

- $4.6 million of expense recognized upon remeasurement of the embedded derivative liabilities; offset by
- an increase in interest income of $1.7 million earned from higher investment balances in the current period.

Interest expense

	Year Ended December 31,			
	2017	2016	Increase	% Decrease
	(in thousands, except percentages)			
Interest expense	$(11,603)	$(61)	$(11,542)	18921 %

The increase in interest expense during 2017 compared to 2016 was due to:

- notes payable to BMS and Pfizer outstanding for a full twelve-month period during 2017 as compared to only a one-month period in 2016; and
- additional interest bearing financing obtained from HCR in February 2017.

Liquidity and capital resources

Due to our significant research and development expenditures, we have generated significant operating losses since our inception. We have financed our operations primarily through sales of our equity securities, collaborations, including loans from our collaboration partners, a royalty-based financing arrangement and sales of commercial and development rights to some of our product candidates. Our expenditures are primarily related to research and development activities, including clinical trial and manufacturing-related costs, and commercial preparation and launch costs. At December 31, 2018, we had available cash, cash equivalents and investments of $317.0 million. Our cash, cash equivalents and investments are held in a variety of interest-bearing instruments, including investments backed by U.S. government agencies, corporate debt securities and money market accounts. Cash in excess of immediate requirements is invested with a view toward liquidity and capital preservation, and we seek to minimize the potential effects of concentration and degrees of risk.

We believe that our existing capital resources, together with interest thereon, will be sufficient to meet our projected operating requirements for at least the next 12 months from the date of this filing. We have based this estimate on assumptions that may prove to be wrong, and we could utilize our available capital resources sooner than we currently expect. Further, our operating plan may change, and we may need additional funds to meet operational needs and capital requirements for product development and commercialization sooner than planned. We currently have no credit facility or committed sources of capital other than potential milestones receivable under our current collaboration and license agreements. Our future funding requirements will depend on many factors, including the following:

- the timing, receipt and amount of sales, profit sharing or royalties, if any, from our current and potential products;
- the cost of manufacturing our current products and product candidates, including process improvements in order to manufacture product candidates at commercial scale, and establishing commercial supplies of our product candidates;
- the cost and timing of establishing sales, marketing and distribution capabilities in the United States and abroad;
- the terms and timing of any other collaborative, licensing and other arrangements that we may establish;
- the receipt of any collaboration payments;
- the number and characteristics of product candidates that we pursue;
- the cost, timing and outcomes of regulatory approvals;
- the scope, rate of progress, results and cost of our clinical studies, preclinical testing and other related activities;
- the cost of preparing, filing, prosecuting, defending and enforcing any patent claims and other intellectual property rights;
- the extent to which we acquire or invest in businesses, products or technologies, although we currently have no commitments or agreements relating to any of these types of transactions; and
- partnerships and other strategic options for our products and product candidates

If we need to raise additional capital to fund our operations, funding may not be available to us on acceptable terms, or at all. If we are unable to obtain adequate financing when needed, we may have to delay, reduce the scope of or suspend one or more of our clinical studies, research and development programs or commercialization efforts. We may seek to raise any necessary additional capital through a combination of public or private equity offerings, debt financings, collaborations, strategic alliances, licensing arrangements and other marketing and distribution arrangements. To the extent that we raise additional capital through marketing and distribution arrangements or other collaborations, strategic alliances or licensing arrangements with third parties, we may have to relinquish valuable rights to our product candidates, future revenue streams, research programs or product candidates or to grant licenses on terms that may not be favorable to us. If we do raise additional capital through public or private equity offerings, the ownership interest of our existing stockholders will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect our stockholders' rights. If we raise additional capital through debt financing, we may be subject to covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends.

The following table summarizes our cash flows for the periods indicated:

	Year Ended December 31,		
	2018	2017	2016
	(in thousands, except percentages)		
Cash used in operating activities	$(326,058)	$(225,125)	$(196,455)
Cash provided by (used in) investing activities	174,081	(228,772)	140,543
Cash provided by financing activities	110,249	446,980	57,741
Net (decrease) increase in cash, cash equivalents and restricted cash	$(41,728)	$(6,917)	$1,829

Cash used in operating activities

Cash used in operating activities for the year ended December 31, 2018, includes payments made to our contract manufacturing organizations for the manufacture of Andexxa and Bevyxxa, totaling $125.1 million and $8.7 million, respectively, $156.7 million of disbursements to third-party vendors to support planned research and development and selling and general and administrative operations, and $66.5 million in payroll and related employee costs. These cash outflows were partially offset by cash receipts of $39.1 million, primarily $15.1 million from our Andexxa collaboration agreements, $3.8 million associated with a milestone earned pursuant to our out-license of cerdulatinib in topical formulation, and $20.1 million associated with Andexxa and Bevyxxa commercial sales.

Cash used in operating activities for the year ended December 31, 2017, included payments made to our contract manufacturing organizations for the manufacture of andexanet alfa and betrixaban totaling $55.3 million and $15.5 million, respectively, $109.6 million of disbursements to third party vendors to support ongoing research and development and selling, general and administrative operations, and $43.2 million in payroll and related employee costs. These cash outflows were partially offset by cash receipts of $4.5 million, which was primarily from $3.2 million of cash receipts following achievement of milestones from existing collaboration arrangements.

Cash used in operating activities for the year ended December 31, 2016 included payments made to our contract manufacturing organizations for the manufacture of andexanet alfa and betrixaban totaling $83.0 million and $22.1 million, respectively, $116.0 million of disbursements to third party vendors to support ongoing research and development and selling, general and administrative operations, and $32.1 million in payroll and related employee costs. These cash outflows were partially offset by cash receipts of $56.3 million. Our cash receipts related primarily

to upfront payments due upon entering into new or amended arrangements with collaborators and licensees in 2016 totaling $40.8 million, and the receipt of $13.8 million in cash following achievement of milestones from existing collaboration arrangements.

Cash provided by (used in) investing activities

Cash provided by investing activities of $174.1 million for the year ended December 31, 2018 was primarily related to proceeds from maturities of investments of $435.7 million, partially offset by investment purchases of $259.1 million and fixed asset purchases of $2.6 million.

Cash used in investing activities of $228.8 million for the year ended December 31, 2017 was primarily related to purchases of investments of $575.6 million, intangible assets purchase of $5.0 million and fixed assets purchases of $1.2 million, partially offset by proceeds from maturities of investments of $353.1 million.

Cash provided by investing activities of $140.7 million for the year ended December 31, 2016 was primarily related to proceeds from maturities of investments of $394.7 million, offset by purchases of investments of $252.3 million and capital equipment of $1.9 million.

Cash provided by financing activities

Cash provided by financing activities of $110.2 million for the year ended December 31, 2018 was primarily related to net proceeds of $95.0 million of royalty-based financing from our agreement with HCR and $15.4 million in net proceeds from the issuance of common stock pursuant to equity plan awards.

Cash provided by financing activities of $447.0 million for the year ended December 31, 2017 was primarily related to proceeds from our public offering in September 2017, net of underwriting discounts and commissions, of $380.6 million, $48.0 million of royalty-based financing from our agreement with HCR, and proceeds from the issuance of common stock of $19.6 million pursuant to equity plan awards. These cash receipts were partially offset by payments of public offering costs of $0.7 million and debt issuance costs of $0.6 million.

Cash provided by financing activities of $57.7 million for the year ended December 31, 2016, was primarily related to $50.0 million in proceeds from a supplemental funding support loan agreement that we entered into with BMS and Pfizer and an additional $8.0 million in funding from Daiichi Sankyo.

Off-balance sheet arrangements and contractual obligations

The following table summarizes our future contractual obligations as of December 31, 2018:

	Payments due by period				
	Less than 1 year	1 to 3 years	3 to 5 years	More than 5 years	Total
	(in thousands)				
Contractual Obligations:					
Manufacturing and service contracts	$78,023	$137,209	$84,808	$120,182	$420,222
Notes payable, debt and obligation to collaborator (1)	14,708	85,553	120,556	138,821	359,638
Operating lease obligations	3,119	3,815	–	–	6,934
Total contractual obligations	$95,850	$226,577	$205,364	$259,003	$786,794

(1) See Note 9 and Note 3 in the Notes to Consolidated Financial Statements contained in the section of this report entitled “Financial Statements and Supplementary Data” for a more detailed description of the obligation. This line includes future royalty payments from our Andexxa forecasted sales to pay off the Notes payable, royalty-based contingent obligation from the arrangement made with HCR, and a long-term obligation to collaborator, Daiichi Sankyo.

We lease our corporate, laboratory and other facilities under an operating lease expiring in March 2020. These leases require us to pay taxes, insurance, maintenance and minimum lease payments.

In addition to the above, we have committed to make potential future milestone payments to third parties as part of licensing and development programs. Payments under these agreements become due and payable only upon the achievement by us or our sub-licensees of certain developmental, regulatory and/or commercial milestones. Because it is uncertain if and when these milestones will be achieved, such contingencies, aggregating up to $252.0 million have not been recorded on our consolidated balance sheet as of December 31, 2018.

Our commercial manufacturing agreements include cancellable purchase commitments aggregating approximately $77.8 million that are incremental to the amounts shown in the commitment table above. These commitments are 100% cancellable as of December 31, 2018 without any cancellation fee and are not included in the contractual obligations table above as a purchase commitment.

In addition to the above, in August 2017, we executed a Manufacturing Services Agreement with Lonza AG ("Lonza") to develop our Gen 2 manufacturing process for Andexxa bulk drug substance. The manufacturing commitments included therein are contingent upon marketing approval by either the FDA or the EMA of Andexxa manufactured at the current Porrino facility under the Gen 2 process and will remain in effect for a period of ten years. Additionally, the agreement provides Lonza with two separate rights to purchase shares of our common stock at a purchase price of $1.00 per share, contingent upon certain events. The first purchase right will be earned by Lonza upon the approval of the Gen 2 process and the commencement of process transfer activities to an additional, new facility. Upon the Gen 2 approval on December 31, 2018, the only remaining performance condition for the first tranche award is the commencement of the technology transfer. The second purchase right will be earned by Lonza upon the approval of the drug substance manufactured at the new facility and the number of shares will be determined based on the achievement of specified performance metrics at the new facility. The number of shares subject to each of the first and the second purchase right will be capped at the lesser of either: (1) the number of shares with an aggregate market value of $15.0 million based on a 20 day trailing market value average from the date such purchase right is earned by Lonza, or (2) 500,000 shares.

Critical Accounting Policies and Significant Judgments and Estimates

Our management's discussion and analysis of our financial condition and results of operations is based on our consolidated financial statements, which have been prepared in accordance with United States generally accepted accounting principles, ("U.S. GAAP"). The preparation of these consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent liabilities at the date of the consolidated financial statements, as well as the reported revenue generated and expenses incurred during the reporting periods. Our estimates are based on our historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

While our significant accounting policies are described in more detail in the Notes to Consolidated Financial Statements contained in the section of this report entitled "Financial Statements and Supplementary Data", we believe the following accounting policies to be critical to the judgments and estimates used in the preparation of our financial statements.

Variable Interest Entities

We review agreements we enter into with third party entities, pursuant to which we may have a variable interest in the entity, in order to determine if the entity is a VIE. If the entity is a VIE, we assess whether or not we are the primary beneficiary of that entity. In determining whether we are the primary beneficiary of an entity, we apply a qualitative approach that determines whether we have both (1) the power to direct the economically significant activities of the entity and (2) the obligation to absorb losses of, or the right to receive benefits from, the entity that could potentially be significant to that entity. If we determine we are the primary beneficiary of a VIE, we consolidate the statements of operations and financial condition of the VIE into our consolidated financial statements.

Our determination of whether we should consolidate such VIEs is made continuously as changes to existing relationships or future transactions may result in a consolidation or deconsolidation event.

59

Revenue recognition

On January 1, 2018, we adopted Accounting Standards Codification ("ASC"), Topic 606 (ASC 606), Revenue from Contracts with Customers, using the modified retrospective method to all contracts that were not completed as of January 1, 2018. We recognized the cumulative effect of applying the new revenue standard as an adjustment to the opening balance of accumulated deficit at the beginning of 2018. The results for our reporting periods beginning on and after January 1, 2018 are presented under ASC 606, while prior period amounts are not adjusted and continue to be reported under the accounting standards in effect for the prior period.

Pursuant to ASC 606, we recognize revenue when our customer obtains control of promised goods or services, in an amount that reflects the consideration that we expect to receive in exchange for those goods or services. To determine revenue recognition for arrangements that we determine are within the scope of ASC 606, we perform the following five steps: (i) identify the contract(s) with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when (or as) we satisfy a performance obligation. We only apply the five-step model to contracts when it is probable that we will collect the consideration we are entitled to in exchange for the goods or services we transfer to the customer. At contract inception, once the contract is determined to be within the scope of ASC 606, we assess the goods or services promised within each contract, determine those that are performance obligations, and assess whether each promised good or service is distinct. We then recognize as revenue the amount of the transaction price that is allocated to the respective performance obligation when (or as) the performance obligation is satisfied.

Product Revenue, Net

Our product revenue consists of the U.S. sales of Andexxa, which we began shipping to customers in May 2018, and the U.S. sales of Bevyxxa, which we began shipping to customers in January 2018. Prior to January 2018 we had no product revenues. We sell Andexxa and Bevyxxa to a limited number of specialty distributors and wholesalers in the United States ("Customers"). These Customers subsequently resell our products to hospitals, pharmacies and long-term care centers. In addition to distribution agreements with Customers, we enter into arrangements with group purchasing organizations, indirect customers and payors that provide for privately negotiated rebates, chargebacks, distribution costs and discounts with respect to the purchase of our products.

We recognize revenue on product sales when the Customer obtains control of our product, which occurs at a point in time (upon delivery). Product revenues are recorded net of applicable reserves for variable consideration, including discounts and allowances. We expense incremental costs of obtaining a contract when incurred, if the expected amortization period of the asset that we would have recognized is one year or less. To date, we have not incurred any such costs.

Reserves for Variable Consideration

Revenues from product sales are recorded at the net sales price (transaction price), which includes estimates of variable consideration for which reserves are established and which result from discounts, returns, chargebacks, rebates, copay assistance and other allowances that are offered within contracts between us and our Customers, group purchasing organizations, payors and other indirect customers relating to our product sales. These reserves as detailed below are based on the amounts earned or to be claimed on the related sales and are classified as reductions of accounts receivable (if the amount is payable to the Customer) or a current liability (if the amount is payable to a party other than a Customer). Where appropriate, these estimates take into consideration a range of possible outcomes that

are probability-weighted in accordance with the expected value method under ASC 606 for relevant factors. These factors include current contractual and statutory requirements, specific known market events and trends, industry data, and/or forecasted customer buying and payment patterns. Overall, these reserves reflect our best estimates of the amount of consideration to which we are entitled based on the terms of the respective underlying contracts.

The amount of variable consideration that is included in the transaction price may be constrained, and is included in the net sales price only to the extent that it is probable that a significant reversal in the amount of the cumulative revenue recognized will not occur in a future period. Actual amounts of consideration ultimately received may differ

from our estimates. If actual results in the future vary from our estimates, we will adjust these estimates, which would affect net product revenue and earnings in the period such variances become known.

Trade Discounts and Allowances: We generally provide Customers with discounts which include incentive fees that are explicitly stated in our contracts and are recorded as a reduction of revenue in the period the related product revenue is recognized. In addition, we compensate our Customers and indirect customers for sales order management, data and administrative and distribution services. However, we have determined such services received to date are not distinct from our sale of products to the Customer and therefore a fair market value for these services may not be reasonably determined for accounting purposes. Therefore, these payments have been recorded as a reduction of revenue within the consolidated statement of operations for the year ended December 31, 2018.

Product Returns: We generally offer Customers a right of return based on the product's expiration date or other market-based factors for product that has been purchased from us. We estimate the amount of our product sales that may be returned by our Customers and record this estimate as a reduction of revenue in the period the related product revenue is recognized. We currently estimate product return liabilities using available industry data, our own sales information and our visibility into the inventory remaining in the distribution channel.

Chargebacks: Chargebacks are discounts that occur when contracted customers, which currently consist primarily of group purchasing organizations, purchase directly from our wholesalers at a discounted price. The wholesalers, in turn, charge us back the difference between the price initially paid by the wholesaler and the discounted price paid to the wholesaler by the healthcare providers. These reserves are established in the same period that the related revenue is recognized, resulting in a reduction of product revenue and receivables. Chargeback amounts are generally determined at the time of resale to the qualified healthcare provider by Customers, and we generally issue credits for such amounts within a few weeks of the Customer's notification to us of the resale. Reserves for chargebacks consist of (i) credits that we expect to issue for units that remain in the distribution channel inventories at each reporting period end that we expect will be sold to qualified healthcare providers, and (ii) chargebacks that Customers have claimed but for which we have not yet issued a credit.

Payor Rebates: We contract with various private payor organizations, primarily insurance companies and pharmacy benefit managers, for the payment of rebates with respect to utilization of our products. We estimate these rebates and record such estimates in the same period the related revenue is recognized, resulting in a reduction of product revenue and the establishment of a current liability.

Collaboration and License Revenue

We enter into collaboration and license agreements for the development and commercialization of our products that are within the scope of ASC 606. The terms of collaboration and license agreements typically include payments to us of one or more of the following: non-refundable or partially refundable upfront or license fees, development, regulatory and commercial milestone payments, manufacturing supply services, partial or complete reimbursement of

research and development costs, and royalties on net sales of licensed products. Each of these payments results in collaboration and license revenue, except for royalties on net sales of licensed products, which are classified as royalty revenues. To date, we have not received any royalty revenues.

As part of the accounting for these arrangements, we must apply judgment to determine whether the performance obligations are distinct, and develop assumptions in determining the stand-alone selling price for each distinct performance obligation identified in the contract. To determine the stand-alone selling price, we rely on assumptions which may include forecasted revenues, development timelines, reimbursement rates for personnel costs, discount rates and probabilities of technical and regulatory success.

Licenses of Intellectual Property: If the license to our intellectual property is determined to be distinct from the other performance obligations identified in the arrangement, we recognize revenues from non-refundable, up-front fees allocated to the license when the license is transferred to the licensee and the licensee is able to use and benefit from the license. For licenses that are bundled with other promises, we utilize judgment to assess the nature of the combined performance obligation to determine whether the combined performance obligation is satisfied over time or at a point in time and, if over time, the appropriate method of measuring progress for purposes of recognizing revenue from non-refundable, up-front fees. We evaluate the measure of progress each reporting period and, if necessary, adjust the measure of performance and related revenue recognition.

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

Manufacturing Supply Services: Arrangements that include a promise for future supply of drug substance or drug product for either clinical development or commercial supply at the licensee’s discretion are generally considered as options. We assess whether these options provide a material right to the licensee, and if so, they are accounted for as separate performance obligations. If we are entitled to additional payments when the licensee exercises these options, any additional payments are recorded in collaboration and license revenue when the licensee obtains control of the goods, which is upon delivery.

Royalties: For arrangements that include sales-based royalties, including milestone payments based on the level of sales, where the license is deemed to be the predominant item to which the royalties relate, we recognize revenue at the later of (i) when the related sales occur, or (ii) when the performance obligation to which some or all of the royalty has been allocated has been satisfied (or partially satisfied). To date, we have not recognized any royalty revenue resulting from any of our out-licensing arrangements.

Research and Development Activities: Amounts related to research and development and regulatory activities are recognized as the related services or activities are performed, in accordance with the contract terms. Payments may be made to or by us based on the number of full-time equivalent researchers assigned to the collaboration project and the related research and development expenses incurred.

We receive payments from our collaborators based on billing schedules established in each contract. Upfront payments and fees may be recorded as deferred revenue upon receipt or when due, and may require deferral of revenue recognition to a future period until we perform our obligations under these arrangements. Amounts are recorded as accounts receivable when our right to consideration is unconditional. We do not assess whether a contract has a significant financing component if the expectation at contract inception is such that the period between payment by the collaborators and the transfer of the promised goods or services to the collaborators will be one year or less.

Research and development expenses and related accruals

Research and development costs are expensed as incurred and consist of salaries and benefits, lab supplies, materials and facility costs, as well as fees paid to other nonemployees and entities that conduct certain research and development activities on our behalf. Amounts incurred in connection with collaboration and license agreements are also included in research and development expense. Payments made prior to the receipt of goods or services to be used in research and development are capitalized until the goods or services are received.

Clinical trial costs are a component of research and development expenses and include clinical trials associated with approved products that are required by a regulatory authority as a condition of approval. We also include our efforts to support label expansions and to develop product candidates for additional indications in research and development expenses. We accrue and expense clinical trial activities performed by third parties based upon actual work completed in accordance with agreements established with clinical research organizations and clinical sites. We determine the actual costs through monitoring patient enrollment and discussions with internal personnel and external service providers as to the progress or stage of completion of trials or services and the agreed-upon fee to be paid for such services.

Manufacturing start-up costs are a component of research and development expenses. Additionally, manufacturing costs incurred after regulatory approval but in connection with significant changes and/or enhancements to the approved manufacturing process are recorded as research and development expenses. We accrue and expense manufacturing activities performed by third parties based upon actual work completed in accordance with agreements established with contract manufacturers.

As part of the process of preparing financial statements, we are required to estimate and accrue expenses, the largest of which are research and development expenses. This process involves the following:

- communicating with our applicable personnel to identify services that have been performed on our behalf and estimating the level of service performed and the associated cost incurred for the service when we have not yet been invoiced or otherwise notified of actual cost;
- estimating and accruing expenses in our financial statements as of each balance sheet date based on facts and circumstances known to us at the time; and
- periodically confirming the accuracy of our estimates with selected service providers and making adjustments, if necessary.

Examples of estimated research and development expenses that we accrue include:

- fees paid to CROs in connection with preclinical and toxicology studies and clinical studies;
- fees paid to investigative sites in connection with clinical studies;
- fees paid to contract manufacturing organizations in connection with the production of our product candidates prior to qualifying for capitalization as inventory; and
- professional service fees for consulting and related services.

We base our expense accruals related to clinical studies on our estimates of the services received and efforts expended pursuant to contracts with multiple research institutions and clinical research organizations that conduct and manage clinical studies on our behalf. The financial terms of these agreements vary from contract to contract and may result in uneven payment flows. Payments under some of these contracts depend on factors, such as the successful enrollment of patients and the completion of clinical study milestones. Our service providers invoice us monthly in arrears for services performed. In accruing service fees, we estimate the time period over which services will be performed and the level of effort to be expended in each period. If we do not identify costs that we have begun to incur or if we underestimate or overestimate the level of services performed or the costs of these services, our actual expenses could differ from our estimates.

To date, we have not experienced significant changes in our estimates of accrued research and development expenses after a reporting period. However, due to the nature of estimates, we may be required to make changes to our estimates in the future as we become aware of additional information about the status or conduct of our clinical studies and other research activities.

