XOMA Corp
Form 10-K
March 07, 2018

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 or 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2017

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from to

Commission File No. 0-14710

XOMA CORPORATION

(Exact name of registrant as specified in its charter)

| | |
|---|---|
| Delaware<br>(State or other jurisdiction<br>of incorporation or organization) | 52-2154066<br>(I.R.S. Employer<br>Identification No.) |
| 2200 Powell Street, Suite 310, Emeryville,<br>California 94608<br>(Address of principal executive offices,<br>including zip code) | (510) 204-7200<br>(Telephone number) |

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

| Title of each class | Name of each exchange on which registered |
|---|---|
| Common Stock, $0.0075 par value | The NASDAQ Stock Market, LLC |

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

None

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

Indicate by check mark if the Registrant is not required to file reports pursuant to Section 13 or 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 and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post 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 or a smaller reporting company. See definitions of "large accelerated filer," "accelerated filer", "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

Large Accelerated Filer Accelerated Filer

Non-Accelerated Filer Smaller reporting company
Emerging growth company

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

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act of 1934). Yes No

The aggregate market value of voting common equity held by non-affiliates of the registrant is $40,595,725 as of June 30, 2017, based on the closing price on the NASDAQ Global Market reported for such date. The calculation of the

aggregate market value of voting and non-voting common equity held by non-affiliates of the registrant excludes shares of common stock held by each officer, director and stockholder that the registrant concluded were affiliates on that date. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

Number of shares of Common Stock outstanding as of March 2, 2018: 8,329,098

DOCUMENTS INCORPORATED BY REFERENCE:

Portions of the Company's Proxy Statement for the Company's 2018 Annual Meeting of Stockholders are incorporated by reference into Part III of this Report.

XOMA Corporation

2017 FORM 10-K ANNUAL REPORT

TABLE OF CONTENTS


PART I

| | | |
|---|---|---|
| Item 1. | Business | 1 |
| Item 1A. | Risk Factors | 11 |
| Item 1B. | Unresolved Staff Comments | 28 |
| Item 2. | Properties | 28 |
| Item 3. | Legal Proceedings | 28 |
| Item 4. | Mine Safety Disclosures | 29 |

PART II

| | | |
|---|---|---|
| Item 5. | Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities | 30 |
| Item 6. | Selected Financial Data | 32 |
| Item 7. | Management's Discussion and Analysis of Financial Condition and Results of Operations | 34 |
| Item 7A. | Quantitative and Qualitative Disclosures about Market Risk | 45 |
| Item 8. | Financial Statements and Supplementary Data | 46 |
| Item 9. | Changes in and Disagreements With Accountants on Accounting and Financial Disclosure | 47 |
| Item 9A. | Controls and Procedures | 47 |
| Item 9B. | Other Information | 47 |

PART III

| | | |
|---|---|---|
| Item 10. | Directors, Executive Officers, and Corporate Governance | 48 |
| Item 11. | Executive Compensation | 48 |
| Item 12. | Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters | 48 |
| Item 13. | Certain Relationships and Related Transactions, and Director Independence | 48 |
| Item 14. | Principal Accountant Fees and Services | 48 |

PART IV

| | | |
|---|---|---|
| Item 15. | Exhibits and Financial Statement Schedules | 49 |
| Item 16. | Form 10-K Summary | 54 |
| SIGNATURES | | 55 |
| INDEX TO FINANCIAL STATEMENTS | | F-1 |


This annual report on Form 10-K includes trademarks, service marks and trade names owned by us or others. "XOMA," the XOMA logo and all other XOMA product and service names are registered or unregistered trademarks of XOMA Corporation or a subsidiary of XOMA Corporation in the United States and in other selected countries. All trademarks, service marks and trade names included or incorporated by reference in this annual report are the property of their respective owners.

i

PART I

This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and the Private Securities Litigation Reform Act of 1995, which are subject to the "safe harbor" created by those sections. Forward-looking statements are based on our management's beliefs and assumptions and on information currently available to them. In some cases, you can identify forward-looking statements by words such as "may," "will," "should," "could," "would," "expects," "plans," "anticipates," "believes," "estimates," "projects," "pred "intend" and similar expressions intended to identify forward-looking statements. Examples of these statements include, but are not limited to, statements regarding: our future operating expenses, our future losses, the extent to which our issued and pending patents may protect our products and technology, the potential of our existing product candidates to lead to the development of commercial products, our ability to receive potential milestone or royalty payments under license and collaboration agreements and the timing of receipt of those payments, the timing and adequacy of cost-cutting measures, and our ability to defend against claims that have been made in litigation. These statements are based on assumptions that may not prove accurate. Actual results could differ materially from those anticipated due to certain risks inherent in the biotechnology industry and for our licensees engaged in the development of new products in a regulated market. Among other things: our product candidates subject to out-license agreements are still being developed, and our licensees' may require substantial funds to continue development which may not be available; we may not realize the expected benefits of our cost-saving initiatives; we may not be successful in entering into out-license agreements for our product candidates; if our therapeutic product candidates do not receive regulatory approval, our third-party licensees will not be able to manufacture and market them; products or technologies of other companies may render some or all of our product candidates noncompetitive or obsolete; we do not know whether there will be, or will continue to be, a viable market for the products in which we have an ownership or royalty interest; even once approved, a product may be subject to additional testing or significant marketing restrictions, its approval may be withdrawn or it may be voluntarily taken off the market; we and our licensees are subject to various state and federal healthcare related laws and regulations that may impact the commercialization of our product candidates and could subject us to significant fines and penalties; and certain of our technologies are in-licensed from third parties, so our capabilities using them are restricted and subject to additional risks. These and other risks, including those related to current economic and financial market conditions, are contained principally in Item 1, Business; Item 1A, Risk Factors; Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations; and other sections of this Annual Report on Form 10-K. Factors that could cause or contribute to these differences include those discussed in Item 1A, Risk Factors, as well as those discussed elsewhere in this Annual Report on Form 10-K.