63

Cost of Sales

Cost of sales represent primarily the costs associated with manufacturing of Andexxa and Bevyxxa, Bevyxxa net sales-based royalties payable to Millennium, amortization of an intangible asset associated with a capitalized milestone payment made to Millennium upon FDA approval of Bevyxxa, write-offs of product and prepayments for product to be manufactured that may not be recoverable based on future sales and fixed costs to our contract manufacturers, if any, for anticipated shortfall in product demand relative to committed volumes. We periodically analyze our inventory levels, and write-down inventory for estimated excess, obsolete and non-sellable inventories based on assumptions about future demand, past usage, changes to manufacturing processes and overall market conditions.

Inventory

Inventories are stated at the lower of cost or estimated net realizable value, on a first-in, first-out, or FIFO, basis. We primarily use actual costs to determine our cost basis for inventories. To the extent inventories are not scheduled to be utilized in the manufacturing process and/or sold within twelve months of the balance sheet date, it is included as a component of prepaid and other long-term assets in our Consolidated Balance Sheets.

Prior to the regulatory approval of our product candidates, we incur expenses for the manufacture of drug product that could potentially be available to support the commercial launch of our products. Until the first reporting period when regulatory approval has been received, we record all such costs as research and development expense. Beginning in the fourth quarter of 2017, we began to capitalize inventory costs associated with Bevyxxa when it was determined that the inventory had a probable future economic benefit. This inventory capitalization process began to be applied to Andexxa Gen 1 supply upon FDA approval on May 3, 2018. Costs incurred for Andexxa Gen 2 have been expensed to date and will begin to be capitalized in 2019 following the approval of the Prior Approval Supplement for our Gen 2 manufacturing process on December 31, 2018.

We periodically analyze our inventory levels, and write down inventory that has become obsolete, inventory that has a cost basis in excess of its estimated realizable value and inventory in excess of expected sales requirements as cost of sales.

The bulk drug substance (“BDS”) in Andexxa and the active pharmaceutical ingredient (“API”) in Bevyxxa have undergone significant manufacturing specific to their intended purposes at the point they are purchased by us, therefore, we classify them as work-in-process inventory.

Stock-based compensation

We recognize compensation costs related to stock options granted to employees based on the estimated fair value of the options on the date of grant. We estimate the grant date fair value, and the resulting stock-based compensation expense, using the Black-Scholes option-pricing model. The grant date fair value of the stock-based option is generally recognized on a straight-line basis over the requisite service period, which is generally the vesting period of the respective options.

The Black-Scholes option-pricing model requires the use of highly subjective and complex assumptions which determine the fair value of stock-based awards, including the expected term and the price volatility of the underlying stock. The expected term of employee options granted is determined using the simplified method (based on the midpoint between the vesting date and the end of the contractual term). As sufficient trading history does not yet exist

for our common stock, our estimate of expected volatility is based on the weighted average volatility of other companies with similar products under development, market, size and other factors and our volatility.

We account for stock-based compensation arrangements with non-employees, including vendors, using a fair value approach. The fair value of these options is measured using the Black-Scholes option pricing model reflecting the same assumptions as applied to employee options in each of the reported periods, other than the expected term, which is assumed to be the remaining contractual term of the option. The compensation costs of these arrangements are subject to remeasurement over the vesting terms as earned.

We estimate the fair value of restricted stock units ("RSUs"), and performance stock units ("PSUs"), based on the fair market values of the underlying stock on the dates of grant. The estimated fair value of RSUs is expensed over the vesting period and the estimated fair value of PSUs is expensed using an accelerated method over the requisite service period based on management's best estimate as to whether it is probable that the shares awarded are expected to vest. We assess the probability of the performance indicators being met on a continuous basis.

We estimate fair value of market-based PSUs ("M-PSUs") based on Monte Carlo simulation models with assistance from an independent third-party valuation specialist. The Monte Carlo simulation models require the use of highly subjective and complex assumptions which determine the fair value of M-PSUs including price volatility of the underlying stock and derived service periods. The assumptions used in calculating the fair value of M-PSUs and expected attainment of performance-based PSUs represent our best estimates, but these estimates involve inherent uncertainties and the application of management judgment.

We expect to continue to grant stock options and awards in the future, and to the extent that we do, our actual stock-based compensation expense recognized in future periods will likely increase.

Interest expense

In the fourth quarter of 2016 and the and first quarter of 2017, we entered into two financing arrangements that, under relevant accounting literature, are required to be recorded as debt (see Note 9, Notes Payable). Both arrangements are eligible to be repaid based on royalties from our marketed product, Andexxa. The recognition of interest expense requires us to estimate the total amount of future royalty payments to be generated from product sales by jurisdiction over the life of the agreements. The sum of the amounts paid to our financing partners less the net proceeds we received from the borrowings will be recorded as interest expense over the life of the agreements. Consequently, we impute interest on the carrying value of the notes payable and long-term debt and record interest expense using an imputed effective interest rate. We reassess the expected royalty payments each reporting period and account for any changes through an adjustment to the effective interest rate on a prospective basis, with a corresponding impact to the classification of our debt and note payable liabilities.

Income taxes

We file U.S. federal income tax returns and state tax returns in various states. To date, we have not been audited by the Internal Revenue Service or any state income tax authority.

We provide for income taxes under the asset and liability method. Current income tax expense or benefit represents the amount of income taxes expected to be payable or refundable for the current year. Deferred income tax assets and liabilities are determined based on differences between the financial statement reporting and tax bases of assets and liabilities and net operating loss and credit carryforwards, and are measured using the enacted tax rates and laws that will be in effect when such items are expected to reverse. Deferred income tax assets are reduced, as necessary, by a valuation allowance when management determines it is more likely than not that some or all of the tax benefits will not be realized. The recognition, de-recognition and measurement of a tax position is based on management's best judgment given the facts, circumstances and information available at the reporting date. Our policy is to recognize interest and penalties related to the underpayment of income taxes as a component of income tax expense or benefit. To date, there have been no interest or penalties charged in relation to the underpayment of income taxes.

As of December 31, 2018, our total deferred tax assets were $445.0 million. The deferred tax assets were primarily comprised of federal and state tax net operating losses and tax credit carryforwards. Utilization of the net operating loss and tax credit carryforwards may be subject to an annual limitation due to historical or future ownership percentage change rules provided by the Internal Revenue Code of 1986, and similar state provisions. The annual

limitation may result in the expiration of certain net operating loss and tax credit carryforwards before their utilization. We have previously determined that a change occurred during 2013 and, as a result of this change, our net operating loss and tax credit carryforwards will not be subject to limitation in total, but we may be subject to a limitation as it relates to the timing of utilization. However, due to a lack of historical earnings and uncertainties surrounding our ability to generate future taxable income to realize these tax assets, a full valuation allowance has been established to offset our deferred tax assets.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

The primary objective of our investment activities is to preserve our capital to fund our operations. We also seek to maximize income from our investments without assuming significant risk. To achieve our objectives, we maintain a portfolio of cash equivalents and investments in a variety of securities of high credit quality. As of December 31, 2018, we had cash, cash equivalents and investments of $317.0 million consisting of cash and liquid investments deposited in highly-rated financial institutions in the United States. A portion of our investments may be subject to interest rate risk and could fall in value if market interest rates increase. However, because our investments are primarily short-term in duration, we believe that our exposure to interest rate risk is not significant and a 1% movement in market interest rates would not have a significant impact on the total value of our portfolio. We actively monitor changes in interest rates.

We contract for the conduct of certain clinical development and manufacturing activities with vendors in Europe. We made payments in the aggregate amount of €89.7 million to our European vendors during the year ended December 31, 2018. We are subject to exposure due to fluctuations in foreign exchange rates in connection with these agreements and with our cash balance denominated in Euros and British Pounds, to a lesser extent. For the year ended December 31, 2018, the effect of the exposure to these fluctuations in foreign exchange rates was not material.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The Consolidated Financial Statements and related disclosures included in Part IV, Item 15 of this annual report are incorporated by reference into this Item 8.

PORTOLA PHARMACEUTICALS, INC.

INDEX TO FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Portola Pharmaceuticals, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Portola Pharmaceuticals, Inc. (the Company) as of December 31, 2018 and 2017, the related consolidated statements of operations, comprehensive loss, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2018, and the related notes (collectively referred to as the “consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated March 1, 2019 expressed an unqualified opinion thereon.

Adoption of New Accounting Standard

As discussed in Note 2 to the consolidated financial statements, the Company changed its method for recognizing revenue as a result of the adoption of Accounting Standards Update (ASU) No. 2014-09, Revenue from Contracts with Customers (Topic 606), effective January 1, 2018.

Basis for Opinion

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

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Ernst & Young LLP

We have served as the Company’s auditor since 2004.

Redwood City, California

March 1, 2019

F-2

PORTOLA PHARMACEUTICALS, INC.

Consolidated Balance Sheets

(In thousands, except share and per share data)

	December 31, 2018	December 31, 2017
Assets		
Current assets:		
Cash and cash equivalents	$ 138,951	$ 181,568
Short-term investments	178,013	281,589
Restricted cash	1,062	173
Trade and other receivables, net	5,849	3,750
Unbilled - collaboration and license revenue	9,880	–
Inventories	7,873	1,099
Prepaid expenses and other current assets	11,699	9,744
Total current assets	353,327	477,923
Property and equipment, net	5,236	5,217
Intangible assets	7,279	7,851
Long-term investments	-	71,076
Prepaid and other long-term assets	20,577	9,609
Total assets	$ 386,419	$ 571,676
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 13,215	$ 9,304
Accrued compensation and employee benefits	10,794	11,526
Accrued research and development	19,831	44,973
Accrued and other liabilities	11,516	3,552
Deferred revenue, current portion	1,847	11,169
Current portion of notes payable and long term debt	11,802	–
Total current liabilities	69,005	80,524
Notes payable, less current portion	48,298	50,565
Long term debt, less current portion	155,256	54,251
Long term obligation to collaborator, less current portion	6,881	8,000
Deferred revenue, long-term less current portion	4,488	18,798
Other long-term liabilities	11,924	10,045
Total liabilities	295,852	222,183
Commitments and contingencies (Note 10)		
Stockholders' equity:		
Preferred stock, $0.001 par value, 5,000,000 shares authorized; no shares issued and outstanding	–	–
Common stock, $0.001 par value, 150,000,000 and 100,000,000 shares authorized at December 31, 2018 and 2017; 66,617,724 and 65,296,643 shares issued and outstanding at December 31, 2018 and 2017, respectively	68	66
Additional paid-in capital	1,614,320	1,551,728
Accumulated deficit	(1,525,704)	(1,204,519)
Accumulated other comprehensive loss	(283)	(409)

Total Portola stockholders' equity	88,401	346,866
Noncontrolling interest (SRX Cardio)	2,166	2,627
Total stockholders' equity	90,567	349,493
Total liabilities and stockholders' equity	$ 386,419	$ 571,676

Amounts include the assets and liabilities of SRX Cardio, LLC, a consolidated variable interest entity ("VIE"). Portola's interests and obligations with respect to the VIE's assets and liabilities are limited to those accorded to Portola in its agreement with the VIE. See Note 8, "Asset Acquisition and License Agreements," to these consolidated financial statements.

See accompanying notes

PORTOLA PHARMACEUTICALS, INC.

Consolidated Statements of Operations

(In thousands, except share and per share data)

	Year Ended December 31,		
	2018	2017	2016
Revenues:			
Product revenue, net	$24,117	$–	$–
Collaboration and license revenue	16,013	22,546	35,504
Total revenues	40,130	22,546	35,504
Operating expenses:			
Cost of sales	18,081	415	—
Research and development	216,205	203,701	246,854
Selling, general and administrative	151,164	91,109	58,235
Total operating expenses	385,450	295,225	305,089
Loss from operations	(345,320)	(272,679)	(269,585)
Interest and other income (expense), net	13,516	(1,338)	1,533
Interest expense	(18,740)	(11,603)	(61)
Net loss	(350,544)	(285,620)	(268,113)
Net loss (income) attributable to noncontrolling interest (SRX Cardio)	321	(470)	(930)
Net loss attributable to Portola	$(350,223)	$(286,090)	$(269,043)
Net loss per share attributable to Portola common stockholders:			
Basic and diluted	$(5.31)	$(4.81)	$(4.76)
Shares used to compute net loss per share attributable to Portola common stockholders:			
Basic and diluted	66,017,330	59,508,156	56,480,647

See accompanying notes

PORTOLA PHARMACEUTICALS, INC.

Consolidated Statements of Comprehensive Loss

(In thousands)

	Year Ended December 31,		
	2018	2017	2016
Net loss	$(350,544)	$(285,620)	$(268,113)
Other comprehensive loss:			
Unrealized gain (loss) on available-for-sale securities	126	(397)	138
Comprehensive loss	(350,418)	(286,017)	(267,975)
Comprehensive loss (income) attributable to noncontrolling interest (SRX Cardio)	321	(470)	(930)
Total comprehensive loss attributable to Portola	$(350,097)	$(286,487)	$(268,905)

See accompanying notes

PORTOLA PHARMACEUTICALS, INC.

Consolidated Statements of Stockholders' Equity

(In thousands, except share and per share data)

	Common Stock		Additional Paid-In	Accumulated	Accumulated Other Comprehensive	Non-controlling Interest (SRX	Total Stockholders'
	Shares	Amount	Capital	Deficit	Loss	Cardio)	Equity
Balance at December 31, 2015	56,359,515	$ 57	$1,076,791	$(649,302)	$ (150)	$ 2,927	$430,323
Exercise of employee stock options for cash	54,045	–	401	–	–	–	401
Issuance of common stock pursuant to ESPP purchase	62,293	–	1,278	–	–	–	1,278
Issuance of common stock pursuant to RSU and PSU release	68,365	–	–	–	–	–	–
Stock-based compensation expense	–	–	30,362	–	–	–	30,362
Unrealized gain on available-for-sale securities	–	–	–	–	138	–	138
Net (loss) income attributable to non-controlling interest (SRX Cardio)	–	–	–	–	–	930	930
Dividends to non-controlling interest (SRX Cardio)'s shareholders	–	–	–	–	–	(1,700)	(1,700)
Net loss	–	–	–	(269,043)	–	–	(269,043)
Balance at December 31, 2016	56,544,218	$ 57	$1,108,832	$(918,345)	$ (12)	$ 2,157	$192,689
Cumulative effect of a change in accounting principal	–	–	84	(84)	–	–	–
Exercise of employee stock options for cash	1,092,539	1	17,696	–	–	–	17,697
Issuance of common stock pursuant to ESPP purchase	85,170	–	1,945	–	–	–	1,945
Issuance of common stock pursuant to RSU and PSU release	272,256	1	–	–	–	–	1
Stock-based compensation expense	–	–	43,284	–	–	–	43,284

Unrealized loss on available-for-sale securities	–	–	–	–	(397)	–	(397)
Net (loss) income attributable to non-controlling interest (SRX Cardio)	–	–	–	–	–	470	470
Issuance of common stock in connection with public offering, net	7,302,500	7	379,887	–	–	–	379,894
Net loss	–	–	–	(286,090)	–	–	(286,090)
Balance at December 31, 2017	65,296,683	$ 66	$1,551,728	$(1,204,519)	$ (409)	$ 2,627	$ 349,493
Adjustment to accumulated deficit due to adoption of ASC 606	–	–	–	29,038	–	–	29,038
Exercise of employee stock options for cash	717,422	1	12,254	–	–	–	12,255
Issuance of common stock pursuant to RSU and PSU release	497,662	1	–	–	–	–	1
Issuance of common stock pursuant to ESPP purchase	105,997	–	3,133	–	–	–	3,133
Stock-based compensation expense	–	–	47,205	–	–	–	47,205
Unrealized gain on available-for-sale securities	–	–	–	–	126	–	126
Net (loss) income attributable to non-controlling interest (SRX Cardio)	–	–	–	–	–	(321)	(321)
Dividends to non-controlling interest (SRX Cardio)'s shareholders	–	–	–	–	–	(140)	(140)
Net loss	–	–	–	(350,223)	–	–	(350,223)
Balance at December 31, 2018	66,617,764	$ 68	$1,614,320	$(1,525,704)	$ (283)	$ 2,166	$ 90,567

See accompanying notes

PORTOLA PHARMACEUTICALS, INC.

Consolidated Statements of Cash Flows

(In thousands)

	Year Ended December 31,		
	2018	2017	2016
Operating activities			
Net loss	$(350,544)	$(285,620)	$(268,113)
Adjustments to reconcile net loss to cash used in operating activities:			
Depreciation and amortization	3,102	2,410	1,924
Net (accretion) amortization on investment securities	(1,864)	(235)	1,113
Non-cash interest expense	18,740	11,603	61
Stock-based compensation expense, net of capitalized labor	46,159	43,284	30,362
Stock-based compensation expense for Lonza liability-classified award	9,201	–	–
Charge associated with our Gen 1 manufacturing process transition	10,311	–	–
Remeasurement (gain) loss on embedded derivatives liabilities	(6,357)	4,562	–
Provision for excess and obsolete inventories	2,246	–	–
Loss on assets disposal	15	52	–
Changes in operating assets and liabilities:			
Inventories	(12,612)	(1,099)	–
Trade and other receivables, net	607	(3,750)	1,000
Unbilled - collaboration and license revenue	(3,186)	–	–
Prepaid expenses and other current assets	(7,496)	235	10,055
Prepaid and other long-term assets	(10,968)	(4,395)	6,779
Accounts payable	1,881	(5,242)	4,308
Accrued compensation and employee benefits	(732)	6,720	(653)
Accrued research and development	(25,142)	21,155	(377)
Accrued and other liabilities	4,246	1,856	(892)
Deferred revenue	(1,288)	(15,796)	18,747
Notes payable, long term debt and long term obligation to collaborator	(1,412)	–	–
Other long-term liabilities	(965)	(865)	(769)
Net cash used in operating activities	(326,058)	(225,125)	(196,455)
Investing activities			
Purchases of property and equipment	(2,559)	(1,236)	(1,864)
Purchases of intangible assets	–	(5,000)	–
Purchases of investments	(259,083)	(575,624)	(252,323)
Proceeds from maturities of investments	435,723	353,088	394,730
Net cash provided by (used in) investing activities	174,081	(228,772)	140,543
Financing activities			
Proceeds from debt issuance, net	95,000	47,444	–
Proceeds from issuance of common stock from public offering, net	–	379,894	–
Proceeds from issuance of common stock based on equity award plans, net	15,389	19,642	1,441
Dividends to Noncontrolling interest (SRX Cardio)'s shareholders	(140)	–	(1,700)
Proceeds from long-term notes payable	–	–	50,000
Proceeds from long-term obligation to Collaborator	–	–	8,000

Net cash provided by financing activities	110,249	446,980	57,741
Net (decrease) increase in cash, cash equivalents and restricted cash	(41,728)	(6,917)	1,829
Cash, cash equivalents and restricted cash at beginning of period	181,741	188,658	186,829
Cash, cash equivalents and restricted cash at end of period	$140,013	$181,741	$188,658
Noncash investing and financing activities:			
Net change in accrued offering cost	$–	$–	$(238)

See accompanying notes

PORTOLA PHARMACEUTICALS, INC.

Notes to Consolidated Financial Statements

1. Organization

Portola Pharmaceuticals, Inc. (the "Company" or "we" or "our" or "us") is a biopharmaceutical company focused on the development and commercialization of novel therapeutics in the areas of thrombosis, other hematologic disorders and inflammation for patients who currently have limited or no approved treatment options. We were incorporated in September 2003 in Delaware. Our headquarters and operations are located in South San Francisco, California and we operate in one segment.

Our two medicines approved by the U.S. Food and Drug Administration ("FDA") are Andexxa® [coagulation factor Xa (recombinant), inactivated-zhzo], the first and only antidote for patients treated with rivaroxaban and apixaban, when reversal of anticoagulation is needed due to life-threatening or uncontrolled bleeding, and Bevyxxa® (betrixaban), the first and only oral, once-daily Factor Xa inhibitor, for the prevention of venous thromboembolism ("VTE") in adult patients hospitalized for an acute medical illness. We received approval for Andexxa and Bevyxxa in May 2018 and June 2017, respectively. On December 31, 2018, the FDA approved our Prior Approval Supplement (PAS) for our large-scale, second generation Andexxa® [coagulation factor Xa (recombinant), inactivated-zhzo], allowing for broad commercial launch in the United States. We have scaled back our commercial efforts for Bevyxxa to focus on the commercial launch of Andexxa. We are re-evaluating our marketing strategy for Bevyxxa and also exploring potential partnership and other strategic options for Bevyxxa. We are also advancing cerdulatinib, a dual spleen tyrosine kinase, or Syk, and Janus kinases, or JAK, inhibitor in development to treat hematologic cancers. We have a partnered program, which is focused on developing selective Syk inhibitors for inflammatory conditions.

2. Summary of Significant Accounting Policies

Consolidation and Basis of Presentation

The accompanying financial statements have been prepared in accordance with accounting principles generally accepted in the United States ("U.S. GAAP"). The accompanying consolidated financial statements include the accounts of Portola and its wholly owned subsidiaries and SRX Cardio,LLC ("SRX Cardio") that is a variable interest entity (a "VIE") for which Portola is deemed, under applicable accounting guidance to be the primary beneficiary as of December 31, 2018. For the consolidated VIE, we record net income attributable to noncontrolling interests in our Consolidated Statements of Operations equal to the percentage of the economic or ownership interest retained in such VIE by the respective noncontrolling parties. Unless otherwise specified, references to the Company are references to Portola and its consolidated subsidiaries and VIE. All intercompany transactions and balances have been eliminated upon consolidation.

Reclassification

Certain prior period amounts on the accompanying consolidated financial statements have been reclassified to conform to current period presentation. This reclassification did not have any material impact on our results of operations or financial condition or statement of cash flows as of December 31, 2018.

Use of Estimates

The preparation of consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent liabilities and the reported amounts of revenues and expenses in the consolidated financial statements and the accompanying notes. On an ongoing basis, management evaluates its estimates, including those related to revenue recognition, inventory, clinical trial accruals, fair value of assets and liabilities, income taxes, in-process research and development, carrying value of notes payable and long term debt less current royalty obligations, the consolidation of VIEs, and stock-based compensation. Management bases its estimates on historical experience and on various other market-specific and relevant assumptions that management believes to be reasonable under the circumstances. Actual results may differ from those estimates.

Variable Interest Entities

We review agreements we enter into with third-party entities, pursuant to which we may have a variable interest in the entity, in order to determine if the entity is a VIE. If the entity is a VIE, we assess whether or not we are the primary beneficiary of that entity. In determining whether we are the primary beneficiary of an entity, we apply a qualitative approach that determines whether we have both (1) the power to direct the economically significant activities of the entity and (2) the obligation to absorb losses of, or the right to receive benefits from, the entity that could potentially be significant to that entity. If we determine we are the primary beneficiary of a VIE, we consolidate the statements of operations and financial condition of the VIE into our consolidated financial statements.

Our determination about whether we should consolidate such VIEs is made continuously as changes to existing relationships or future transactions may result in a consolidation or deconsolidation event.

Cash and Cash Equivalents

Cash and cash equivalents consist of cash and other highly liquid investments with original maturities of three months or less from the date of purchase.

Restricted Cash

Restricted cash consists of cash restricted for royalty payments to HealthCare Royalty Partners and its Affiliates (“HCR”) and cash held by SRX Cardio, LLC (“SRX Cardio”).

Cash as Reported in Consolidated Statements of Cash Flows

Cash as reported in the consolidated statements of cash flows includes the aggregate amounts of cash and cash equivalents and restricted cash, and consists of the following (in thousands):

	December 31, 2018	December 31, 2017	December 31, 2016
Cash and cash equivalents	$138,951	$ 181,568	$188,480
Restricted cash (SRX Cardio)	30	173	178
Restricted cash for royalty payments to HealthCare Royalty Partners and its affiliates ("HCR")	1,032	—	—
Total cash balance in consolidated statements of cash flows	$140,013	$ 181,741	$188,658

Trade Receivables

Trade receivables are recorded net of estimates of variable consideration for which reserves are established and which result from discounts, returns, chargebacks, copay assistance and other allowances that are offered within contracts between us and a limited number of specialty distributors and wholesalers in the United States ("Customers"), group purchasing organizations, payors and other indirect customers related to our product sales. These reserves are classified as reductions of accounts receivable (if the amount is payable to the Customer) or a current liability (if the amount is payable to a party other than a Customer). Please refer to our product revenue policy for further information.

Inventories

Inventories are stated at the lower of cost or estimated net realizable value, on a first-in, first-out, or FIFO, basis. We primarily use actual costs to determine our cost basis for inventories. To the extent inventories are not scheduled to be utilized in the manufacturing process and/or sold within twelve months of the balance sheet date, it is included as a component of prepaid and other long-term assets in our Consolidated Balance Sheets.

Prior to the regulatory approval of our product candidates, we incur expenses for the manufacture of drug product that could potentially be available to support the commercial launch of our products. Until the first reporting period when regulatory approval has been received, we record all such costs as research and development expense. Beginning in the fourth quarter of 2017, we began to capitalize inventory costs associated with Bevyxxa when it was determined that the inventory had a probable future economic benefit. This inventory capitalization process began to be applied to Andexxa Gen 1 supply upon FDA approval on May 3, 2018. Costs incurred for second generation Andexxa have been recorded as a research and development expense through the period-end as we obtained the FDA approval on December 31, 2018.

We assess our inventory levels each reporting period and write-down inventory that is expected to be at risk for expiration, that has a cost basis in excess of its expected net realizable value and inventory quantities in excess of expected requirements. In evaluating the sufficiency of our inventory reserves or liabilities for firm purchase commitments, we also take into consideration our firm purchase commitments for future inventory production. If we were to decide to cancel our manufacturing commitment, such cancellation would trigger the payment of a cancellation fee. If we project to have excess inventories and that it would be more cost-efficient to pay the cancellation fee, we may accrue the cancellation fee as a liability. Our assessment of excess inventories, including future firm purchase commitments, requires management to utilize judgement in formulating estimates and assumptions that we believe to be reasonable under the circumstances. Actual results may differ from those estimates and assumptions. As of December 31, 2018, we accrued a $2.8 million liability related to excess inventory purchase commitments. When we recognize a loss on such inventory or firm purchase commitments, it establishes a new, lower cost basis for that inventory, and subsequent changes in facts and circumstances will not result in the restoration or increase in that newly established cost basis. If inventory with a lower cost basis is subsequently sold, it will result in higher gross margin for those sales. The portion of our inventory that is most at risk for product dating issues is the finished goods inventory and the carrying value of our finished goods inventory was $2.8 million as of December 31, 2018.

The bulk drug substance ("BDS") in Andexxa and the active pharmaceutical ingredient ("API") in Bevyxxa have undergone significant manufacturing specific to their intended purposes at the point they are purchased by us, therefore, we classify them as work-in-process inventory.

Investments in Marketable Securities

All investments in marketable securities have been classified as “available-for-sale” and are carried at estimated fair value as determined based upon quoted market prices or pricing models for similar securities. Management determines the appropriate classification of our investments in debt securities at the time of purchase and reevaluates such designation as of each balance sheet date. Unrealized gains and losses are excluded from earnings and were reported as a component of accumulated comprehensive income (loss). Realized gains and losses and declines in fair value judged to be other than temporary, if any, on available-for-sale securities are included in interest and other income, net. The cost of securities sold is based on the specific-identification method. Interest on marketable securities is included in interest and other income, net.

Fair Value Measurements

Fair value accounting is applied for all financial assets and liabilities and non-financial assets and liabilities that are recognized or disclosed at fair value in the financial statements on a recurring basis.

Concentration of Risk

Financial instruments that potentially subject us to concentrations of credit risk consist of cash, cash equivalents, receivables from collaborations and investments. Our investment policy limits investments to certain types of debt securities issued by the U.S. government, its agencies and institutions with investment-grade credit ratings and places restrictions on maturities and concentration by type and issuer. We are exposed to credit risk in the event of a default by the financial institutions holding our cash, cash equivalents and investments and issuers of investments to the extent recorded on the consolidated balance sheets.

Trade receivables and receivables from collaborations are typically unsecured and are concentrated in the pharmaceutical industry. Accordingly, we may be exposed to credit risk generally associated with pharmaceutical companies or specific to our collaboration agreements. To date, we have not experienced any losses related to these receivables.

We are dependent on third-party manufacturers to manufacture our drugs and drug candidates. In particular, we rely and expect to continue to rely on a small number of manufacturers to supply it with its requirements for the bulk drug substance and active pharmaceutical ingredients related to our drugs and drug candidates. We could be adversely affected by a significant interruption in the supply of bulk drug substance and active pharmaceutical ingredients.

Customer Concentration

Customers who accounted for 10% or more of total net revenues were as follows:

	2018	2017	2016
Bayer Pharma, AG and Janssen Pharmaceuticals, Inc.	19%	29%	27%
Daiichi Sankyo, Inc.	16%	33%	29%
Bristol-Myers Squibb Company and Pfizer Inc.	*	22%	19%
Dermavant Sciences GmbH	*	16%	25%

*Less than 10%

We have three Andexxa specialty distributor customers who each accounted for 10% or more of total net revenues during the year ended December 31, 2018.

Intangible Assets

Intangible assets include an in-process research and development asset related to our consolidated VIE and a milestone payment made to Millennium Pharmaceuticals, Inc. (“Millennium”) upon FDA approval of Bevyxxa.

The in-process research and development asset is considered to be indefinite-lived until the completion or abandonment of the associated research and development efforts. If the project is completed, which generally occurs if and when regulatory approval to market a product is obtained, the carrying value of the related intangible asset is

amortized as a part of cost of sales over the remaining estimated life of the asset beginning in the period in which the project is completed. If the asset becomes impaired or is abandoned, the carrying value of the related intangible asset is written down to its fair value and an impairment charge is taken in the period in which the impairment occurs. The in-process research and development asset is tested for impairment on an annual basis, and more frequently if indicators are present or changes in circumstances suggest that impairment may exist. Please refer to Note 8, “Asset Acquisition and License Agreements,” for further information.

A milestone payment made pursuant to the regulatory approval of Bevyxxa in the United States is considered to be finite-lived and will be amortized on a straight-line basis over the remaining estimated patent life. The intangible asset with finite useful life is reviewed for impairment when facts or circumstances suggest that the carrying value of the asset may not be recoverable.

Property and Equipment

Property and equipment are stated at cost and depreciated using the straight-line method over the estimated useful lives of the assets, ranging from two to five years. Leasehold improvements are amortized over the shorter of their estimated useful lives or the related lease term.

Impairment of Long-Lived Assets

We review long-lived assets for impairment whenever events or changes in business circumstances indicate that the carrying amount of the assets may not be fully recoverable. Specific potential indicators of impairment include a significant decrease in the fair value of an asset, a significant change in the extent or manner in which an asset is used or a significant physical change in an asset, a significant adverse change in legal factors or in the business climate that affects the value of an asset, an adverse action or assessment by the FDA or another regulator or a projection or forecast that demonstrates continuing losses associated with an income-producing asset. An impairment loss would be recognized when estimated undiscounted future cash flows expected to result from the use of the asset and its eventual disposition are less than its carrying amount. Impairment, if any, is assessed using discounted cash flows or other appropriate measures of fair value. Through December 31, 2018, there have been no such losses.

Deferred Rent

We recognize rent expense on a straight-line basis over the noncancelable term of our operating lease and, accordingly, record the difference between cash rent payments and the recognition of rent expense as a deferred rent liability. We also record lessor-funded lease incentives, such as reimbursable leasehold improvements, as a deferred rent liability, which is amortized as a reduction of rent expense over the noncancelable term of our operating lease.

Revenue Recognition

On January 1, 2018, we adopted Accounting Standards Update No. 2014-09, Revenue from Contracts with Customers, Topic 606 (“ASC 606”), using the modified retrospective method to all contracts that were not completed as of January 1, 2018. We recognized the cumulative effect of applying the new revenue standard as an adjustment to the opening balance of accumulated deficit at the beginning of 2018. The results for our reporting periods beginning on and after January 1, 2018 are presented under ASC 606, while prior period amounts are not adjusted and continue to be reported under the accounting standards in effect for the prior period.

Pursuant to ASC 606, we recognize revenue when our customer obtains control of promised goods or services, in an amount that reflects the consideration that we expect to receive in exchange for those goods or services. To determine revenue recognition for arrangements that we determine are within the scope of ASC 606, we perform the following five steps: (i) identify the contract(s) with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when (or as) we satisfy a performance obligation. We only apply the five-step model to contracts when it is probable that we will collect the consideration we are entitled to in exchange for the goods or services we transfer to the customer. At contract inception, once the contract is determined to be within the scope of ASC 606, we assess the goods or services promised within each contract, determine those that are performance obligations, and assess whether each promised good or service is distinct. We then recognize as revenue the amount of

the transaction price that is allocated to the respective performance obligation when (or as) the performance obligation is satisfied.

Product Revenue, Net

Our product revenue consists of the U.S. sales of Andexxa, which we began shipping to customers in May 2018, and the U.S. sales of Bevyxxa, which we began shipping to customers in January 2018. Prior to January 2018 we had no product revenues. We sell Andexxa and Bevyxxa to a limited number of specialty distributors and wholesalers in the United States (“Customers”). These Customers subsequently resell our products to hospitals, pharmacies and long-

term care centers. In addition to distribution agreements with Customers, we enter into arrangements with group purchasing organizations, indirect customers and payors that provide for privately negotiated rebates, chargebacks, distribution costs and discounts with respect to the purchase of our products.

We recognize revenue on product sales when the Customer obtains control of our product, which occurs at a point in time (upon delivery). Product revenues are recorded net of applicable reserves for variable consideration, including discounts and allowances. We expense incremental costs of obtaining a contract when incurred, if the expected amortization period of the asset that we would have recognized is one year or less. To date, we have not incurred any such costs.

Reserves for Variable Consideration

Revenues from product sales are recorded at the net sales price (transaction price), which includes estimates of variable consideration for which reserves are established and which result from discounts, returns, chargebacks, rebates, copay assistance and other allowances that are offered within contracts between us and our Customers, group purchasing organizations, payors and other indirect customers relating to our product sales. These reserves as detailed below are based on the amounts earned or to be claimed on the related sales and are classified as reductions of accounts receivable (if the amount is payable to the Customer) or a current liability (if the amount is payable to a party other than a Customer). Where appropriate, these estimates take into consideration a range of possible outcomes that are probability-weighted in accordance with the expected value method under ASC 606 for relevant factors. These factors include current contractual and statutory requirements, specific known market events and trends, industry data, and/or forecasted customer buying and payment patterns. Overall, these reserves reflect our best estimates of the amount of consideration to which we are entitled based on the terms of the respective underlying contracts.

The amount of variable consideration that is included in the transaction price may be constrained, and is included in the net sales price only to the extent that it is probable that a significant reversal in the amount of the cumulative revenue recognized will not occur in a future period. Actual amounts of consideration ultimately received may differ from our estimates. If actual results in the future vary from our estimates, we will adjust these estimates, which would affect net product revenue and earnings in the period such variances become known.

Trade Discounts and Allowances: We generally provide Customers with discounts which include incentive fees that are explicitly stated in our contracts and are recorded as a reduction of revenue in the period the related product revenue is recognized. In addition, we compensate our Customers and indirect customers for sales order management, data and administrative and distribution services. However, we have determined such services received to date are not distinct from our sale of products to the Customer and therefore a fair market value for these services may not be reasonably determined for accounting purposes. Therefore, these payments have been recorded as a reduction of revenue within the consolidated statement of operations for the year ended December 31, 2018.

Product Returns: We generally offer Customers a right of return based on the product’s expiration date or other market-based factors for product that has been purchased from us. We estimate the amount of our product sales that may be returned by our Customers and record this estimate as a reduction of revenue in the period the related product revenue is recognized. We currently estimate product return liabilities using available industry data, our own sales information and our visibility into the inventory remaining in the distribution channel.

Chargebacks: Chargebacks are discounts that occur when contracted customers, which currently consist primarily of group purchasing organizations, purchase directly from our wholesalers at a discounted price. The wholesalers, in turn, charge us back the difference between the price initially paid by the wholesaler and the discounted price paid to the wholesaler by the healthcare providers. These reserves are established in the same period that the related revenue is recognized, resulting in a reduction of product revenue and receivables. Chargeback amounts are generally determined at the time of resale to the qualified healthcare provider by Customers, and we generally issue credits for such amounts within a few weeks of the Customer's notification to us of the resale. Reserves for chargebacks consist of (i) credits that we expect to issue for units that remain in the distribution channel inventories at each reporting period end that we expect will be sold to qualified healthcare providers, and (ii) chargebacks that Customers have claimed but for which we have not yet issued a credit.

Payor Rebates: We contract with various private payor organizations, primarily insurance companies and pharmacy benefit managers, for the payment of rebates with respect to utilization of our products. We estimate these rebates and record such estimates in the same period the related revenue is recognized, resulting in a reduction of product revenue and the establishment of a current liability.

Distributor Fees: Under our inventory management agreements with our significant U.S. wholesalers and specialty distributors, we pay the wholesalers a fee primarily for compliance with certain contractually determined covenants such as the maintenance of agreed upon inventory levels. These distributor fees are based on a contractually determined fixed percentage of sales. We estimate these distributor fees and record such estimates in the same period the related revenue is recognized, resulting in a reduction of product revenue and a reduction of accounts receivable.

Collaboration and License Revenue

We enter into collaboration and license agreements for the development and commercialization of our products that are within the scope of ASC 606. The terms of collaboration and license agreements typically include payments to us of one or more of the following: non-refundable or partially refundable upfront or license fees; development, regulatory and commercial milestone payments; manufacturing supply services; partial or complete reimbursement of research and development costs; and royalties on net sales of licensed products. Each of these payments results in collaboration and license revenue, except for royalties on net sales of licensed products, which are classified as royalty revenues. To date, we have not received any royalty revenues.

As part of the accounting for these arrangements, we must apply judgment to determine whether the performance obligations are distinct, and develop assumptions in determining the stand-alone selling price for each distinct performance obligation identified in the contract. To determine the stand-alone selling price, we rely on assumptions which may include forecasted revenues, development timelines, reimbursement rates for personnel costs, discount rates and probabilities of technical and regulatory success.

Licenses of Intellectual Property: If the license to our intellectual property is determined to be distinct from the other performance obligations identified in the arrangement, we recognize revenues from non-refundable, up-front fees allocated to the license when the license is transferred to the licensee and the licensee is able to use and benefit from the license. For licenses that are bundled with other promises, we utilize judgment to assess the nature of the combined performance obligation to determine whether the combined performance obligation is satisfied over time or at a point in time and, if over time, the appropriate method of measuring progress for purposes of recognizing revenue from non-refundable, up-front fees. We evaluate the measure of progress each reporting period and, if necessary, adjust the measure of performance and related revenue recognition.

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

Manufacturing Supply Services: Arrangements that include a promise for future supply of drug substance or drug product for either clinical development or commercial supply at the licensee's discretion are generally considered as options. We assess whether these options provide a material right to the licensee, and if so, they are accounted for as separate performance obligations. If we are entitled to additional payments when the licensee exercises these options, any additional payments are recorded in collaboration and license revenue when the licensee obtains control of the goods, which is upon delivery.

Royalties: For arrangements that include sales-based royalties, including milestone payments based on the level of sales, and the license is deemed to be the predominant item to which the royalties relate, we recognize revenue at the later of (i) when the related sales occur, or (ii) when the performance obligation to which some or all of the royalty has been allocated has been satisfied (or partially satisfied). To date, we have not recognized any royalty revenue resulting from any of our out-licensing arrangements.

Research and Development Activities: Amounts related to research and development and regulatory activities are recognized as the related services or activities are performed, in accordance with the contract terms. Payments may be made to or by us based on the number of full-time equivalent researchers assigned to the collaboration project and the related research and development expenses incurred.

We receive payments from our collaborators based on billing schedules established in each contract. Upfront payments and fees may be recorded as deferred revenue upon receipt or when due, and may require deferral of revenue recognition to a future period until we perform our obligations under these arrangements. Amounts are recorded as accounts receivable when our right to consideration is unconditional. We do not assess whether a contract has a significant financing component if the expectation at contract inception is such that the period between payment by the collaborators and the transfer of the promised goods or services to the collaborators will be one year or less.

Cost of Sales

Cost of sales represents primarily the costs associated with manufacturing of Andexxa and Bevyxxa, Bevyxxa net sales-based royalties payable to Millennium, amortization of an intangible asset associated with a capitalized milestone payment made to Millennium upon FDA approval of Bevyxxa and fixed costs to our contract manufacturers, if any, for anticipated shortfall in product demand relative to committed volumes. We periodically analyze our inventory levels, and write-down inventory for estimated excess, obsolete and non-sellable inventories based on assumptions about future demand, past usage, changes to manufacturing processes and overall market conditions.

Research and Development

Research and development costs are expensed as incurred and consist of salaries and benefits, lab supplies, materials and facility costs, as well as fees paid to nonemployees and entities that conduct certain research and development activities on our behalf. Amounts incurred in connection with collaboration and license agreements are also included in research and development expense. Payments made prior to the receipt of goods or services to be used in research and development are capitalized until the goods are received or services are rendered.

Clinical Trial Accruals

Clinical trial costs are a component of research and development expenses. We accrue and expense clinical trial activities performed by third parties based upon actual work completed in accordance with agreements established with clinical research organizations and clinical sites. We determine the actual costs through monitoring patient enrollment and discussions with internal personnel and external service providers as to the progress or stage of completion of trials or services and the agreed-upon fee to be paid for such services. We have not experienced any material deviations between the accrued clinical trial expenses and actual clinical trial expenses. However, actual services performed, number of patients enrolled and the rate of patient enrollment may vary from our estimates, resulting in adjustments to clinical trial expense in futures periods.

Stock-Based Compensation

Employee stock-based compensation cost is measured at the grant date, based on the fair value of the award. The compensation cost is recognized as expense on a straight-line basis over the vesting period for options and restricted stock units (“RSUs”) and on an accelerated basis for performance stock options (“PSOs”), market-based performance stock units (“M-PSUs”) and performance-based stock units (“PSUs”). For stock option grants including PSOs, we use the Black-Scholes option pricing model to determine the fair value of stock options. This model requires us to make assumptions such as expected term and volatility that determine the stock options fair value. We are also required to make estimates as to the probability of achieving the specific performance criteria underlying the PSOs and PSUs. For M-PSU awards, we use the Monte-Carlo option pricing model to determine the fair value of awards at the date of issue. The Monte-Carlo option-pricing model uses similar input assumptions as the Black-Scholes model; however, it further incorporates into the fair-value determination the possibility that the performance-based market condition may not be satisfied. Compensation costs related to awards with a market-based condition are recognized regardless of whether the market condition is ultimately satisfied. Compensation cost is not reversed if the achievement of the market condition does not occur. For RSUs and PSU awards, we base the fair value of awards on the closing market value of our common stock at the date of grant. Upon our adoption of Accounting Standards Update No. 2016-09, Improvements to Employee Share-Based Payment Accounting, on January 1, 2017, we made an accounting policy election to account for the forfeitures as they occur.

Equity instruments issued to nonemployees, consisting of stock options granted to consultants and restricted stock units and performance stock units granted to employees that have converted to nonemployees, are valued using the Black-Scholes option-pricing model for stock options and period-end market price for restricted stock units and performance stock units. Stock-based compensation expense for nonemployee services is subject to remeasurement as the underlying equity instruments vest and is recognized as an expense over the period during which services are performed.

Interest Expense

Notes payable and long-term debt are eligible to be repaid based on royalties from our Andexxa net sales. The recognition of interest expense requires us to estimate the total amount of future royalty payments to be generated from product sales by jurisdiction over the life of the agreement. Consequently, we impute interest on the carrying value of the notes payable and long-term debt and record interest expense using an imputed effective interest rate. We reassess the expected royalty payments each reporting period and account for any changes through an adjustment to the effective interest rate on a prospective basis, with a corresponding impact to the reclassification of our debt and note payable liabilities. The assumptions used in determining the expected repayment term of the debt and amortization period of the issuance costs requires that we make estimates that could impact the short and long term classification of these costs, as well as the period over which these costs will be amortized.

Income Taxes

We provide for income taxes under the asset and liability method. Current income tax expense or benefit represents the amount of income taxes expected to be payable or refundable for the current year. Deferred income tax assets and liabilities are determined based on differences between the consolidated financial statement reporting and tax basis of assets and liabilities and net operating loss and credit carryforwards, and are measured using the enacted tax rates and laws that will be in effect when such items are expected to reverse. Deferred income tax assets are reduced, as necessary, by a valuation allowance when management determines it is more likely than not that some or all of the tax benefits will not be realized. The recognition, derecognition and measurement of a tax position is based on management's best judgment given the facts, circumstances and information available at the reporting date. Our policy is to recognize interest and penalties related to the underpayment of income taxes as a component of income tax expense or benefit. To date, there have been no interest or penalties charged in relation to the underpayment of income taxes.

Foreign Currency Transactions

We have transactions denominated in foreign currencies, primarily the Euro and British Pound, and, as a result, are exposed to changes in foreign currency exchange rates.

Net Loss per Share Attributable to Portola Common Stockholders

Basic net loss per share attributable to Portola Common Stockholders is calculated by dividing the net loss attributable to Portola Common Stockholders by the weighted-average number of shares of Common Stock outstanding for the period. Diluted net loss per share attributable to Portola Common Stockholders is the same as basic net loss per share attributable to Portola Common Stockholders, since the effects of potentially dilutive securities are antidilutive.

Recent Accounting Pronouncements Not Yet Adopted

In February 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2016-02, Leases (Topic 842), which amends the existing accounting standards for leases. The new standard requires lessees to record a right-of-use asset and a corresponding lease liability on the balance sheet (with the exception of short-term leases). This new standard is effective for annual reporting periods beginning after December 15, 2018, and interim reporting periods within those annual reporting periods, with early adoption permitted. We will adopt this new standard on January 1, 2019, and we expect to use the optional transition method, which allows us to recognize a cumulative-effect adjustment to the opening balance of accumulated deficit at the date of adoption and apply the new disclosure requirements beginning in the period of adoption.

The new standard provides a number of optional practical expedients and we expect to elect the following:

Transition Elections. We expect to elect the package of practical expedients that permits us to not reassess under the new standard our prior conclusions about lease identification, lease classification, and initial direct costs. We also expect to elect the practical expedient to not separate lease and non-lease components for facility lease classes of underlying assets to new or modified leases beginning on or after the adoption date. That is, we will account for each separate lease component of a contract and its associated non-lease components as a single lease component.

Ongoing Accounting Policy Elections. We expect to elect the short-term lease recognition exemption whereby right-of-use (ROU) assets and lease liabilities will not be recognized for leasing arrangements with terms less than one year.

We anticipate adoption of the standard will add approximately $2.1 million in right-of-use assets and $3.3 million in lease liabilities to our consolidated balance sheet upon adoption and will not significantly impact financial results. We are continuing to evaluate the effect that this guidance will have on our Consolidated Financial Statements and related disclosures.

In June 2018, the FASB issued ASU No. 2018-07, Stock-based Compensation: Improvements to Nonemployee Share-based Payment Accounting, which amends the existing accounting standards for share-based payments to nonemployees. This ASU aligns much of the guidance on measuring and classifying nonemployee awards with that of awards to employees. Under the new guidance, the measurement of nonemployee equity awards is fixed on the grant date. This ASU becomes effective in the first quarter of fiscal year 2019 and early adoption is permitted but no earlier than an entity's adoption date of Topic 606. Entities will apply this ASU by recognizing a cumulative-effect adjustment to retained earnings as of the beginning of the annual period of adoption. We are currently evaluating the impact that ASU 2018-07 will have on our consolidated financial statements.

In February 2018, the FASB issued ASU 2018-02, Income Statement – Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income, which provided amended guidance to allow a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act. Additionally, under the new guidance, an entity will be required to provide certain disclosures regarding stranded tax effects. The guidance is effective for fiscal years beginning after December 15, 2018, with early adoption permitted. We do not expect the adoption of this standard to have a material effect on our consolidated financial statements.

In August 2018, the FASB issued ASU No. 2018-13, Fair Value Measurement (Topic 820): Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement, which eliminates certain disclosure requirements for fair value measurements for all entities, requires public entities to disclose certain new information and modifies some disclosure requirements. This standard is effective for fiscal years beginning after December 15, 2019, with early adoption permitted. We do not expect the adoption of this standard to have a material effect on our consolidated financial statements.

In November 2018, the FASB issued ASU 2018-18, Collaborative arrangements (Topic 808): Clarifying the interaction between Topic 808 and Topic 606. ASU 2018-18 clarifies that certain transactions between participants in a collaborative arrangement should be accounted for under ASC 606 when the counterparty is a customer and precludes an entity from presenting consideration from a transaction in a collaborative arrangement as revenue from contracts with customers if the counterparty is not a customer for that transaction. For public business entities, these amendments are effective for fiscal years beginning after December 2019, and interim periods therein. Early adoption is permitted, including adoption in any interim period, for entities that have adopted ASC 606. We are currently evaluating the impact that ASU 2018-18 will have on our consolidated financial statements.

Recent Accounting Pronouncements Adopted

In November 2016, the FASB issued ASU No. 2016-18, Statement of Cash Flows: Restricted Cash. This ASU requires changes in restricted cash during the period to be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. If cash, cash equivalents and restricted cash are presented in more than one line item on the balance sheet, the new guidance requires a reconciliation of the total in the statement of cash flows to the related captions in the balance sheet. This guidance was effective for annual and interim periods of public entities beginning after December 15, 2017. The amendments in this ASU are applied retrospectively to all periods presented. We adopted this guidance on January 1,

2018. The adoption of this ASU increased our beginning and ending cash balances within our consolidated statements of cash flows. The adoption had no other material impacts to our consolidated statements of cash flows and had no impact on our results of operations or financial position.

In August 2016, the FASB issued ASU No. 2016-15, Statement of Cash Flows: Classification of Certain Cash Receipts and Cash Payments. This ASU addresses the presentation of certain items on the statement of cash flows including among other things settlement of zero coupon debt instruments or other debt instruments with coupon

interest rates that are insignificant to the effective interest rate of the borrowing. Pursuant to the new guidance, at the settlement of our promissory notes to Bristol-Myers Squibb Company ("BMS") and Pfizer Inc. ("Pfizer") and the fundings received from HealthCare Royalty Partners and its Affiliates, we should classify the portion of the cash payment attributable to the accreted interest related to the debt discount as cash outflows for operating activities, and the portion of the cash payment attributable to the principal as cash outflows for financing activities. Accretion of accrued interest will continue to be recorded as a non-cash item under operating activities. This guidance was effective for annual and interim periods of public entities beginning after December 15, 2017, with early adoption permitted. We adopted this guidance on January 1, 2018, and the adoption had no material impact on our consolidated financial statements for the year ended December 31, 2018.

In October 2016, the FASB issued ASU 2016-16, Intra-Entity Transfers of Assets Other Than Inventory. The guidance in ASU 2016-16 requires both the seller and the buyer in an intercompany asset transfer (excluding inventory transfers) to immediately recognize the current and deferred income tax consequences of the transaction. ASU 2016-16 retains the exception to current recognition of the tax effects for intercompany transfers of inventory. ASU 2016-16 is effective for public business entities for annual and interim periods in fiscal years beginning after December 15, 2017. We adopted this guidance on January 1, 2018, and the adoption had zero impact to our consolidated financial statements for the year ended December 31, 2018 because we did not have any deferred intercompany charges.

In March 2018, the FASB issued ASU 2018-05, Income Taxes (Topic 740), Amendments to SEC Paragraphs Pursuant to SEC Staff Accounting Bulletin No. 118. The ASU adds various Securities and Exchange Commission ("SEC") paragraphs pursuant to the issuance of the December 2017 SEC Staff Accounting Bulletin No. 118, Income Tax Accounting Implications of the Tax Cuts and Jobs Act ("SAB 118"), which was effective immediately. The SEC issued SAB 118 to address concerns about reporting entities' ability to timely comply with the accounting requirements to recognize all of the effects of the Tax Cuts and Jobs Act in the period of enactment. SAB 118 allows disclosure that timely determination of some or all of the income tax effects from the Tax Cuts and Jobs Act are incomplete by the due date of the financial statements and if possible to provide a reasonable estimate. We have accounted for the tax effects of the Tax Cuts and Jobs Act under the guidance of SAB 118, on a provisional basis. As permitted by SAB 118, we recorded provisional estimates in 2017 and finalized our accounting for these provisional estimates based on guidance, interpretations and all of the available data in the year ended December 31, 2018. No adjustment to the previously recorded provisional amount was recorded in 2018.

In May 2014, the FASB issued ASU 2014-09, Revenue from Contracts with Customers (Topic 606), which amended the existing accounting standards for revenue recognition. We adopted the new revenue standard effective January 1, 2018, using the modified retrospective method to all contracts that were not completed as of January 1, 2018. The cumulative effect of applying the new guidance was recorded as an adjustment to accumulated deficit as of the adoption date. As a result, the following adjustments were made to the consolidated balance sheet as of January 1, 2018 (in thousands):

	As of January 1, 2018		
	As Revised Under ASC 606	Without the Adoption of ASC 606	Effect of Change
Assets:			
Unbilled - collaboration and license revenue	$6,694	$—	$6,694
Trade and other receivables, net	2,706	—	2,706

Prepaid expenses and other current assets	—	2,706	(2,706)
Liabilities:			
Deferred revenue, current portion	6,354	11,169	(4,815)
Deferred revenue, long-term	1,269	18,798	(17,529)
Stockholders' equity:			
Accumulated deficit	$(1,175,481)	$(1,204,519)	$29,038

The following table compares the reported consolidated balance sheet and statement of operations information to the balances that do not reflect the adoption of ASC 606 as of and for the year ended December 31, 2018 (in thousands, except for per share data):

	As of December 31, 2018		
	As Reported	Balances Without the Adoption of ASC 606	Effect of Change
Assets:			
Unbilled - collaboration and license revenue	$9,880	$—	$9,880
Trade and other receivables, net	1,243	—	1,243
Prepaid expenses and other current assets	—	1,243	(1,243)
Liabilities:			
Deferred revenue, current portion	1,847	4,589	(2,742)
Deferred revenue, long-term	4,488	22,695	(18,207)
Stockholders' equity:			
Accumulated deficit	$(1,525,704)	$(1,556,533)	$30,829

	Year Ended December 31, 2018		
	As Reported	Balances Without the Adoption of ASC 606	Effect of Change
Revenue:			
Collaboration and license revenue	$16,013	$11,682	$4,331
Operating expenses:			
Research and development	216,205	213,657	2,548
Loss from operations	(345,320)	(347,103)	1,783
Net loss	(350,544)	(352,327)	1,783
Net loss attributable to Portola	(350,223)	(352,006)	1,783
Net loss per share attributable to Portola common stockholders:			
Basic and diluted	$(5.31)	$(5.33)	$0.03

Our financial position with respect to product revenues would not have been materially different without the adoption of ASC 606.

In addition, we adjusted our beginning balance of deferred tax assets and liabilities that we were previously tracking pursuant to the existing accounting standards for revenue recognition to reflect the impact from ASC 606 adoption on January 1, 2018. The adjustment to the beginning balance of deferred tax assets and liabilities recorded with the adoption of ASC 606 was completely offset by corresponding adjustment to valuation allowance and had no impact to our consolidated financial statements for the year ended December 31, 2018.

3. Revenue Recognition

Revenues are recognized when control of the promised goods or services is transferred to our customers, in an amount that reflects the consideration we expect to be entitled to in exchange for those goods or services.

The following table presents our revenues, disaggregated by timing of transfer of goods or services (in thousands):

	Year Ended December 31, 2018		
	Product Revenue, net	Collaboration and License Revenue	Total
Timing of revenue recognition:			
Transferred at a point in time	$24,117	$ —	$24,117
Transferred over time	—	16,013	16,013
Total	$24,117	$ 16,013	$40,130

The following table presents changes in our contract assets and liabilities for the year ended December 31, 2018 (in thousands):

	Balance at Beginning of Period	Addition	Deduction	Balance at End of Period
Contract assets:				
Unbilled - collaboration and license revenue	$ 6,694	$11,467	$ (8,281)	$9,880
Total contract assets	$ 6,694	$11,467	$ (8,281)	$9,880
Contract liabilities:				
Deferred revenue	$ 7,623	$6,857	$ (8,145)	$6,335
Total contract liabilities	$ 7,623	$6,857	$ (8,145)	$6,335

Significant changes in the contract assets and contract liabilities balances during the year ended December 31, 2018 is as follows (in thousands):

	Year Ended as of

	December 31, 2018
Cumulative catch-up net increase (decrease) adjustment to revenue related to a change in an estimate of the transaction price	$ 4,745
Revenue recognized according to the current period performance that was included in the contract liability at the beginning of the period	5,501

The following table includes estimated revenue expected to be recognized in the future related to performance obligations that are unsatisfied or partially unsatisfied as of December 31, 2018 (in thousands):

Collaborator	Transaction Price Allocated to the Remaining Performance Obligation as of December 31, 2018	Expected Year By Which Revenue Recognition Will Be Completed	Percentage of Revenue Recognized	
BMS and Pfizer - 2014 agreement	$ 24	2019	99	%
BMS and Pfizer - 2016 agreement	1,832	2021	86	%
Daiichi Sankyo - 2014 agreement	1,626	2020	95	%
Daiichi Sankyo - 2016 agreement	3,681	2023	76	%
Bayer and Janssen - 2014 agreement	37	2019	99	%
Bayer - 2016 agreement	3,291	2023	79	%
Total	$ 10,491			

Milestone payments or refundable advance payments that are not considered probable of being achieved are excluded from the transaction price until they are probable.

Sales-based royalties, including milestone payments based on the level of sales, related to license arrangements are excluded from variable consideration and will be recognized at the later of (a) when the related sales occur, or (b) when the performance obligation to which some or all of the royalty has been allocated has been satisfied (or partially satisfied). To date, we have not recognized any royalty revenue resulting from any of our licensing arrangements.

Product Revenue, Net

To date, our source of product revenue has been from the U.S. sales of Andexxa and Bevyxxa, which we began shipping to customers in May 2018 and January 2018, respectively. No costs to obtain or fulfill the contracts have been capitalized. For the year ended December 31, 2018, we recorded a total of $3.6 million as a reduction to revenue, consisting primarily of chargebacks and returns.

Collaboration and License Revenue

BMS and Pfizer

Agreement Terms

In January 2014, we entered into an agreement with BMS and Pfizer to further study Andexxa as a reversal agent for their jointly-owned, FDA-approved oral Factor Xa inhibitor, apixaban, through Phase 3 studies (the "2014 BMS and Pfizer Agreement"). We are responsible for the cost of conducting this clinical study. Pursuant to our agreement with BMS and Pfizer, we are obligated to provide research, development and regulatory approval services and participate in the Joint Collaboration Committee ("JCC") in exchange for a partially refundable upfront fee of $13.0 million and up to $12.0 million of contingent milestone payments due upon achievement of certain development and regulatory events. All consideration received and to be earned under this agreement is subject to a 50% refund contingent upon achievement of certain regulatory and/or clinical events.

In February 2016, we entered into a collaboration and license agreement with BMS and Pfizer whereby BMS and Pfizer obtained exclusive rights to develop and commercialize Andexxa in Japan (the "2016 BMS and Pfizer Agreement"). BMS and Pfizer are responsible for all development, regulatory and commercial activities in Japan and we will reimburse BMS and Pfizer for expenses they incur for research and development activities specific to Factor Xa inhibitors other than apixaban. Pursuant to this agreement, we are obligated to provide certain research and development activities outside of Japan, provide clinical drug supply and related manufacturing services and to participate on various committees in exchange for a non-refundable upfront fee of $15.0 million. We are also eligible to receive, contingent payments totaling up to $20.0 million which may be earned upon achievement of certain regulatory events and up to $70.0 million which may be earned upon achievement of specified annual net sales volumes in Japan. We are also entitled to receive royalties ranging from 5% to 15% on net sales of Andexxa in Japan. We have agreed to sell clinical and commercial supply of drug for clinical development and commercialization at cost.

Revenue Recognition

We assessed the 2014 BMS and Pfizer Agreement and the 2016 BMS and Pfizer Agreement in accordance with ASC 606 and concluded that BMS and Pfizer are customers.

We identified the following performance obligations under the 2014 BMS and Pfizer Agreement: (1) to provide research, development and regulatory services, and (2) to provide manufacturing and supply services. We determined that the research, development and regulatory services can only provide benefit to BMS and Pfizer in combination with the manufacture and supply of Andexxa and because the manufacturing know-how is proprietary to us and cannot be provided by other vendors, the services do not qualify as distinct performance obligations. As the manufacturing and supply services are a required input to the research, development and regulatory services, we have combined all activities into a single performance obligation. The nature of the combined performance obligation is to provide research, development and regulatory services necessary to obtain approval of Andexxa as a reversal agent to apixaban in both the United States and Europe.

For revenue recognition purposes, we determined that the duration of the contract began on the effective date in January 2014 and ends upon Andexxa approval in United States and Europe, which we expected to be achieved in 2019. The contract duration is defined as the period in which parties to the contract have present enforceable rights and obligations. We analyzed the impact of BMS and Pfizer terminating the agreement prior to Andexxa approval and determined that there were substantive non-monetary penalties to BMS and Pfizer for doing so. We considered quantitative and qualitative factors to reach this conclusion.

We determined that the transaction price of the 2014 BMS and Pfizer Agreement was $16.5 million as of December 31, 2018. In order to determine the transaction price, we evaluated all the payments to be received during the duration of the contract and whether the occurrence of the 50% refundable feature associated with such payments was probable. We have concluded that no portion of the cash receipts should be constrained related to the refund provision because the activities that would trigger a refund are under our control and considered to be remote. As of December 31, 2018, there are no additional payments eligible to be earned.

We are utilizing a cost-based input method to measure proportional performance and to calculate the corresponding amount of revenue to recognize. We believe this is the best measure of progress because other measures do not reflect how we transfer the performance obligation to our counterparty. In applying the cost-based input methods of revenue

recognition, we use actual costs incurred relative to budgeted costs to fulfill the combined performance obligation. These costs consist primarily of third-party contract costs and internal full-time equivalent effort. A cost-based input method of revenue recognition requires us to make estimates of costs to complete the performance obligations. The cumulative effect of revisions to estimated costs to complete the performance obligations will be recorded in the period in which changes are identified and amounts can be reasonably estimated. A significant change in these assumptions and estimates could have a material impact on the timing and amount of revenue recognized in future periods.

For the year ended December 31, 2018, we recognized $1.5 million, respectively, as license and collaboration revenue under the 2014 BMS and Pfizer Agreement and we recorded $0.02 million in deferred revenue under contract liabilities as of December 31, 2018 on the consolidated balance sheets.

There were no costs incurred to obtain or fulfill the contract.

We identified the following performance obligations under the 2016 BMS and Pfizer Agreement: (1) grant of an intellectual property license in Japan, (2) to provide research and development services, and (3) to provide manufacturing services and supply Andexxa for development and commercial purposes. Because the Andexxa program had already progressed into a late-phase of development at the inception of the 2016 BMS and Pfizer Agreement, we concluded that the Japan license has standalone functionality and is capable of being distinct. However, we determined that the license is not distinct from the other obligations within the context of the agreement because the research and development services and manufacturing and supply services are necessary to increase the utility of the intellectual property and the performance of such services requires our unique expertise and experience. Accordingly, we have concluded that research and development services and manufacturing and supply services are not distinct from the license within the context of the contract and therefore the license, research and development services, manufacturing and supply services are combined into a single performance obligation.

In addition, we have identified the following customer options that will create a manufacturing obligation for us upon exercise by BMS and Pfizer: (1) commercial supply of Andexxa for sale in Japan and (2) BMS and Pfizer's participation in manufacturing capacity expansion. We considered the status of Andexxa approval in the United States and Europe and its impact on Japan, Andexxa's manufacturing complexities, Andexxa's expansion plan with our existing vendors and BMS and Pfizer's manufacturing capabilities to determine if these options constituted options with material rights. These options are not options with material rights because the $15.0 million upfront payment received by us was not negotiated to provide incremental discount for the commercial supplies payments and BMS and Pfizer's payment for capacity expansion to be received in the future.

For revenue recognition purposes, we have determined that the duration of the contract begins on the effective date in February 2016 and ends upon estimated completion of the Andexxa Phase 4 expansion clinical trial in Japan. The contract duration is defined as the period in which parties to the contract have present enforceable rights and obligations. We analyzed the impact of BMS and Pfizer terminating the agreement prior to the completion of Andexxa Phase 4 expansion clinical trial in Japan and determined that there were substantive non-monetary penalties to BMS and Pfizer for doing so. We considered quantitative and qualitative factors to reach this conclusion.

We determined that the transaction price of the 2016 BMS and Pfizer Agreement was $13.1 million as of December 31, 2018 which includes routine updates for estimated costs that BMS and Pfizer will incur in developing Andexxa in Japan. In determining the transaction price, we evaluated all the payments to be received during the duration of the contract. As of December 31, 2018, the transaction price includes, $15.0 million of upfront payment, $5.0 million for acceptance of the Japan New Drug Application ("JNDA") in Japan, as management expects it to be probable of achievement, $4.4 million of estimated variable consideration for cost-sharing payments from BMS and Pfizer for agreed upon research and development services for clinical trials outside of Japan, and $0.6 million for the costs of Andexxa clinical supplies to BMS and Pfizer for Andexxa Phase 4 expansion clinical trial in Japan, which we achieved in the fourth quarter of 2018. Our transaction price is reduced by $11.9 million for estimated payments to be made to BMS and Pfizer for costs they will incur in developing Andexxa in Japan. Regulatory approval milestones were fully constrained and therefore are not included in the transaction price, as the receipts of such milestones are outside of our control. In determining whether to constrain other milestones, we considered numerous factors, including whether receipt of the milestones is within our control, contingent upon success in future clinical trials and/or the licensee's efforts. Any consideration related to sales-based milestones (including royalties) will be recognized when the related sales occur as they were determined to relate predominantly to the license granted to

BMS and Pfizer and therefore have also been excluded from the transaction price. We will re-evaluate the transaction price in each reporting period and as uncertain events are resolved or other changes in circumstances occur.

We are responsible to perform certain clinical trials outside of Japan and BMS and Pfizer are responsible to perform research and development services in Japan. Outside of Japan, we are primarily responsible for performing an ethnic sensitivity study ("ESS-Study") of Japanese ethnicity. BMS and Pfizer are responsible to expand our current Phase 3/4 clinical trial of Andexxa into Japan and to perform any further studies requested by the Japanese regulatory authorities. BMS and Pfizer will reimburse us for 33% of our costs and expenses incurred in conducting the ESS-Study and we will reimburse 66% of the costs and expenses incurred by BMS and Pfizer related to research and development services in Japan including post-approval surveillance studies as may be required by the regulatory authority.

All parties to this agreement will make quarterly cost-sharing payments to one another in amounts necessary to ensure that each party bears its contractual share of the overall shared costs incurred. We account for cost-sharing payments received from BMS and Pfizer as increases to our transaction price while cost-sharing payments we make to BMS and Pfizer are accounted for as reductions to our transaction price. Costs incurred by us related to agreed-upon services under the agreement are recorded as research and development expenses in our consolidated statements of operations.

We are utilizing a cost-based input method to measure proportional performance and to calculate the corresponding amount of revenue to recognize. We believe this is the best measure of progress because other measures do not reflect how we transfer the performance obligation to our counterparty. In applying the cost-based input methods of revenue recognition, we use actual costs incurred relative to budgeted costs to fulfill the combined performance obligation. These costs consist primarily of third-party contract costs and internal full-time equivalent effort. A cost-based input method of revenue recognition requires management to make estimates of costs to complete the performance obligations. The cumulative effect of revisions to estimated costs to complete the performance obligations will be recorded in the period in which changes are identified and amounts can be reasonably estimated. A significant change in these assumptions and estimates could have a material impact on the timing and amount of revenue recognized in future periods.

For the year ended December 31, 2018, we recognized $0.8 million as license and collaboration revenue under the 2016 BMS and Pfizer Agreement and have recorded $6.3 million as deferred revenue under contract liabilities as of December 31, 2018 on the consolidated balance sheets.

There were no costs incurred to obtain or fulfill the contract.

Daiichi Sankyo, Inc. ("Daiichi Sankyo")

Agreement Terms

In July 2014, we entered into an agreement with Daiichi Sankyo to study the safety and efficacy of Andexxa as a reversal agent to edoxaban, in our Phase 3 and Phase 4 studies (the "2014 Daiichi Sankyo Agreement"). We are responsible for the cost of conducting these clinical studies. Pursuant to our agreement with Daiichi Sankyo we are

obligated to provide research, development and regulatory services and to manufacture and supply Andexxa in exchange for an upfront nonrefundable fee of $15.0 million, up to two contingent payments totaling $5.0 million which are payable upon the initiation of our Phase 3 study and achievement of certain events associated with scaling up our manufacturing process to support a commercial launch, and up to four payments totaling $20.0 million which are payable upon acceptance of filing and regulatory approval of Andexxa as a reversal agent to edoxaban by the FDA and European Medicines Agency ("EMA").

In October 2016, we amended this agreement to expedite the expansion of our Phase 4 trial in exchange for an upfront fee of $15.0 million, $8.0 million of which is payable back to Daiichi Sanko based solely on quarterly royalty payments of 1% of world-wide net sales of Andexxa. We are also eligible to receive up to three contingent payments totaling $10.0 million payable upon achieving specified clinical site activation and patient enrollment targets. Additionally, the $2.5 million contingent payment associated with scaling up our manufacturing process from the original agreement has been removed by this amendment.

In March 2016, we entered into an agreement with Daiichi Sankyo to perform an ESS-Study of Japanese ethnicity, perform any further studies requested by the Japanese regulatory authorities and to deliver services in connection

with our collaboration agreement to commercialize Andexxa in Japan with BMS and Pfizer (the "2016 Daiichi Sankyo Agreement"). Daiichi Sankyo will reimburse us for 33% of our costs and expenses incurred to conduct the ESS-Study and between 33% and 100% of costs and expenses we incur for other studies that involve edoxaban under the terms of the arrangement.

Revenue Recognition

We assessed the 2014 Daiichi Sankyo Agreement as amended in October 2016 and the 2016 Daiichi Sankyo Agreement in accordance with ASC 606 and concluded that Daiichi Sankyo is a customer.

We concluded that the 2014 Daiichi Sankyo Agreement and the October 2016 amendment of this agreement are linked and should be accounted for as a combined agreement. We identified the following performance obligations under the combined agreement: (1) to provide research, development and regulatory services, and (2) to provide manufacturing and supply services. We determined that the research, development and regulatory services can only provide benefit to Daiichi Sankyo in combination with the manufacture and supply of Andexxa and because the manufacturing know-how is proprietary to us and cannot be provided by other vendors, the services do not qualify as distinct performance obligations. As the manufacturing and supply services are a required input to the research, development and regulatory services, we have combined all activities into a single performance obligation. The nature of the combined performance obligation is to provide research, development and regulatory services necessary to obtain approval of Andexxa as a reversal agent to edoxaban in both the United States and Europe.

For revenue recognition purposes, we determined that the duration of the contract begins on the effective date in July 2014 and ends upon Andexxa approval as a reversal agent to edoxaban in the United States and Europe, which we estimate will be achieved in 2020 for purposes of determining the duration. We updated the expected duration of the contract in the second quarter of 2018 following an amendment to our development plan. The contract duration is defined as the period in which parties to the contract have present enforceable rights and obligations. We analyzed the impact of Daiichi Sankyo's terminating the agreement prior to Andexxa approval and determined that there were substantive non-monetary penalties to Daiichi Sankyo for doing so. We considered quantitative and qualitative factors to reach this conclusion.

We determined that the transaction price of the 2014 Daiichi Sankyo Agreement and October 2016 amendment of this agreement was $34.0 million as of December 31, 2018. In order to determine the transaction price, we evaluated all the payments to be received during the duration of the contract. As of December 31, 2018, the transaction price included $22.0 million of upfront payments, $9.0 million in milestones already received upon achievement of specified events and a $3.0 million milestone related to clinical metrics we have determined is probable of achievement. As of December 31, 2018, we have $5.5 million of further milestone payments eligible to be included in the transaction price but have determined they are not probable of achievement and therefore constrained. As part of our evaluation of the constraint, we considered numerous factors, including whether receipt of the milestones is outside of our control and/or contingent upon success in a future clinical trial. We will re-evaluate the transaction price in each reporting period and as uncertain events are resolved or other changes in circumstances occur.

We are utilizing a cost-based input method to measure proportional performance and to calculate the corresponding amount of revenue to recognize. We believe this is the best measure of progress because other measures do not reflect how we transfer the performance obligation to our counterparty. In applying the cost-based input method of revenue recognition, we use actual costs incurred relative to budgeted costs to fulfill the combined performance obligation. These costs consist primarily of third-party contract costs and internal full-time equivalent effort. A cost-based input method of revenue recognition requires management to make estimates of costs to complete the performance obligations. The cumulative effect of revisions to estimated costs to complete the performance obligations will be recorded in the period in which changes are identified and amounts can be reasonably estimated. A significant change in these assumptions and estimates could have a material impact on the timing and amount of revenue recognized in future periods.

For the year ended December 31, 2018, we recognized $2.9 million, as license and collaboration revenue under the combined 2014 Daiichi Sankyo Agreement and October 2016 amendment and have recorded $1.4 million as Unbilled - collaboration and license revenue as of December 31, 2018 on the consolidated balance sheets.

There were no costs incurred to obtain or fulfill the contract.

We identified the following performance obligations under the 2016 Daiichi Sankyo Agreement: (1) to provide research and development services, (2) to provide regulatory approval services, and (3) to manufacture and provide clinical supply of Andexxa. We determined that our obligation to provide research and development and regulatory services can only provide benefit to Daiichi Sankyo in combination with our supply of clinical Andexxa for the Phase 4 expansion clinical study. The Andexxa manufacturing know-how is specialized and proprietary to us and cannot be provided by other vendors. Therefore, we have concluded that the research, development, regulatory and Andexxa supply services are not distinct within the context of the contract, and thus these obligations are combined into a single performance obligation.

We have exclusive rights to develop Andexxa outside of Japan and are solely responsible for performing such activities, including the ESS-Study, in support of the JNDA. Development activities occurring in Japan, including the expansion of our Phase 4 clinical trial, are the responsibility of BMS and Pfizer, however, the costs of such activities related to Factor Xa inhibitors other than apixaban are borne by us. Pursuant to this agreement, we are responsible to ensure edoxaban is included in all development activities related to Andexxa and Daiichi Sankyo will compensate us accordingly. We account for the expected cost-sharing payments from Daiichi Sankyo as an increase to the transaction price.

We determined that the transaction price of the 2016 Daiichi Sankyo Agreement was $15.3 million as of December 31, 2018 which includes routine updates for estimated reimbursable costs to be incurred in future periods. In order to determine the transaction price, we evaluated all the payments to be received during the duration of the contract. As of December 31, 2018, the transaction price includes $5.0 million of upfront payment and $4.4 million of estimated variable consideration for cost-sharing payments from Daiichi Sankyo for agreed upon research and development services incurred and to be incurred outside of Japan including the ESS-study, and $5.9 million of estimated variable consideration for cost-sharing payments from Daiichi Sankyo associated with the development of Andexxa in Japan. As of December 31, 2018, we have $10.0 million of further regulatory milestone payments eligible for achievement, however, regulatory milestones have been fully constrained and thus are not included in the transaction price. In determining whether to constrain these milestones, we considered numerous factors, including whether receipt of the milestones is within our control and/or contingent upon success in future clinical trials. We will re-evaluate the transaction price in each reporting period and as uncertain events are resolved or other changes in circumstances occur.

We are utilizing a cost-based input method to measure proportional performance and to calculate the corresponding amount of revenue to recognize. We believe this is the best measure of progress because other measures do not reflect how we transfer the performance obligation to our counterparty. In applying the cost-based input methods of revenue recognition, we use actual costs incurred relative to budgeted costs to fulfill the combined performance obligation. These costs consist primarily of third-party contract costs and internal full-time equivalent effort. A cost-based input method of revenue recognition requires management to make estimates of costs to complete the performance obligations. The cumulative effect of revisions to estimated costs to complete the performance obligations will be recorded in the period in which changes are identified and amounts can be reasonably estimated. A significant change

in these assumptions and estimates could have a material impact on the timing and amount of revenue recognized in future periods.

For the year ended December 31, 2018, we recognized $3.5 million as license and collaboration revenue under the 2016 Daiichi Sankyo Agreement and have recorded $3.1 million as Unbilled - collaboration and license revenue as of December 31, 2018 on the consolidated balance sheets.

None of the costs to obtain or fulfill the contract were capitalized.

Bayer Pharma, AG (“Bayer”) and Janssen Pharmaceuticals, Inc. (“Janssen”)

Agreement Terms

In January 2014, we entered into an agreement with Bayer and Janssen to study Andexxa as a reversal agent to rivaroxaban in our Phase 3 studies and to seek regulatory approval in the United States and Europe (the “2014 Bayer and Janssen Agreement”). We are responsible for the costs associated with this agreement. We are obligated to provide research, development, manufacturing and regulatory services in exchange for an upfront nonrefundable fee of $10.0 million, up to three payments totaling $7.0 million which are payable upon achievement of certain events associated with scaling up our manufacturing process to support a commercial launch, and up to three payments totaling $8.0 million which are payable upon initiation of our Phase 3 study and regulatory approval of Andexxa as a reversal agent to rivaroxaban in the United States and Europe.

Revenue Recognition

We assessed the 2014 Bayer and Janssen Agreement in accordance with ASC 606 and concluded that Bayer and Janssen are customers.

We identified the following performance obligations under the 2014 Bayer and Janssen Agreement: (1) to provide research and development services, (2) to provide manufacturing services and to supply Andexxa, and (3) to provide regulatory approval services. We determined that the research, development and regulatory services can only provide benefit to Bayer and Janssen in combination with the manufacture and supply of Andexxa and because the manufacturing know-how is specialized and proprietary to us and cannot be provided by other vendors, the services do not qualify as distinct performance obligations. As the manufacturing and supply services are a required input to the research, development and regulatory services, we have combined all activities into a single performance obligation. The nature of the combined performance obligation is to provide research, development and regulatory services necessary to obtain approval of Andexxa as a reversal agent to rivaroxaban in both the United States and Europe.

For revenue recognition purposes, we determined that the duration of the contract begins on the effective date of the 2014 Bayer and Janssen Agreement and ends upon Andexxa approval in the United States and Europe for rivaroxaban, expected to be achieved in 2019. The contract duration is defined as the period in which parties to the contract have present enforceable rights and obligations. We analyzed the impact of Bayer and Janssen terminating the agreement prior to Andexxa approval and determined that there were substantive non-monetary penalties to Bayer and Janssen Pfizer for doing so. We considered quantitative and qualitative factors to reach this conclusion.

We determined that the transaction price of the 2014 Bayer and Janssen Agreement was $25.0 million as of December 31, 2018. In order to determine the transaction price, we evaluated all the payments to be received during the duration of the contract. As of December 31, 2018, the transaction price includes, $10.0 million of upfront payment, $13.0 million in milestones that have already been achieved and a $2.0 million milestone that we deem probable of achievement following the Committee for Medicinal Products for Human Use positive trend vote and subsequent

discussions with the EMA during the year ended December 31, 2018. There is no further consideration eligible to be included in the transaction price.

We are utilizing a cost-based input method to measure proportional performance and to calculate the corresponding amount of revenue to recognize. We believe this is the best measure of progress because other measures do not reflect how we transfer the performance obligation to our counterparty. In applying the cost-based input method of revenue recognition, we use actual costs incurred relative to budgeted costs to fulfill the combined performance obligation. These costs consist primarily of third-party contract costs and internal full-time equivalent effort. A cost-based input method of revenue recognition requires management to make estimates of costs to complete the performance obligations. The cumulative effect of revisions to estimated costs to complete the performance obligations will be recorded in the period in which changes are identified and amounts can be reasonably estimated. A significant change in these assumptions and estimates could have a material impact on the timing and amount of revenue recognized in future periods.

For the year ended December 31, 2018, we recognized $4.1 million as license and collaboration revenue under the 2014 Bayer and Janssen Agreement and have recorded $2.0 million as Unbilled - collaboration and license revenue as of December 31, 2018 on the consolidated balance sheets.

None of the costs to obtain or fulfill the contract were capitalized.

Bayer Pharma, AG (“Bayer”)

Agreement Terms

In February 2016, we entered into an agreement with Bayer to perform an ESS-Study of Japanese ethnicity, perform any further studies requested by the Japanese regulatory authorities and to deliver services, in connection with our collaboration agreement to commercialize Andexxa in Japan with BMS and Pfizer (the “2016 Bayer Agreement”). Bayer will reimburse us 33% of our costs and expenses incurred to conduct the ESS-Study and between 33% and 100% of costs and expenses we incur for other studies that involve rivaroxaban under the terms of the arrangement.

We are obligated to provide research and development services, to provide clinical drug supply and related manufacturing services and to provide regulatory approval services in exchange for an upfront nonrefundable fee of $5.0 million. We are also eligible to receive, one payment of $10.0 million which is payable upon the initial regulatory approval for Andexxa for rivaroxaban in Japan. The $10.0 million payment will be reduced to $7.0 million if Japanese regulatory approval is attained based only upon the ESS Study results.

Revenue Recognition

We assessed the 2016 Bayer Agreement in accordance with ASC 606 and concluded that Bayer is a customer.

We identified the following performance obligations under the 2016 Bayer Agreement: (1) to provide research and development services, (2) to provide regulatory approval services, and (3) to manufacture and provide clinical supply of Andexxa. We determined that our obligation to provide research and development and regulatory services can only provide benefit to Bayer in combination with our supply of clinical Andexxa for the Phase 4 expansion clinical study. The Andexxa manufacturing know-how is specialized and proprietary to us and cannot be provided by other vendors. Therefore, we have concluded that the research, development, regulatory and Andexxa supply services are not distinct within the context of the contract, and thus these obligations are combined into a single performance obligation.

We have exclusive rights to develop Andexxa outside of Japan and are solely responsible for performing such activities, including the ESS-Study, in support of the JNDA. Development activities occurring in Japan, including the expansion of our Phase 4 clinical trial, are the responsibility of BMS and Pfizer, however, the costs of such activities related to Factor Xa inhibitors other than apixaban are borne by us. Pursuant to the 2016 Bayer agreement, we are responsible to ensure rivaroxaban is included in all development activities related to Andexxa and Bayer will

compensate us accordingly. We account for the expected cost-sharing payments from Bayer as an increase to our transaction price.

We determined that the transaction price of the 2016 Bayer Agreement was $15.3 million as of December 31, 2018 which includes routine updates for estimated reimbursable costs to be incurred in future periods. In order to determine the transaction price, we evaluated all the payments to be received during the duration of the contract. As of December 31, 2018, the transaction price includes a $5.0 million upfront payment, $4.4 million of estimated variable consideration for cost-sharing payments from Bayer for agreed upon research and development services incurred and to be incurred outside of Japan including the ESS-study and $5.9 million of estimated variable consideration for cost-sharing payments from Bayer associated with the development of Andexxa in Japan. As of December 31, 2018, we have $10.0 million of further regulatory milestone payments eligible for achievement, however, regulatory milestones have been fully constrained and thus are not included in the transaction price. In determining whether to constrain these milestones, we considered numerous factors, including whether receipt of the milestones is within our control and/or contingent upon success in future clinical trials. We will re-evaluate the transaction price in each reporting period and as uncertain events are resolved or other changes in circumstances occur.

We are utilizing a cost-based input method to measure proportional performance and to calculate the corresponding amount of revenue to recognize. We believe this is the best measure of progress because other measures do not reflect how we transfer the performance obligation to our counterparty. In applying the cost-based input methods of revenue recognition, we use actual costs incurred relative to budgeted costs to fulfill the combined performance obligation. These costs consist primarily of third-party contract costs and internal full-time equivalent effort. A cost-based input method of revenue recognition requires management to make estimates of costs to complete the performance obligations. The cumulative effect of revisions to estimated costs to complete the performance obligations will be recorded in the period in which changes are identified and amounts can be reasonably estimated. A significant change in these assumptions and estimates could have a material impact on the timing and amount of revenue recognized in future periods.

For the year ended December 31, 2018, we recognized $3.4 million as license and collaboration revenue under the 2016 Bayer Agreement and have recorded $3.5 million as Unbilled - collaboration and license revenue as of December 31, 2018 on the consolidated balance sheets.

There were no costs incurred to obtain or fulfill the contract.

Dermavant Sciences GmbH (“Dermavant”)

In December 2016, we granted an exclusive, worldwide license to Dermavant to develop and commercialize cerdulatinib in topical formulation for all indications, excluding oncology, in exchange for a non-refundable upfront payment of $8.8 million and contingent development and regulatory milestones of $36.3 million and up to $100.0 million in commercial milestone payments based on worldwide annual net sales. Additionally, Dermavant is required to pay us a 9% royalty on worldwide net sales of all products commercialized under the agreement throughout the license term, which continues on a country-by-country basis until the later of the 10th anniversary of the first commercial sale or the expiration of the last valid patent.

We identified the following non-contingent deliverables under the agreement, all of which had been satisfied as of December 31, 2016: 1) grant of an exclusive license to develop and commercialize cerdulatinib in topical formulation, excluding oncology; 2) obligation to transfer scientific knowledge and know-how; and 3) obligation to transfer manufacturing knowledge and know-how. Other deliverables referenced in the agreement were either contingent or deemed to be inconsequential and perfunctory. Dermavant has sole responsibility to develop, manufacture and commercialize the product. In the fourth quarter of 2017 we received notice that Dermavant achieved a specified regulatory milestone that requires a payment of $3.8 million to us.

During the years ended December 31, 2017 and 2016, we recognized $3.8 million and $8.8 million, respectively, in revenue under this agreement as we completed our obligations under these deliverables. There was no revenue recognized in 2018.

Refer to Note 8 “Asset Acquisition and License Agreements” for discussion regarding sublicensing fees due to Astellas Pharma, Inc. (“Astellas”) resulting from this agreement.

4. Fair Value Measurements

Financial assets and liabilities are recorded at fair value. The carrying amounts of certain of our financial instruments, including cash and cash equivalents, restricted cash, short-term investments, receivables from collaborations, prepaid research and development, prepaid expenses and other current assets and accounts payable, accrued research and development, accrued compensation and employee benefits, accrued and other liabilities and approximate their fair value due to their short maturities. The accounting guidance for fair value provides a framework for measuring fair value, clarifies the definition of fair value and expands disclosures regarding fair value measurements. Fair value is defined as the price that would be received in the sale of an asset or paid to transfer a liability (an exit price) in an orderly transaction between market participants at the reporting date. The accounting guidance establishes a three-tiered hierarchy, which prioritizes the inputs used in the valuation methodologies in measuring fair value as follows:

Level 1 –Inputs are unadjusted, quoted prices in active markets for identical assets or liabilities at the measurement date.

Level 2 –Inputs (other than quoted market prices included in Level 1) are either directly or indirectly observable for the asset or liability through correlation with market data at the measurement date and for the duration of the instrument’s anticipated life.

Level 3 –Inputs reflect management’s best estimate of what market participants would use in pricing the asset or liability at the measurement date. Consideration is given to the risk inherent in the valuation technique and the risk inherent in the inputs to the model.

In certain cases where there is limited activity or less transparency around inputs to valuation, the related assets or liabilities are classified as Level 3. Our embedded derivative liabilities are measured at fair value using a Monte Carlo simulation model and are included as a component of other long-term liabilities on the consolidated balance sheets. The embedded derivative liabilities are subject to remeasurement at the end of each reporting period, with changes in fair value recognized as a component of interest and other income (expense), net, in our consolidated statements of operations. The assumptions used in the Monte Carlo simulation model include: (1) our estimates of the probability and timing of related events; (2) the probability-weighted net sales of Andexxa; (3) our risk-adjusted discount rate that includes a company specific risk premium; (4) our cost of debt; (5) volatility; (6) the probability of a change in control occurring during the term of the note; and (7) the probability of an event of default. Our noncontrolling interest in SRX Cardio includes the fair value of the contingent milestone and royalty payments, which is valued based on Level 3 inputs. See Note 8, "Asset Acquisition and License Agreements," to these consolidated financial statements for further information.

Our liability-classified Lonza award is measured at fair value using a Monte Carlo simulation model and is included as a component of other long-term liabilities on the consolidated balance sheets. The liability-classified Lonza award is subject to remeasurement at the end of each reporting period, with changes in fair value to be recognized as research and development expense in our consolidated statements of operations. The assumptions used in the Monte Carlo simulation model include: (1) our estimate of the date when the performance conditions will be met and when the number of shares to vest will be determined; (2) expected risk free rate; (3) expected volatility; (4) contractual term

remaining; and (5) expected dividend yield rate. See Note 7, "Contract Manufacturing Agreements" to these consolidated financial statements for further information.

There were no transfers between Level 1, Level 2 and Level 3 during the periods presented.

In certain cases where there is limited activity or less transparency around inputs to valuation, securities are classified as Level 3. Our noncontrolling interest in SRX Cardio includes the fair value of the contingent milestone and royalty payments, which is valued based on Level 3 inputs. See Note 8, “Asset Acquisition and License Agreements,” to these consolidated financial statements for further information.

The following table sets forth the fair value of our financial assets and liabilities (excluding consolidated SRX Cardio's cash), allocated into Level 1, Level 2 and Level 3, that was measured on a recurring basis (in thousands):

	December 31, 2018			
	Level 1	Level 2	Level 3	Total
Financial Assets:				
Money market funds	$19,500	$–	$–	$19,500
Corporate notes and commercial paper	–	166,159	–	166,159
U.S. Treasury bills and government agency securities	–	110,190	–	110,190
Total financial assets	$19,500	$276,349	$–	$295,849
Financial Liabilities:				
Embedded derivative liabilities	$–	$–	$2,497	2,497
Liability-classified Lonza award	–	–	9,201	9,201
Total financial liabilities	$–	$–	$11,698	$11,698

	December 31, 2017			
	Level 1	Level 2	Level 3	Total
Financial Assets:				
Money market funds	$31,836	$–	$–	$31,836
Corporate notes and commercial paper	–	313,164	–	313,164
U.S. Treasury bills and government agency securities	–	170,458	–	170,458
Total financial assets	$31,836	$483,622	$–	$515,458
Financial Liabilities:				
Embedded derivative liabilities	$–	$–	$8,854	$8,854

Level 3 liabilities are comprised of embedded derivative liabilities as described in Note 9 and liability-classified Lonza award as described in Note 7. The below schedule does not include liability-classified Lonza award as it was recorded on December 31, 2018, and there was no associated fair value movement during 2018. The initial fair value of the liability-classified Lonza award was measured at $9.2 million and was recorded as research and development expense in our consolidated statements of operations.

Balance as of December 31, 2017	$8,854
Net decrease in fair value included in interest and other income, net	(6,357)
Balance as of December 31, 2018	$2,497

We estimate the fair value of our corporate notes, commercial paper and U.S. Treasury bills and government agency securities by taking into consideration valuations obtained from third-party pricing services. The pricing services utilize industry standard valuation models, including both income- and market-based approaches, for which all significant inputs are observable, either directly or indirectly, to estimate fair value. These inputs include reported trades of and broker/dealer quotes on the same or similar securities, issuer credit spreads, benchmark securities, prepayment/default projections based on historical data, and other observable inputs. The estimated fair value of the Notes and long-term debt are discussed in Note 9.

There were no transfers between any of the levels of the fair value hierarchy during the periods presented.

5. Financial Instruments

Cash equivalents and short-term and long-term investments, all of which are classified as available-for-sale securities, consisted of the following (in thousands):

	December 31, 2018				December 31, 2017			
	Amortized Cost	Unrealized Gain	Unrealized (Loss)	Estimated Fair Value	Amortized Cost	Unrealized Gain	Unrealized (Loss)	Estimated Fair Value
Money market funds	$19,500	$ —	$ —	$19,500	$31,836	$ —	$ —	$31,836
Corporate notes and commercial paper	166,363	1	(205)	166,159	313,307	2	(145)	313,164
U.S. Treasury bills and government agency securities	110,270	1	(81)	110,190	170,724	—	(266)	170,458
	$296,133	$ 2	$ (286)	$295,849	$515,867	$ 2	$ (411)	$515,458
Classified as:								
Cash equivalents				$117,836				$162,793
Short-term investments				178,013				281,589
Long-term investments				—				71,076
Total cash equivalents and investments				$295,849				$515,458

At December 31, 2018, the remaining contractual maturities of available-for-sale securities were less than one year. There have been no significant realized losses on available-for-sale securities for the periods presented. We do not intend to sell the investments with unrealized losses at December 31, 2018, and it is not more likely than not that we will be required to sell those investments with unrealized losses before recovery of their amortized cost bases, which may be maturity. Available-for-sale debt securities that were in a continuous loss position but were not deemed to be other than temporarily impaired were immaterial at both December 31, 2018 and 2017.

6. Balance Sheet Components

Inventories

Inventories consisted of the following (in thousands):

	December 31, 2018	December 31, 2017
Raw materials	$ 279	$ —

Work in process	14,395	1,032
Finished goods	2,844	67
Total inventories	$ 17,518	$ 1,099
Balance Sheet Classification		
Inventories	$ 7,873	$ 1,099
Prepaid and other long-term assets	9,645	—
Total inventories	$ 17,518	$ 1,099

We began capitalizing inventory for costs associated with Andexxa Gen 1 and Gen 2 supply upon FDA approval on May 3, 2018 and December 31, 2018, respectively. We began capitalizing inventory for costs associated with Bevyxxa during the fourth quarter of 2017 when it was determined that the inventory had a probable future economic benefit. As of December 31, 2018 and 2017, long-term inventories of $9.6 million and zero, respectively are classified as prepaid and other long-term assets as these inventories are not expected to be sold within the next twelve months, and the amount is deemed recoverable.

As of December 31, 2018 and 2017, we have made prepayments to manufacturers for the purchase of inventories. These are classified as short and long-term assets based on when the inventories are expected to be utilized in the manufacturing process and/or sold within the next twelve months.

We established a reserve of $2.2 million for estimated obsolescence of inventories as of December 31, 2018, and we recorded a related charge to cost of sales for $2.2 million. In developing our inventory reserve estimate, we consider forecasted demand, current inventory levels and our firm purchase commitments. If it is determined that inventory utilization will further diminish based on estimates of demand compared to product expiration, additional inventory write-downs may be required.

In December 2018, we recorded a charge to cost of sales for $10.3 million associated with our Gen 1 manufacturing process as a result of our commercial plans and related timelines to transition our customer base to product manufactured on our Gen 2 manufacturing process, which was approved by the FDA on December 31, 2018. This $10.3 million charge comprised of approximately $4.6 million related to the write-down of the cost basis of inventory on hand, $2.9 million related to the prepaid manufacturing, and $2.8 million related to the accrual of a liability for the remaining minimum purchase commitment.

Prepaid and Other Long-Term Assets

Prepaid and other long-term assets consist of the following (in thousands):

	December 31, 2018	December 31, 2017
Long-term inventories	$ 9,645	$ —
Prepaid manufacturing	10,894	9,600
Prepaid other long-term	38	9
Total prepaid and other long-term assets	$ 20,577	$ 9,609

As of December 31, 2018 and 2017, prepaid manufacturing on the Consolidated Balance Sheets represent prepayments of zero and $2.3 million, respectively, made to manufacturers for the purchase of inventories which we expect to be utilized in the manufacturing process and/or sold within the next twelve months. As of December 31, 2018 and 2017, long-term prepaid manufacturing of $10.9 million and $9.6 million, respectively, are classified as prepaid and other long-term assets as these inventories are not expected to be utilized in the manufacturing process and/or sold within the next twelve months.

Property and Equipment

Property and equipment consists of the following (in thousands):

	December 31, 2018	December 31, 2017
Computer equipment	$ 1,335	$ 1,329
Capitalized software	1,322	1,518
Equipment	8,737	6,973
Leasehold improvements	8,143	8,000
	19,537	17,820
Less accumulated depreciation and amortization	(14,301)	(12,603)
Property and equipment, net	$ 5,236	$ 5,217

Accrued and Other Liabilities

Accrued and other liabilities consist of the following (in thousands):

	December 31, 2018	December 31, 2017
Commercial related	$ 7,203	$ 1,694
Deferred rent	960	879
Current portion of long term obligation to collaborator	880	—
Others	2,473	979
Total accrued and other liabilities	$ 11,516	$ 3,552

7. Contract Manufacturing Agreements

Andexxa Manufacturing Agreements

AGC Biologics Commercial Supply Agreement (“CSA”)

In July 2014, we entered into a CSA with AGC Biologics, formerly CMC ICOS Biologics, Inc. (“AGC”), pursuant to which AGC manufactures clinical and commercial supply of andexanet alfa. The terms of the CSA required us to purchase an aggregate fixed number of batches from AGC through 2021. In December 2016, we entered into an Amended and Restated Commercial Supply Agreement (“aCSA”) with AGC that amended and restated the terms of the original CSA. Under the aCSA, AGC continues to manufacture bulk drug substance for Andexxa under our Gen 1 manufacturing process and supports other regulatory and manufacturing activities.

Under the consolidation guidance, we determined that AGC is a Variable Interest Entity (“VIE”) and we are not the primary beneficiary and therefore consolidation of AGC is not required. We came to this conclusion as we do not control those activities most significant to AGC, and therefore we are not considered to be the primary beneficiary of AGC. As of December 31, 2018, we have not provided financial or other support to AGC that was not previously contractually required. We have recorded $0.1 million of accounts payable, $2.3 million of accrued manufacturing and no accrued research and development in our consolidated balance sheet as of December 31, 2018. Neither the original CSA nor the aCSA require us to fund operations at AGC and therefore, historically we have quantified our maximum exposure to loss as the aggregate value of prepaid manufacturing services as of each reporting date. There is no prepaid manufacturing services outstanding in our consolidated balance sheet as of December 31, 2018. We believe that our total exposure to losses associated with the fixed pricing terms of this agreement is de minimis given the cost per batch, number of batches and time frame over which the batches will be manufactured, pursuant to the amended agreement.

Lonza Manufacturing Services Agreement

In August 2017, we executed a Manufacturing Services Agreement with Lonza AG ("Lonza") to develop a second manufacturing site and to continue to develop our Gen 2 manufacturing process for Andexxa bulk drug substance and to manufacture commercial supply. The manufacturing commitments included therein are contingent upon marketing approval by either the FDA or the EMA of Andexxa manufactured at the current Porrino facility under the Gen 2 process and will remain in effect for a period of ten years. Additionally, the agreement provides Lonza with two separate rights to purchase shares of our common stock at a purchase price of $1.00 per share, contingent upon certain events. The first purchase right will be earned by Lonza upon the approval of the Gen 2 process and the commencement of process transfer activities to an additional, new facility. The second purchase right will be earned by Lonza upon the approval of the drug substance manufactured at the new facility and the number of shares will be determined based on the achievement of specified performance metrics at the new facility. The number of shares subject to each of the first and the second purchase rights will be capped at the lesser of either: (1) the number of shares with an aggregate market value of $15.0 million based on a 20-day trailing market value average from the date such purchase right is earned by Lonza, or (2) 500,000 shares. This agreement provides net cash settlement provision in the event a change of control or an assignment of this agreement occurs prior to Lonza earning entitlement to the first and/or second tranche purchase rights.

We measure the fair value of the equity instrument contingently issuable to Lonza by using the stock price and other measurement assumptions as of the earlier of the date at which either: (1) a commitment for performance by the counterparty has been reached; or (2) the counterparty's performance is complete. We determined that Lonza does not have a performance commitment in this arrangement because there is no substantive disincentive for nonperformance. As such, our measurement date for the contingently issuable equity awards will be when the specified performance criteria have been achieved. Until such achievement, the contingently issuable equity awards will be measured at their then-current lowest aggregate fair value at each financial reporting date.

Upon the Gen2 approval on December 31, 2018, the only remaining performance condition for the first tranche award was the commencement of the technology transfer. As this is considered to be within Lonza's control, recognition of the then-current fair value of the equity awards prior to the measurement date was assessed based on the probability that Lonza will perform. We expect that it is probable that Lonza will perform, and as such, we recorded the award at the fair value of $9.2 million using the valuation assumptions described in Note 4, "Fair Value Measurements" as of December 31, 2018.The $9.2 million non-cash charge was classified as research and development expense.

Bevyxxa Manufacturing Agreement

In 2016 we entered into a Manufacturing Agreement, as amended, with Hovione, Limited, ("Hovione"), pursuant to which Hovione agreed to manufacture active pharmaceutical ingredient ("API") for Bevyxxa at commercial scale and perform process validation during the term of the agreement. As of December 31, 2018, we have recorded $10.9 million in prepaid and other long-term assets and we expect to make up to $2.9 million of additional payments over the remaining term of the Hovione Agreement, ending in 2019.

8. Asset Acquisition and License Agreements

SRX Cardio, LLC ("SRX Cardio")

In December 2015, we entered into an option agreement with SRX Cardio to explore a novel approach to develop a drug in the field of hypercholesterolemia. This agreement provided us an option to enter into an exclusive license agreement as well as responsibility to lead and fund the development effort during the option period. We made an upfront payment of $0.5 million.

In September 2016, we exercised our right to enter into an exclusive license agreement. Pursuant to the terms of the agreement, we made an upfront payment of $2.2 million to acquire the license and are obligated to pay up to $152.5 million in research and development milestones related to the advancement of the program and royalties in the range of 2% to 6% of worldwide net sales. We may terminate the license agreement upon 90 days' notice for convenience and the agreement may also be terminated by either party for a material breach by the other party.

We determined that SRX Cardio is and continues to be a variable interest entity and that we hold a variable interest in SRX Cardio's intellectual property assets and the related potential future product candidates these assets may produce. Due to the absence of other significant development programs at SRX Cardio, we concluded that the variable interest was in the entity as a whole. Given the stage of development, we concluded that SRX Cardio is not considered a business as they lack the processes required to generate outputs. Further, because we control those activities most

significant to SRX Cardio, we are considered to be the primary beneficiary of SRX Cardio. Accordingly, SRX Cardio is subject to consolidation and we have consolidated the financial statements of SRX Cardio by (a) eliminating all intercompany balances and transactions; and (b) allocating income or loss attributable to the noncontrolling interest in SRX Cardio to net income or loss attributable to noncontrolling interest in our consolidated statement of operations and reflecting noncontrolling interest on our consolidated balance sheet. Our interest in SRX Cardio is limited to the development of the intellectual property asset. The upfront payments of $0.5 million and $2.2 million and the obligation to fund the development plan represent our maximum exposure to loss under the agreement. We did not acquire any equity interest in SRX Cardio, any interest in SRX Cardio's cash and cash equivalents or any control over their activities that do not relate to the exclusive license agreement. SRX Cardio does not have any right to our assets except as provided in the exclusive license agreement.

At the inception of the agreement, the identifiable assets, assumed liabilities and non-controlling interest of SRX Cardio were recorded at their estimated fair value upon the initial consolidation of SRX Cardio, including the in-process research and development intangible asset. We estimated the fair value of these indefinite-lived intangible assets to be $3.2 million and the noncontrolling interest to be $2.9 million. The fair value was estimated using present-value models on potential contingent milestones and royalty payments ("contingent future payments"), based on assumptions regarding the probability of achieving the development milestones, estimate of time to develop the drug candidate, estimates of future cash flows from potential product sales and assumptions regarding the appropriate discount rate.

As of December 31, 2018, we have not provided financial or other support to SRX Cardio that was not previously contracted or required. We recorded SRX Cardio's $30,000 and $173,000 of cash as restricted cash as of December 31, 2018 and 2017, respectively, because (a) we do not have any interest in or control over SRX Cardio's cash and (b) the agreement does not provide for these assets to be used for the development of the intellectual property assets developed pursuant to this agreement. We recorded $321,000 as net loss attributable to noncontrolling interest (SRX Cardio) on our consolidated statements of operations, reflecting a change in fair value of our contingent future payments liability to SRX Cardio as of December 31, 2018.

Should the development program make substantive advancement, we expect to record increases in the fair value of the contingent milestone and royalty payments with a corresponding increase to net loss or decrease to net income attributable to Portola Shareholders.

Millennium Pharmaceuticals, Inc. ("Millennium")

In August 2004, we entered into an agreement with Millennium to license certain exclusive rights to research, develop and commercialize certain compounds that inhibit Factor Xa, including Bevyxxa. The license agreement requires us to make license fee, milestone, royalty and sublicense sharing payments to Millennium as we develop, commercialize or sublicense Bevyxxa. The license agreement will continue in force, on a country-by-country basis, until the expiration of the relevant patents or ten years after the launch, whichever is later, or termination by either party pursuant to the agreement. This license agreement may be terminated by either party for the other party's uncured material breach.

Under the agreement, milestone payments are determined based on the indication included in our filing and become payable upon acceptance of our new drug application, or NDA, and regulatory approval in the United States and Europe. In December 2016, the FDA accepted our NDA for Bevyxxa for extended-duration prophylaxis of venous thromboembolism, triggering a $2.0 million milestone payment to Millennium which was recorded as a research and development expense. In June 2017, Bevyxxa received regulatory approval in the United States, triggering a $5.0 million milestone payment to Millennium which is recorded as finite-lived intangible assets in our consolidated balance sheet and will be amortized on a straight-line basis over the remaining estimated patent life. Amortization expense was $0.6 million for the year ended December 31, 2018. This amortization expense was recorded as cost of sales. Net product sales of Bevyxxa generated by us are subject to a tiered royalty ranging between 2% and 8%.

Estimated future amortization expense for Millennium related intangible assets as of December 31, 2018 is $0.6 million per year for 2019, 2020, 2021 and 2022, and $1.8 million thereafter.

Astellas Pharma, Inc. ("Astellas")

In 2010, we amended and restated our original license agreement with Astellas which was executed in August 2005. The amended and restated license agreement provides us certain exclusive rights to research, develop and

commercialize Syk inhibitors. Pursuant to the agreement, we may be required to pay Astellas up to $71.5 million in milestone payments upon the achievement of certain regulatory, approval and sales events for each Syk inhibitor we develop.

Additionally, in the event that we enter into an agreement with a third party to develop and commercialize Syk inhibitors, we would be required to pay Astellas 20% of any payments (excluding royalties) received under the collaboration. These payments would be creditable against the aforementioned milestone payments. In addition, we are required to pay Astellas royalties for worldwide sales for any commercial Syk inhibitor product.

In December 2016, we out-licensed exclusive rights to cerdulatinib in topical formulation, excluding oncology, to Dermavant Sciences GmbH ("Dermavant"). Twenty percent of the milestone payments received from Dermavant are payable to Astellas. We recognized research and development expense in our consolidated statement of operations of $0.8 million and $1.8 million for the periods ended December 31, 2017 and 2016, respectively, associated with our payment obligation to Astellas. There was no research and development expense incurred during 2018 because we did not earn associated milestone from Dermavant during 2018.

9. Notes Payable

BMS and Pfizer Promissory Notes

In December 2016, we entered into a supplemental funding support agreement with BMS and Pfizer whereby we received $50.0 million in exchange for two promissory notes totaling $65.0 million that become due in December 2024 ("Notes"). The use of funds is restricted to development activities needed for regulatory approval of Andexxa by the FDA and EMA as provided in the agreement.

Pursuant to the terms of the agreement, we are required to pay down the Notes each quarter in an amount equal to 5% of net sales of Andexxa in the United States and the European Union ("EU"). If the approval of Andexxa in the United States and EU is not achieved by January 1, 2019, we are able to reduce the repayment amount to $60.0 million if such amount is paid by December 31, 2021 and regardless of the timing of regulatory approval, we may reduce the repayment amount to $62.5 million if such amount is paid by December 31, 2023. Any unpaid amounts shall become immediately due upon: (1) a change of control of the Company; (2) an event of default; or (3) termination of the agreement for breach. We have the right to prepay the repayment amount at any time without penalty.

The accounting for the Notes requires us to make certain estimates and assumptions, including timing of Andexxa approvals, timing of royalty payments due to BMS and Pfizer, the expected rate of return to BMS and Pfizer, the split between current and long-term portions of the obligation and accretion of related interest expense.

The upfront cash receipt of $50.0 million was recorded as Notes payable at issuance. We are accruing for interest over the term of the Notes. The carrying values of the Notes payable at December 31, 2018 and 2017 are $48.3 million and $50.6 million, respectively, including accrued interest of $7.6 million and $4.2 million, respectively, net of current portion and accounts payable of $5.1 million and zero, respectively. Current portion of notes payable and long term debt and a portion of accounts payable on the consolidated balance sheet represents expected future payments to be made in the next 12 months from the balance sheet date based on the current quarter sales and the most current sales forecast. The royalty obligation relating to net sales recorded in the fourth quarter of 2018 is included in accounts payable on the balance sheet.

We evaluated the features of the Notes and determined that certain features require acceleration of payments such as pursuant to a change of control or an event of default. We determined that these features (embedded derivatives) require bifurcation and fair value recognition. We determined the fair value of each derivative using a Monte Carlo simulation model taking into account the probability of these events occurring and potential repayment amounts and timing of such payments that would result under various scenarios (see Note 4 "Fair Value Measurements" to these consolidated financial statements). We will remeasure the embedded derivatives to fair value each reporting period until the repayment, termination or maturity of the Notes. For the year ended December 31, 2018 and 2017, we recognized a loss of $0.4 million and a gain of $1.6 million, respectively, upon remeasurement of the embedded

derivatives.

The estimated fair value of the Notes at December 31, 2018 and 2017 was $53.2 million and $55.5 million, respectively, and the fair value was measured using Level 3 inputs. The estimated fair market value was calculated using a Monte Carlo simulation model with inputs consistent with those used in determining the embedded derivative values as described in Note 4 “Fair Value Measurements” to these consolidated financial statements.

Royalty-based Financing

In February 2017, we entered into a purchase and sale agreement (the "Royalty Sales Agreement") with HealthCare Royalty Partners and its affiliates ("HCR") whereby HCR acquired a term royalty interest in future worldwide net sales of Andexxa. We received $50.0 million upon closing and received an additional $100.0 million following the U.S. regulatory approval of Andexxa in May 2018.

We are required to pay royalties to HCR based on tiered net worldwide sales of Andexxa in a range of 8.46% to 4.19%. The applicable rate decreases starting at worldwide net sales levels above $150.0 million. Total royalty payments are capped at 195% of the funding received less certain transaction expenses, or $290.6 million. We have evaluated the terms of the Royalty Sales Agreement and concluded that the features of the funded amount are similar to those of a debt instrument. Accordingly, we have accounted for the transaction as long-term debt.

As the repayment term of the funded amount is contingent upon the sales volumes of Andexxa, the repayment term may be shortened or extended depending on the actual sales of Andexxa. The repayment period commences upon the first commercial sale of Andexxa in any country and expires on the date when HCR has received cash payments totaling $290.6 million.

We evaluated the terms of the debt and determined that certain features, such as the variability in the royalty payments based upon the timing of manufacturing approval from the FDA, is an embedded derivative that requires bifurcation from the debt instrument and fair value recognition. We determined the fair value of each derivative using a Monte Carlo simulation model taking into account the probability of these events occurring and potential repayment amounts and timing of such payments that would result under various scenarios, as further described in Note 4 "Fair Value Measurements" to these consolidated financial statements. We remeasured the embedded derivative to fair value each reporting period until when it was determined that this is no longer a derivative given the Andexxa Gen2 FDA approval on December 31, 2018. For the year ended December 31, 2018 and 2017, we recognized a gain of $6.8 million and a loss of $6.2 million, respectively, upon remeasurement of the embedded derivative.

The effective interest rate as of December 31, 2018 was 13.9%. For the year ended December 31, 2018, accrued interest of $15.4 million was added to the principal balance of the debt. The total net royalties to be paid, less the net proceeds received will be recorded to interest expense using the effective interest method over the life of the Royalty Sales Agreement. We will estimate the payments to be made to HCR over the term of the Royalty Sales Agreement based on forecasted royalties and will calculate the interest rate required to discount such payments back to the liability balance. Over the course of the Royalty Sales Agreement, the actual interest rate will be affected by the amount and timing of net royalty revenue recognized and changes in forecasted revenue. On a quarterly basis, we will reassess the effective interest rate and adjust the rate prospectively as necessary.

Upon the closing of Royalty Sales Agreement in February 2017, we incurred a fee to HCR of $2.0 million and paid additional debt issuance costs totaling $0.6 million, which includes expenses that we paid on behalf of HCR and expenses incurred directly by us. Upon the subsequent funding of $100.0 million in May 2018, we incurred fees to HCR of $5.0 million. Fees and debt issuance costs have been netted against the debt as of December 31, 2018 and are being amortized over the estimated term of the debt using the effective interest method.

The assumptions used in determining the expected repayment term of the debt requires that we make estimates that could impact the short and long-term classification of the debt, as well as the period over which the fees and debt issuance costs will be amortized. The carrying value of the long term debt as of December 30, 2018 and 2017 was $155.3 million and $54.3 million, respectively, including accrued interest of $22.9 million and $7.4 million, respectively, net of unamortized debt discount of $6.8 million and $2.3 million, respectively, and net of current portion and accounts payable of $8.6 million and zero, respectively. Current portion of notes payable and long term

debt and a portion of accounts payable on the consolidated balance sheet represents expected future payments to be made in the next 12 months from the balance sheet date based on the current quarter sales and the most current sales forecast. The royalty obligation relating to net sales recorded in the fourth quarter of 2018 is included in accounts payable on the balance sheet.

The estimated fair value of long-term debt at December 31, 2018 and 2017 was $154.2 million and $58.8 million, respectively, and the fair value was measured using Level 3 inputs. The estimated fair market value was calculated using a Monte Carlo simulation model with inputs consistent with those used in determining the embedded derivative values as described in Note 4 “Fair Value Measurements” to these consolidated financial statements.

10. Commitments and Contingencies

We conduct product research and development programs through a combination of internal and collaborative programs that include, among others, arrangements with universities, contract research organizations and clinical research sites. We have contractual arrangements with these organizations; however, these contracts are cancelable on 30 days’ notice and our obligations under these contracts are largely based on services performed with the exception of our contract manufacturers. Non-cancelable purchase commitments with contract manufacturing organizations amount to $78.0 million, $93.9 million and $43.3 million, for services to be performed in 2019, 2020, and 2021, respectively.

Facility Leases

We lease our corporate, laboratory and other facilities under an operating lease, which has been subject to several amendments necessary to secure additional space and extend the lease term through March 2020. These amendments provided for aggregate tenant improvement allowances of $6.3 million, which are amortized as a reduction to rent expense on a straight-line basis over the lease term. The facility lease agreement, as amended, provides for an early termination right effective March 2018 with nine months advance notice and a termination fee of $1.0 million. The facility lease agreement, as amended, contains scheduled rent increases over the lease term. The related rent expense for this lease is calculated on a straight-line basis, with the difference recorded as deferred rent.

At December 31, 2018, our future minimum commitments under our non-cancelable operating leases were as follows (in thousands):

Year ending December 31:	
2019	$3,119
2020	696
Total	$3,815

Rent expense was $2.1 million, $1.8 million and $1.8 million for the years ended December 31, 2018, 2017 and 2016, respectively.

Guarantees and Indemnifications

We indemnify each of our officers and directors for certain events or occurrences, subject to certain limits, while the officer or director is or was serving at our request in such capacity, as permitted under Delaware law and in accordance with our certificate of incorporation and bylaws. The term of the indemnification period lasts as long as an officer or director may be subject to any proceeding arising out of acts or omissions of such officer or director in such capacity.

The maximum amount of potential future indemnification is unlimited; however, we currently hold director and officer liability insurance. This insurance allows the transfer of risk associated with our exposure and may enable us to recover a portion of any future amounts paid. We believe that the fair value of these indemnification obligations is minimal. Accordingly, we have not recognized any liabilities relating to these obligations for any period presented.

Contingencies

While there are no material legal proceedings we are aware of, we may become party to various claims and complaints arising in the ordinary course of business. Management does not believe that any ultimate liability resulting from any of these claims will have a material adverse effect on its results of operations, financial position, or liquidity. However, management cannot give any assurance regarding the ultimate outcome of these claims, and their resolution could be material to operating results for any particular period, depending upon the level of income for the period.

11. Stock-Based Compensation

Equity Incentive Plan

In January 2013, our Board of Directors adopted our 2013 Equity Incentive Plan ("2013 Plan"), which became effective upon the closing of our IPO in May 2013. As of December 31, 2018, we are authorized to issue 18,297,465 shares of common stock under the 2013 Plan. The 2013 Plan had 5,203,731 shares of common stock available for future issuance as of December 31, 2018, subject to automatic annual increases each January 1st and will continue through January 1, 2023. The automatic annual share increase is equal to 5 % of the total number of outstanding shares of our common stock on December 31st of the preceding fiscal year, unless our Board of Directors elects to forego or reduce such increase. Further, all remaining shares available under the 2003 Equity Incentive Plan, or the 2003 Plan, were transferred to the 2013 Plan upon adoption. The 2013 Plan provides for the granting of incentive stock options, nonstatutory stock options, stock appreciation rights, restricted stock awards, restricted stock unit awards, performance stock awards, performance cash awards and other stock awards to employees, officers, directors and consultants.

In July 2017, our Board of Directors adopted an Inducement Plan ("2017 Plan") with 1,500,000 shares authorized for issuance to new employees entering into employment with Portola in accordance with Nasdaq Listing Rule 5635(c)(5). The 2017 Plan had 1,246,421 shares of common stock available for future issuance as of December 31, 2018. In December 2018, our Board of Directors authorized an additional 1,000,000 shares under the 2017 Plan for issuance to new employees entering into employment with Portola in accordance with NASDAQ Listing Rule 5635(c)(5).

Stock Options

Incentive stock options may be granted with exercise prices of not less than 100% of the estimated fair value of our common stock and nonstatutory stock options may be granted with an exercise price of not less than 85% of the estimated fair value of the common stock on the date of grant. Stock options granted to a stockholder owning more than 10% of our voting stock must have an exercise price of not less than 110% of the estimated fair value of the common stock on the date of grant. Stock options are generally granted with terms of up to ten years and vest over a period of four years.

The following table summarizes stock option activity under our 2013 Plan and 2017 Plan, and related information during the year ended December 31, 2018:

	Shares Subject to	Weighted-

	Outstanding Options	Average Exercise Price Per Share
Balance at December 31, 2017	6,514,538	$ 31.36
Options granted	2,452,738	36.36
Options exercised	(699,974)	16.92
Options canceled	(759,612)	42.12
Balance at December 31, 2018	7,507,690	$ 33.25

Additional information related to the status of stock options at December 31, 2018, is as follows (aggregate intrinsic value in thousands):

	Shares	Weighted-Average Exercise Price Per Share	Remaining Contractual Life	Aggregate Intrinsic Value
Outstanding	7,507,690	$ 33.25	6.5	$ 4,833
Vested	4,149,238	$ 31.05	5.0	$ 4,819

The aggregate intrinsic values of stock options outstanding and vested were calculated as the difference between the exercise price of the stock options and the fair value of our common stock as of December 31, 2018. The aggregate intrinsic value of stock options exercised was $11.6 million, $39.3 million and $1.0 million for the years ended December 31, 2018, 2017 and 2016, respectively.

The weighted-average grant date fair value of employee stock options granted during the years ended December 31, 2018, 2017 and 2016 was $21.01, $24.08 and $17.15 per share, respectively. The total estimated grant date fair value of stock options vested during the years ended December 31, 2018, 2017 and 2016 was $30.6 million, $23.0 million and $20.8 million, respectively.

We recognized stock-based compensation expenses of $29.7 million, $25.5 million and $21.2 million in 2018, 2017 and 2016 respectively relating to the employee stock options. As of December 31, 2018, total unamortized employee stock-based compensation was $60.5 million, which is expected to be recognized over the remaining estimated vesting period of 2.6 years.

Performance Stock Options (“PSOs”)

In May 2016, the Compensation Committee of our Board of Directors approved the commencement of granting performance stock option awards to our executive and senior officers. PSOs represent a contingent right to purchase our Common Stock upon achievement of specified conditions. The PSOs granted in May 2016 were fully vested by the fourth quarter of 2017 when regulatory approval of Andexxa was achieved and when the manufacturing goal related to our lead programs was met in 2017. A portion of PSOs granted in May 2016 were forfeited and cancelled when regulatory approval of Andexxa was not achieved by the fourth quarter of 2016.

We recognized stock-based compensation expense of $2.3 million, $0.5 million and $0.5 million in 2017, 2016 and 2015, respectively, relating to these PSOs. As of December 31, 2017, the stock-based compensation expense for these PSOs had been fully recognized. The aggregate intrinsic value of PSOs exercised for the years ended December 31, 2018, 2017 and 2016 was $0.2 million, $0.4 million and zero, respectively. The weighted-average grant date fair value of these PSOs granted during 2016 was $14.25. There was no grant of PSOs during 2017 and 2018. The following table summarizes PSO activities under our 2013 Plan and related information:

	Shares Subject to Outstanding	Weighted-Average Exercise

	PSOs	Price Per Share
Balance at December 31, 2017	164,783	$ 23.76
Options granted	—	—
Options exercised	(17,448)	23.76
Options canceled	(4,000)	23.76
Balance at December 31, 2018	143,335	$ 23.76

Additional information related to the status of PSOs at December 31, 2018, is as follows (aggregate intrinsic value in thousands):

	Shares	Weighted-Average Exercise Price Per Share	Remaining Contractual Life	Aggregate Intrinsic Value
Outstanding and Vested	143,335	$ 23.76	4.0	$ -

Restricted stock units (“RSUs”)

In January 2015, the Compensation Committee of our Board of Directors approved the commencement of granting restricted stock units to our employees. RSUs are share awards that entitle the holder to receive freely tradable shares of our Common Stock upon vesting. The RSUs cannot be transferred, and until they vest, the awards are subject to forfeiture if employment terminates prior to the release of the vesting restrictions. The RSUs, generally vest in equal amounts on each of the first three year anniversaries of the grant date, provided the employee remains continuously employed with us. The fair value of the RSUs is equal to the closing price of our Common Stock on the grant date.

The following table summarizes RSU activities under our 2013 Plan and 2017 Plan and related information:

	Shares Subject to Outstanding RSUs	Weighted-Average Grant Date Fair Value Per Share
Balance at December 31, 2017	600,334	$ 27.87
RSUs granted	758,156	37.62
RSUs released	(279,555)	28.49
RSUs canceled	(99,657)	40.13
Balance at December 31, 2018	979,278	$ 34.00

Additional information related to the status of RSUs at December 31, 2018, is as follows (aggregate intrinsic value in thousands):

	Shares	Remaining Contractual Life	Aggregate Intrinsic Value
Outstanding	979,278	1.2	$ 19,116

The total grant date fair value of RSUs vested during the years ended December 31, 2018, 2017 and 2016 was $8.0 million, $6.0 million and $1.7 million, respectively. The weighted-average grant date fair value of RSUs granted during the years ended December 31, 2018, 2017 and 2016 was $37.6, $27.15 and $28.01 per share respectively.

We recognized stock-based compensation expenses of $11.3 million, $8.1 million and $5.3 million in the years ended December 31, 2018, 2017 and 2016, respectively, relating to these RSUs. As of December 31, 2018, there was $21.6

million of unrecognized compensation costs related to these RSUs, which is expected to be recognized over an estimated weighted-average period of 2.0 years.

Performance stock units (“PSUs”)

In January 2015, the Compensation Committee of our Board of Directors approved the commencement of granting performance stock units to our employees. PSUs are share awards that entitle the holder to receive freely tradable shares of our Common Stock upon achievement of specified market or performance conditions. In January 2016, the Compensation Committee of our Board of Directors approved a program to award up to 102,906 PSUs to the management team based on the achievement of certain commercial and regulatory goals related to andexanet alfa and betrixaban, respectively. In January 2017, the Compensation Committee of our Board of Directors approved a program to award up to 143,750 PSUs to the management team based on the achievement of certain regulatory goals related to andexanet alfa. In March 2018, the Compensation Committee of our Board of Directors approved a program to award up to 102,600 PSUs to the management team based on the achievement of certain regulatory and net revenue goals.

The following table summarizes PSU activities under our 2013 Plan and related information:

	Shares Subject to Outstanding PSUs	Weighted-Average Grant Date Fair Value Per Share
Balance at December 31, 2017	304,754	$ 25.34
PSUs granted	102,600	32.66
PSUs released	(218,107)	25.26
PSUs canceled	(35,744)	27.48
Balance at December 31, 2018	153,503	$ 29.85

Additional information related to the status of PSUs at December 31, 2018, is as follows (aggregate intrinsic value in thousands):

	Shares	Remaining Contractual Life	Aggregate Intrinsic Value
Outstanding	153,503	0.7	$ 2,996

The total grant date fair value of PSUs vested in 2018, 2017 and 2016 was $5.7 million, $2.1 million and $0.7 million, respectively. The weighted-average grant date fair value of PSUs granted in 2018, 2017 and 2016 was $32.66, $25.54 and $33.49 per share, respectively.

We recognized stock-based compensation expenses of $2.7 million, $2.4 million and $2.5 million in the years ended December 31, 2018, 2017 and 2016, respectively, relating to these PSUs. As of December 31, 2018, there was $0.5 million of unrecognized compensation costs related to these PSUs, which is expected to be recognized over an estimated weighted-average period of 0.7 years.

Employee Stock Purchase Plan (“ESPP”)

The Board of Directors adopted the 2013 ESPP, effective upon the completion of the initial public offering of our common stock. As of December 31, 2018, we reserved a total of 1,818,314 shares of common stock for issuance under the 2013 ESPP. The reserve for shares available under the ESPP automatically increases on January 1st each year, beginning in 2014, by an amount equal to 2% of the total number of outstanding shares of our common stock on December 31st of the preceding fiscal year unless the Board of Directors elects to forego or reduce such increases. Since 2015, the Board of Directors elected to completely forego the automatic share increases available under the ESPP. The ESPP had 1,505,810 shares of common stock available for future issuance as of December 31, 2018. Eligible employees may purchase common stock at 85% of the lesser of the fair market value of our Common Stock on the first or last day of the offering period.

Options Granted to Nonemployees

We have granted options to purchase shares of common stock to consultants in exchange for services performed. We granted options to purchase 37,000, 50,000 and 52,000 shares with average exercise prices of $45.16, 38.14 and $24.85 per share, respectively, during the years ended December 31, 2018, 2017, and 2016, respectively. These options vest upon grant or various terms up to four years. We recognized non-employee stock compensation expense of $12.1 million (including $9.2 million from the liability-classified Lonza award), $3.9 million and less than $0.1 million during the years ended December 31, 2018, 2017 and 2016, respectively. The fair value of non-employees' options was measured using the Black-Scholes option-pricing model reflecting the same assumptions as applied to employee options in each of the reported years, other than the expected life assumption, which is assumed to be the remaining contractual life of the option. The compensation costs of these arrangements are subject to remeasurement over the vesting terms as earned.

Stock-Based Compensation

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

	Year Ended December 31,		
	2018	2017	2016
Research and development	$27,694	$19,779	$12,905
Selling, general and administrative	28,712	23,505	17,457
Subtotal	$56,406	$43,284	$30,362
Capitalized stock-based compensation costs	(1,046)	—	—
Stock-based compensation expense included in total expenses	$55,360	$43,284	$30,362

Stock-based compensation capitalized into inventory is recognized as cost of sales when the related product is sold.

Valuation Assumptions

The fair value of our stock options including performance stock options and purchase rights under our ESPP were determined using the Black-Scholes option valuation model. Option valuation models require the input of subjective assumptions and these assumptions can vary over time. The risk-free rate is based on U.S. Treasury zero-coupon issues with remaining terms similar to the expected terms of the awards. The expected term of employee options granted is determined using the simplified method (based on the midpoint between the vesting date and the end of the contractual term). As sufficient trading history does not yet exist for our common stock, our estimate of expected volatility is based on the weighted average volatility of other companies with similar products under development, market, size and other factors and our volatility. To date, we have not declared or paid any cash dividends and do not have any plans to do so in the future. Therefore, we used an expected dividend yield of zero.

The following table illustrates the weighted-average assumptions for the Black-Scholes option-pricing model used in determining the fair value of these awards:

	Year Ended December 31,		
	2018	2017	2016
Risk-free interest rate			
Stock options	2.55% - 3.03%	1.70% - 2.27%	1.01% - 2.10%
Performance stock options	–	–	1.34% - 1.50%
ESPP	1.10% - 2.28%	0.47% - 1.10%	0.26% - 0.50%
Expected term			
Stock options	5.0 - 6.1 years	5.0 - 6.1 years	5.0 - 6.1 years
Performance stock options	–	–	5.4 - 6.4 years
ESPP	0.5 years	0.5 years	0.5 years
Expected volatility			
Stock options	59% - 62%	60% - 65%	62% - 66%
Performance stock options	–	–	65% - 66%
ESPP	49% - 65%	61% - 80%	54% - 99%
Dividend yield			
Stock options	–	–	–
Performance stock options	–	–	–
ESPP	–	–	–

Contingently issuable shares to Lonza are discussed in Note 7.

12. Net Loss per Share Attributable to Portola Common Stockholders

The following outstanding shares of common stock equivalents were excluded from the computation of diluted net loss per share attributable to Portola common stockholders for the periods presented because including them would have been antidilutive:

	Year Ended December 31,		
	2018	2017	2016
Stock options to purchase Common Stock	7,507,690	6,514,538	5,817,116
Performance stock options	143,335	164,783	180,752
Restricted stock units	979,278	600,334	546,507
Performance stock units	153,503	304,754	285,866
Employee stock purchase plan	96,219	32,325	37,368
Common stock warrants	1,500	1,500	1,500

13. Employee Benefit Plan

We sponsor a 401(k) Plan, which stipulates that eligible employees can elect to contribute to the 401(k) Plan, subject to certain limitations of eligible compensation. We match employee contributions up to a maximum of 3% of employee salary for the years ended December 31, 2018, 2017 and 2016. During the years ended December 31, 2018, 2017 and 2016, we recognized total expense of $1.3 million, $0.9 million and $0.8 million, respectively, relating to these contributions.

14. Income Taxes

The income tax provision consists of the following (in thousands):

	Year Ended December 31,	
	2018	2017
Current:		
Federal	$ –	$ –
State	–	–
Foreign	–	–
	–	-
Deferred:		
Federal	$ –	$ –
State	–	–
Foreign	–	–
	–	–
Total provision for income taxes	$ -	$ -

We did not record an income tax expense for the years ended December 31, 2018, 2017 and 2016. The effective tax rate of our provision for income taxes differs from the federal statutory rate as follows:

	Year Ended December 31,		
	2018	2017	2016
Federal statutory income tax rate	21.0 %	34.0 %	34.0 %
Federal and state credits	7.4 %	8.9 %	9.5 %
Excess tax benefit	0.4 %	8.6 %	0.0 %
Stock based compensation	-0.8 %	0.1 %	-0.1 %
Other	-0.6 %	-0.1 %	0.1 %
Tax impact due to tax rate reduction	0.0 %	-47.7 %	0.0 %
Change in valuation allowance	-24.1 %	2.6 %	-38.6 %
Foreign Rate Differential	-3.3 %	-6.4 %	-4.9 %
Total tax benefit	0.0 %	0.0 %	0.0 %

The components of U.S. deferred tax assets and (liabilities) are as follows (in thousands):

	December 31,	
	2018	2017
Deferred tax assets:		
Federal and state net operating loss carryforwards	$241,881	$203,897

Federal and state research tax credit carryforwards	23,917	21,238
Federal Orphan Drug Credit	120,273	96,750
Deferred revenue	29,530	17,538
Stock options	19,992	15,995
Other	9,448	7,529
Net deferred tax assets before valuation allowance	445,041	362,947
Valuation allowance	(445,041)	(362,947)
Net deferred tax assets	$–	$–

We received orphan designation and were eligible to claim a federal orphan drug credit starting in 2015 and reported the credit in 2018, 2017 and 2016. On December 22, 2017, President Donald Trump signed into U.S. law the Tax Reform Act. The new law limits the orphan drug credit to 25% of qualified clinical testing expenses for the tax year effective for amounts paid or incurred in tax years beginning after 2017.

Realization of the deferred tax assets is dependent upon the generation of future taxable income, if any, the amount and timing of which are uncertain. Based on available objective evidence, including the fact that we have incurred significant losses in almost every year since our inception, we believe it is more likely than not that our deferred tax assets are not recognizable. Accordingly, deferred tax assets have been fully offset by a valuation allowance. The valuation allowance increased by approximately $82.1 million for the year ended December 31, 2018. The valuation allowance decreased by approximately $2.2 million for the year ended December 31, 2017.

As of December 31, 2018, we had net operating loss carryforwards for federal income tax purposes of approximately $1,040.8 million and federal research tax credits of approximately $19.4 million and orphan drug credit of $141.5 million, which expire at various dates in the period from 2024 to 2038. We also have California net operating loss carry forwards of approximately $216 million which expire at various dates in the period from 2018 to 2033 and California research tax credits of approximately $10.6 million, which can be carried forward indefinitely. Our federal and state net operating loss carryforwards as of December 31, 2018 include amounts resulting from exercises and sales of stock option awards to employees and non-employees. When we realize the tax benefit associated with these stock option exercises as a reduction to taxable income in our returns, we will account for the tax benefit as a reduction of our income tax provision in our consolidated financial statements.

Internal Revenue Code Section 382 limits the use of net operating loss and tax credit carryforwards in certain situations where changes occur in the stock ownership of a company. In the event that we had a change of ownership, utilization of the net operating loss and tax credit carryforwards may be limited under section 382.

Uncertain Tax Positions

We are subject to taxation in the United States. We have not been audited by the Internal Revenue Service or any state tax authority. We are no longer subject to audit by the Internal Revenue Service for income tax returns filed before 2016, and by the material state and local tax authorities for tax returns filed before 2015. However, carryforward tax attributes that were generated prior to these years may still be adjusted upon examination by tax authorities.

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows (in thousands):

	Year Ended December 31,		
	2018	2017	2016
Unrecognized tax benefits, beginning of period	$20,730	$13,865	$3,228
Increases due to current period positions	4,879	7,046	6,919
Increase due to prior period positions	26	–	4,266
Decreases due to prior period positions	(214)	(181)	(548)
Unrecognized tax benefits, end of period	$25,421	$20,730	$13,865

The amount of unrecognized income tax benefits that, if recognized, would affect our effective tax rate was $0 as of December 31, 2018 and December 31, 2017. If the $25.4 million and $20.7 million of unrecognized income tax benefits as of December 31, 2018 and 2017, respectively, is recognized, there would be no impact to the effective tax rate as any change will fully offset the valuation allowance. We do not expect that the unrecognized tax benefit will

change within the next 12 months.

We recognize interest and penalties related to unrecognized tax benefits within income tax expense. Accrued interest and penalties are included within the related tax liability line in the accompanying consolidated balance sheets. Due to our net operating losses, we have not accrued any interest or penalty for any of our uncertain tax benefits as of December 31, 2018 and 2017.

On December 22, 2017, the Tax Cuts and Jobs Act (the "Tax ACT") was enacted into law, which significantly changes existing U.S. tax law and includes many provisions applicable to us, such as reducing the U.S. federal statutory tax rate. The Tax Act reduced the U.S. federal statutory tax rate from 35% to 21% effective January 1, 2018.

Given the significance of the legislation, the U.S. Securities and Exchange Commission (the "SEC") staff issued Staff Accounting Bulletin ("SAB") No. 118 ("SAB 118"), which allows registrants to record provisional amounts during a one year “measurement period” similar to that used when accounting for business combinations. However, the measurement period is deemed to have ended earlier when the registrant has obtained, prepared, and analyzed the information necessary to finalize its accounting. During the measurement period, impacts of the law are expected to be recorded at the time a reasonable estimate for all or a portion of the effects can be made, and provisional amounts can be recognized and adjusted as information becomes available, prepared, or analyzed. During 2017, we recorded the impact of the Tax Act effects using the current available information and technical guidance on the interpretations of the Tax Act.

Amounts recorded, where we consider accounting to be provisional for the year ended December 31, 2017, principally related to the impact of corporate income tax rate reduction on the deferred tax assets, on the corresponding change of deferred tax assets' valuation allowance and limitations on deductibility of compensation paid to certain highly paid employees. As permitted by SAB 118, we recorded provisional estimates in 2017 and finalized our accounting for these provisional estimates based on guidance, interpretations and all of the available data during the year ended December 31, 2018. During the year ended December 31, 2018, we finalized the provisional amounts recorded in 2017. No adjustment to the previously recorded provisional amount as such no impact to 2018.

15. Quarterly Financial Data (unaudited)

The following table presents certain unaudited quarterly financial information. This information has been prepared on the same basis as the audited consolidated financial statements and includes all adjustments (consisting only of normal recurring adjustments) necessary to present fairly the unaudited quarterly results of operations set forth herein.

	2018				2017			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Product revenue, net	$606	$2,265	$7,176	$14,070	$-	$-	$-	$-
Collaboration and license revenue	$6,038	$1,746	$7,001	$1,228	$5,128	$3,787	$3,828	$9,803
Operating expenses	$(91,944)	$(107,706)	$(83,321)	$(102,479)	$(45,666)	$(69,621)	$(84,284)	$(95,654)
Net loss	$(84,510)	$(105,971)	$(71,177)	$(88,886)	$(41,764)	$(69,414)	$(82,941)	$(91,501)
Net loss (income) attributable to noncontrolling interest (SRX Cardio)	$332	$(223)	$(126)	$338	$45	$(240)	$5	$(280)
Net loss attributable to Portola	$(84,178)	$(106,194)	$(71,303)	$(88,548)	$(41,719)	$(69,654)	$(82,936)	$(91,781)
Net loss per share attributable to Portola common stockholders:								
Basic and diluted	$(1.28)	$(1.61)	$(1.08)	$(1.34)	$(0.74)	$(1.22)	$(1.41)	$(1.41)

16. Subsequent Event

Credit Facility

On February 28, 2019, we entered into a credit agreement (the "Credit Agreement") with the lenders from time to time party thereto and HCR Collateral Management, LLC, as administrative agent. The Credit Agreement provides for a term loan in an aggregate principal amount of up to $125.0 million to be advanced in two tranches subject to certain performance-based milestones related to Andexxa. The first tranche, in the amount of $62.5 million, will be available on the closing date of the Credit Agreement. A second tranche of $62.5 million will be available after the closing date of the Credit Agreement (i) at any time from the closing date until the earliest to occur of (x) November 15, 2019, (y) the date on which we have borrowed the full amount of the commitments or (z) the date on which the

commitments have been terminated as set forth in the Credit Agreement and (ii) so long as (x) we have received all regulatory approval from the European Medicines Agency or any successor entity thereto for Andexxa, (y) Andexxa consolidated net sales for the three fiscal quarter period ending September 30, 2019 are at least $50.0 million and (z) no material adverse effect has occurred since the closing date of the Credit Agreement.

All obligations under the Credit Agreement are due on February 28, 2025; however, we can prepay the term loan, in whole or in part, subject to the payment of prepayment premiums as more fully described in the Credit Agreement. The outstanding principal balance of the term loan bears interest at a rate per annum equal to 9.75%, while upon the occurrence of an event of default, all outstanding obligations under the Credit Agreement will bear interest at a rate per annum equal to the sum of 9.75% plus 3.00%. All interest will be made on the basis of a 360-day year and actual days elapsed with interest accruing on the day the term loan is made.

The term loan is secured by substantially all of our assets. The Credit Agreement contains customary representations and warranties, and we are also subject to certain customary covenants that require us to deliver financial reports at designated times of the year and limit or restrict our ability to incur additional indebtedness or liens, acquire, own or make any investments, pay cash dividends or enter into certain corporate transactions, including mergers and changes of control, and require us to maintain a specified level of cash. The Credit Agreement also contains customary events of default. In the case of a continuing event of default, the administrative agent would be entitled to exercise various remedies, including, without limitation, declaring the unpaid principal amount of the outstanding term loan, all interest accrued and unpaid thereon and all other amounts owing or payable under the Credit Agreement and related loan documents to be immediately due and payable.

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

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in our reports under the Securities Exchange Act of 1934, as amended, or the Exchange Act, and the rules and regulations thereunder, is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow for timely decisions regarding required disclosure. In designing and evaluating the disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives, and management is required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

As required by Rule 13a-15(b) under the Exchange Act, our management, under the supervision and with the participation of our principal executive officer and principal financial officer, has evaluated the effectiveness of the design and operation of our disclosure controls and procedures (as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of December 31, 2018. Based on such evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that, as of December 31, 2018, our disclosure controls and procedures were effective at the reasonable assurance level.

Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is a process designed by, or under the supervision of, our Chief Executive Officer and Chief Financial Officer to provide reasonable assurance regarding the reliability of financial reporting and the preparation of consolidated financial statements for external purposes in accordance with generally accepted accounting principles and includes those policies and procedures that (1) pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of our assets; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the consolidated financial statements.

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on criteria established in "Internal Control—Integrated Framework (2013)" issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Our management concluded that our internal control over financial reporting was effective as of December 31, 2018.

Our independent registered public accounting firm, Ernst & Young LLP, has audited the effectiveness of our internal control over financial reporting as of December 31, 2018 as stated in their report which is included herein.

67

Limitations on Effectiveness of Controls and Procedures and Internal Control over Financial Reporting

In designing and evaluating the disclosure controls and procedures and internal control over financial reporting, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. In addition, the design of disclosure controls and procedures and internal control over financial reporting must reflect the fact that there are resource constraints and that management is required to apply judgment in evaluating the benefits of possible controls and procedures relative to their costs.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal controls over financial reporting identified in connection with the evaluation required by Rule 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during the quarter ended December 31, 2018 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Portola Pharmaceuticals, Inc.

Opinion on Internal Control over Financial Reporting

We have audited Portola Pharmaceuticals, Inc.'s internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control— Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework)(the COSO criteria). In our opinion, Portola Pharmaceuticals, Inc. (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the 2018 consolidated financial statements of the Company and our report dated March 1, 2019, expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Annual Report on Internal Control Over Financial Reporting. Our responsibility is

to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

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

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

/s/ Ernst & Young LLP

Redwood City, California

March 1, 2019

ITEM 9B. OTHER INFORMATION

Credit Facility

On February 28, 2019, we entered into a credit agreement (the "Credit Agreement") with the lenders from time to time party thereto and HCR Collateral Management, LLC, as administrative agent. The Credit Agreement provides for a term loan in an aggregate principal amount of up to $125.0 million to be advanced in two tranches subject to certain performance-based milestones related to Andexxa. The first tranche, in the amount of $62.5 million, will be available on the closing date of the Credit Agreement. A second tranche of $62.5 million will be available after the closing date of the Credit Agreement (i) at any time from the closing date until the earliest to occur of (x) November 15, 2019, (y) the date on which we have borrowed the full amount of the commitments or (z) the date on which the commitments have been terminated as set forth in the Credit Agreement and (ii) so long as (x) we have received all regulatory approval from the European Medicines Agency or any successor entity thereto for Andexxa, (y) Andexxa consolidated net sales for the three fiscal quarter period ending September 30, 2019 are at least $50.0 million and (z) no material adverse effect has occurred since the closing date of the Credit Agreement.

All obligations under the Credit Agreement are due on February 28, 2025; however, we can prepay the term loan, in whole or in part, subject to the payment of prepayment premiums as more fully described in the Credit Agreement. The outstanding principal balance of the term loan bears interest at a rate per annum equal to 9.75%, while upon the occurrence of an event of default, all outstanding obligations under the Credit Agreement will bear interest at a rate per annum equal to the sum of 9.75% plus 3.00%. All interest will be made on the basis of a 360-day year and actual days elapsed with interest accruing on the day the term loan is made.

The term loan is secured by substantially all of our assets. The Credit Agreement contains customary representations and warranties, and we are also subject to certain customary covenants that require us to deliver financial reports at designated times of the year and limit or restrict our ability to incur additional indebtedness or liens, acquire, own or make any investments, pay cash dividends or enter into certain corporate transactions, including mergers and changes of control, and require us to maintain a specified level of cash. The Credit Agreement also contains customary events of default. In the case of a continuing event of default, the administrative agent would be entitled to exercise various remedies, including, without limitation, declaring the unpaid principal amount of the outstanding term loan, all interest accrued and unpaid thereon and all other amounts owing or payable under the Credit Agreement and related loan documents to be immediately due and payable.

The foregoing description of the Credit Agreement does not purport to be complete and is qualified in its entirety by reference to the full text of the Credit Agreement, which is filed as Exhibit 10.46 to this report and is hereby incorporated herein by reference.

PART III

Certain information required by Part III is omitted from this annual report on Form 10-K and is incorporated herein by reference to our definitive Proxy Statement for our 2019 Annual Meeting of Stockholders, or the Proxy Statement, which we intend to file pursuant to Regulation 14A of the Securities Exchange Act of 1934, as amended, within 120 days after December 31, 2018.

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this item concerning our directors is incorporated by reference to the information set forth in the sections titled "Election of Directors" and "Corporate Governance" in our Proxy Statement. Information required by this item concerning our executive officers is incorporated by reference to the information set forth in the

section entitled “Executive Officers of the Company” in our Proxy Statement. Information regarding Section 16 reporting compliance is incorporated by reference to the information set forth in the section entitled “Section 16(a) Beneficial Ownership Reporting Compliance” in our Proxy Statement.

Our written code of ethics applies to all of our directors and employees, including our executive officers, including without limitation our principal executive officer, principal financial officer, principal accounting officer or controller or persons performing similar functions. The code of ethics is available on our website at http://www.portola.com in the Investors section under “Corporate Governance.” Changes to or waivers of the code of ethics will be disclosed on the same website. We intend to satisfy the disclosure requirement under Item 5.05 of Form 8-K regarding any amendment to, or waiver of, any provision of the code of ethics in the future by disclosing such information on our website.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this item regarding executive compensation is incorporated by reference to the information set forth in the sections titled “Executive Compensation”, and “Compensation Committee Interlocks and Insider Participation” in our Proxy Statement.

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

The information required by this item regarding security ownership of certain beneficial owners and management is incorporated by reference to the information set forth in the section titled “Security Ownership of Certain Beneficial Owners and Management” and “Equity Compensation Plan Information” in our Proxy Statement.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this item regarding certain relationships and related transactions and director independence is incorporated by reference to the information set forth in the sections titled “Certain Relationships and Related Party Transactions” and “Election of Directors”, respectively, in our Proxy Statement.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this item regarding principal accountant fees and services is incorporated by reference to the information set forth in the section titled “Principal Accountant Fees and Services” in our Proxy Statement.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) The following documents are filed as part of this report:

(1) FINANCIAL STATEMENTS

Financial Statements—See Index to Financial Statements at Item 8 of this report.

(2) FINANCIAL STATEMENT SCHEDULES

Financial statement schedules have been omitted in this report because they are not applicable, not required under the instructions, or the information requested is set forth in the consolidated financial statements or related notes thereto.

(b) Exhibits. The following exhibits are filed, or incorporated by reference into, this report.

Exhibit Number	Exhibit Description	Incorporation By Reference			
		Form	SEC File No.	Exhibit	Filing Date
3.1A	Amended and Restated Certificate of Incorporation of Portola Pharmaceuticals, Inc.	8-K	001-35935	3.1	5/28/2013
3.1B	Certificate of Amendment to the Portola Pharmaceuticals, Inc. Amended and Restated Certificate of Incorporation	8-K	001-35935	3.1	6/11/2018
3.2	Amended and Restated Bylaws of Portola Pharmaceuticals, Inc.	8-K	001-35935	3.2	5/28/2013
4.1	Form of Common Stock Certificate of Portola Pharmaceuticals, Inc.	S-1	333-187901	4.1	5/17/2013
4.4	Warrant to Purchase Shares of Common Stock by and between the registrant and Laurence Shushan and Magdalena Shushan Acosta, Trustees, The Laurence and Magdalena Shushan Family Trust, Under Agreement Dated October 8, 1997, dated December 15, 2006.	10-Q	001-35935	4.7	11/6/13
4.5	Warrant to Purchase Shares of Common Stock by and between the registrant and HCP Life Science Assets TRS, LLC, dated December 15, 2006.	10-Q	001-35935	4.8	11/6/13
4.6	Warrant to Purchase Shares of Common Stock by and between the registrant and Bristow Investments, L.P., dated December 15, 2006.	10-Q	001-35935	4.9	11/06/13
4.7	Reference is made to Exhibits 3.1 and 3.2.				

10.1	Form of Indemnity Agreement between the Registrant and its directors and officers.	S-1	333-187901	10.1	4/12/2013
10.2+	Portola Pharmaceuticals, Inc. 2003 Equity Incentive Plan, as amended, and Form of Stock Option Grant Notice, Option Agreement and Form of Notice of Exercise.	S-1	333-187901	10.2	4/12/2013
10.3+	Portola Pharmaceuticals, Inc. 2013 Equity Incentive Plan and Form of Stock Option Agreement and Form of Stock Option Grant Notice thereunder.	S-1	333-187901	10.3	4/12/2013
10.4+	Form of Executive Severance Benefits Agreement (amends and restates Form of 2006 Executive Change in Control Severance Benefits Agreement)	8-K	001-35935	10.4	10/12/2018
10.5+	Amended Non-Employee Director Compensation Policy.	10-Q	001-35935	10.5	5/10/2018

Exhibit Number	Exhibit Description	Incorporation By Reference Form	SEC File No.	Exhibit	Filing Date
10.6†	License Agreement by and between the registrant and Millennium Pharmaceuticals, Inc., dated as of August 4, 2004.	S-1	333-187901	10.8	4/12/2013
10.7†	Asset Purchase Agreement by and between the registrant and Millennium Pharmaceuticals, Inc., dated as of November 7, 2003.	S-1	333-187901	10.9	4/12/2013
10.8†	Letter by and between the registrant and Millennium Pharmaceuticals, Inc., dated as of December 6, 2005.	S-1	333-187901	10.10	4/12/2013
10.9†	Second Amended and Restated License Agreement by and between the registrant and Astellas Pharma, Inc., dated as of December 20, 2010.	S-1	333-187901	10.11	4/12/2013
10.10	Lease by and between the registrant and Britannia Pointe Grand Limited Partnership, dated as of December 15, 2006.	S-1	333-187901	10.13	4/12/2013
10.11	First Amendment to Lease by and between the registrant and Britannia Pointe Grand Limited Partnership, dated as of May 21, 2010.	S-1	333-187901	10.14	4/12/2013
10.14	Portola Pharmaceuticals, Inc. 2013 Employee Stock Purchase Plan.	10-Q	001-35935	10.19	11/9/2017
10.15	Second Amendment to Lease made and entered into as of the 14th day of March 2014, by and between Portola Pharmaceuticals, Inc. and Britannia Pointe Grand Limited Partnership.	8-K	001-35935	10.22	3/19/2014
10.16+	Form of Restricted Stock Unit Award Grant Notice and Award Agreement—2013 Equity Incentive Plan.	10-K	001-35935	10.25	3/2/2015
10.17+	Form of Performance Stock Unit Award Grant Notice and Award Agreement—2013 Equity Incentive Plan.	10-K	001-35935	10.26	2/29/2016
10.19+	Form of Stock Option Grant Notice for Non-Employees —2013 Equity Incentive Plan.	10-Q	001-35935	10.28	8/9/2016
10.20+	Form of Performance Stock Option Grant Notice —2013 Equity Incentive Plan.	10-Q	001-35935	10.29	8/9/2016
10.21+	Form of Restricted Stock Unit Award Grant Notice and Award Agreement for Directors—2013 Equity Incentive Plan.	10-Q	001-35935	10.30	8/9/2016
10.22+	Form of Restricted Stock Unit Award Grant Notice for Officers —2013 Equity Incentive Plan.	10-Q	001-35935	10.31	8/9/2016

10.23+	Form of Performance Stock Unit Award Grant Notice —2013 Equity Incentive Plan.	10-Q	001-35935	10.32	8/9/2016
10.24+	Market Based Performance Stock Unit Award Grant Notice—2013 Equity Incentive Plan.	10-Q	001-35935	10.33	8/9/2016
10.25+	Amended and Restated Offer Letter by and between Portola and John T. Curnutte, M.D., Ph.D., dated as of January 25, 2017.	8-K	001-35935	10.1	2/3/2017
10.26+†	Purchase and Sale Agreement dated as of February 2, 2017 between Portola Pharmaceuticals, Inc. and certain entities managed by Healthcare Royalty Management LLC.	10-Q	001-359351	10.37	5/9/2017
10.27+	Supplemental Funding Support Loan Agreement among Portola, Bristol-Myers Squibb Company and Pfizer Inc. dated as of December 16, 2016.	10-K	001-35935	10.35	3/1/2017

Exhibit Number	Exhibit Description	Incorporation By Reference Form	SEC File No.	Exhibit	Filing Date
10.28+*	Amended and Restated Pharmaceuticals, Inc. Inducement Plan				
10.29+	Form of Stock Option Grant Notice - Inducement Plan	10-Q	001-35935	10.40	11/9/2017
10.30+	Form of Stock Option Grant Notice for Officers - Inducement Plan	10-Q	001-35935	10.41	11/9/2017
10.31+	Form of Option Agreement - Inducement Plan	10-Q	001-35935	10.42	11/9/2017
10.32+	Form of Restricted Stock Unit Award Grant Notice - Inducement Plan	10-Q	001-35935	10.43	11/9/2017
10.33+	Form of Restricted Stock Unit Award Grant Notice for Officers - Inducement Plan	10-Q	001-35935	10.44	11/9/2017
10.34+	Amended and Restated Non-Employee Director Compensation Policy	10-Q	001-35935	10.5	5/10/2018
10.35+	Letter Agreement with William Lis dated June 3, 2018	10-Q	001-35935	10.1	8/9/2018
10.36+	Letter Agreement with John T. Curnutte, M.D., Ph.D dated June 3, 2018	10-Q	001-35935	10.36	8/9/2018
10.37+	Letter Agreement with Mardi C. Dier dated June 3, 2018	10-Q	001-35935	10.37	8/9/2018
10.38+	Letter Agreement with John H. Lawrence, M.D. dated June 3, 2018	10-Q	001-35935	10.38	8/9/2018
10.39+	Letter Agreement with John B. Moriarty, J.D. dated June 3, 2018	10-Q	001-35935	10.39	8/9/2018
10.40+	Offer Letter by and between Portola Pharmaceuticals, Inc. and John H. Lawrence, M.D. dated October 18, 2017	10-Q	001-35935	10.40	8/9/2018
10.41+	Offer Letter by and between Portola Pharmaceuticals, Inc. and John B. Moriarty dated January 18, 2018	10-Q	001-35935	10.41	8/9/2018
10.42+	Offer Letter by and between Portola Pharmaceuticals, Inc. and Glenn Brame dated June 8, 2018	10-Q	001-35935	10.42	8/9/2018
10.43+	Offer Letter by and between Portola Pharmaceuticals, Inc. and Scott Garland, dated September 10, 2018	8-K	001-35935	10.43	9/20/2018
10.44+	Letter Agreement by and between Portola Pharmaceuticals, Inc. and Tao Fu, dated August 31, 2018	10-Q	001-35935	10.44	11/7/2018

10.45+	Form of Executive Severance Benefits Agreement	8-K	001-35935	10.4	10/12/2018
10.46*	Credit Agreement by and between Portola Pharmaceuticals, Inc. (the Borrower), certain domestic subsidiaries of the Borrower (the Guarantors), HCR Collateral Management, LLC (the Administrative Agent), and Healthcare Royalty Partners III, L.P., Athyrium Opportunities III Acquisition LP, HCRP Overflow Fund, L.P., HCR Molag Fund, L.P., and HealthCare Royalty Partners IV, L.P. (collectively, the Lenders), dated February 28, 2019				
23.1*	Consent of Independent Registered Public Accounting Firm				
24.1	Power of Attorney (see signature page).				
31.1*	Certification of Principal Executive Officer pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended.				

Exhibit Number	Exhibit Description	Incorporation By Reference			
		Form	SEC File No.	Exhibit	Filing Date
31.2*	Certification of Principal Financial Officer pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended.				
32.1*	Certification of Principal Executive Officer and Principal Financial Officer pursuant to Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended, and 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.(1)				
101.INS	XBRL Instance Document. (2)				
101.SCH	XBRL Taxonomy Extension Schema Document. (2)				
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document. (2)				
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document. (2)				
101.LAB	XBRL Taxonomy Extension Label Linkbase Document. (2)				
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document. (2)				

¶ Confidential Treatment Granted
+ Management contract or compensatory plan
* Filed herewith

(1) This certification accompanies the Form 10-K to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of the Registrant under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-K), irrespective of any general incorporation language contained in such filing.

(2) Pursuant to applicable securities laws and regulations, the Registrant is deemed to have complied with the reporting obligation relating to the submission of interactive data files in such exhibits and is not subject to liability under any anti-fraud provisions of the federal securities laws as long as the Registrant has made a good faith attempt to comply with the submission requirements and promptly amends the interactive data files after becoming aware that the interactive data files fail to comply with the submission requirements. These interactive data files are deemed not filed or part of a registration statement or report for purposes of sections 11 or 12 of the Securities Act of 1933, as amended, are deemed not filed for purposes of section 18 of the Securities Exchange Act of 1934, as amended, and otherwise are not subject to liability under these sections.

ITEM 16. Form 10–K Summary

Not applicable

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of South San Francisco, State of California, on the 1st day of March 2019.

PORTOLA PHARMACEUTICALS, INC.

By: /s/ Scott Garland
Scott Garland

Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Scott Garland and Mardi C. Dier, jointly and severally, as his or her true and lawful attorneys-in-fact and agents, with full power of substitution and re substitution, for him or her, and in his or her name, place and stead, in any and all capacities, to sign any and all amendments to this report, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite or necessary to be done in and about the premises hereby ratifying and confirming all that said attorneys-in-fact and agents, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

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

Signature	Title	Date
/ S / SCOTT GARLAND Scott Garland	Chief Executive Officer and Director (Principal Executive Officer)	March 1, 2019
/ S / MARDI C. DIER Mardi C. Dier	Chief Financial Officer (Principal Financial and Accounting Officer)	March 1, 2019
/ S / HOLLINGS C. RENTON Hollings C. Renton	Chairman of the Board of Directors	March 1, 2019
/ S / Jeffrey W. Bird Jeffrey W. Bird, M.D., Ph.D.	Director	March 1, 2019
/ S / Laura A. Brege Laura A. Brege	Director	March 1, 2019
/ S / Dennis Fenton, Ph.D. Dennis Fenton, Ph.D.	Director	March 1, 2019
/ S / CHARLES J. HOMCY, M.D. Charles J. Homcy, M.D	Director	March 1, 2019
/ S / John H. Johnson John H. Johnson	Director	March 1, 2019

/ S / David C. Stump, M.D. David C. Stump, M.D.	Director	March 1, 2019
/ S / H. Ward Wolff H. Ward Wolff	Director	March 1, 2019