Forward-looking statements are inherently uncertain and you should not place undue reliance on these statements, which speak only as of the date that they were made. These cautionary statements should be considered in connection with any written or oral forward-looking statements that we may issue in the future. We do not undertake any obligation to release publicly any revisions to these forward-looking statements after completion of the filing of this Annual Report on Form 10-K to reflect later events or circumstances or to reflect the occurrence of unanticipated events.

Item 1. Business
Overview and Strategy

XOMA Corporation ("XOMA"), a Delaware corporation, has a long history of discovering and developing innovative therapeutics derived from its unique platform of antibody technologies. Over our 37 year history, we built an extensive portfolio of fully-funded programs by advancing product candidates into the earlier stages of development and then licensing them to licensees who assumed the responsibilities of later stage development, approval and commercialization. Fully-funded programs are those for which our partners pay all of the development and commercialization costs. As licensees advance these programs, we are eligible for potential milestone and royalty payments.

In March 2017, we transformed our business model to become a royalty aggregator where we focus on expanding our portfolio of fully-funded programs by out-licensing our internally developed product candidates and acquiring potential milestone and royalty revenue streams on additional product candidates. We combined our royalty-aggregator model with a significantly reduced corporate cost structure to further build value for our shareholders. We expect that a significant portion of our future revenue will be based on payments we may receive for milestones and royalties related to these programs.

Our business model is designed to create value for stockholders by assembling a diversified portfolio of biotech and pharmaceutical revenue streams and operating that business with an efficient and low corporate cost structure. Our goal is to become a sustainably profitable company that offers investors an opportunity to participate in the promise of the biotech industry in a diversified, lower-risk business investment than a typical biotech model. The following charts demonstrate the diversification of our fully-funded asset portfolio across therapeutic areas and development stages.

In 2017, we added nine new programs to our fully-funded asset portfolio by out-licensing two of our internally developed product candidates, adding three new phage display licensees and adding four new potential royalty streams through our license agreements with Novartis Pharma AG ("Novartis") and Rezolute, Inc. (formerly AntriaBio, Inc.) ("Rezolute").

Organization

We were incorporated in Delaware in 1981 and became a Bermuda-exempted company in December 1998. Effective December 31, 2011, we changed our jurisdiction of incorporation from Bermuda to Delaware and changed our name from XOMA Ltd. to XOMA Corporation. When referring to a time or period before December 31, 1998 or after December 31, 2011, the terms "Company" and "XOMA" refer to XOMA Corporation, a Delaware corporation; when referring to a time or period between December 31, 1998 and December 31, 2011, such terms refer to XOMA Ltd., a Bermuda company.

Our principal executive offices are located at 2200 Powell Street, Suite 310, Emeryville, California 94608, and we maintain a registered office located at Corporation Trust Center, 1209 Orange Street, Wilmington, Delaware 19801. Our telephone number at our principal executive offices is (510) 204-7200. Our website address is www.xoma.com. The information found on our website is not part of this or any other report filed with or furnished to the Securities and Exchange Commission ("SEC").

Licensing and Collaboration Agreements Underlying Our Fully-Funded Program Portfolio

Historically, we have licensed or provided research and development collaboration services to world-class organizations, such as Novartis in pursuit of new antibody products under which we are eligible to receive potential future milestone payments and royalties. The following is a summary of license and collaboration agreements that represent a significant component of our fully-funded program portfolio.

Novartis - IL-1

In August 2017, we and Novartis entered into a license agreement (the "IL-1 Target License Agreement"), under which we granted Novartis non-exclusive licenses to our intellectual property covering the use of IL-1 beta targeting antibodies in the treatment and prevention of cardiovascular disease and other diseases and conditions and an option to obtain an exclusive license (the "Exclusivity Option") to such intellectual property for the treatment and prevention of cardiovascular disease. We also granted Novartis the right of first negotiation with respect to certain transactions relating to the licensed intellectual property.

Under the IL-1 Target License Agreement, we received an upfront cash payment of $10.0 million. In addition, we are eligible to receive low single-digit royalties on canakinumab sales in cardiovascular indications. If Novartis exercises the Exclusivity Option, the royalties on canakinumab sales will increase to the mid-single digits. In November 2017, Novartis announced it intends to submit data from its canakinumab Phase 3 trial in cardiovascular treatment for regulatory approval.

Novartis – Gevokizumab

In August 2017, we and Novartis entered into a license agreement (the "XOMA-052 License Agreement") under which we granted Novartis an exclusive, worldwide, royalty-bearing license to gevokizumab (an early clinical stage product candidate) and related know-how and patents. Under the terms of the XOMA-052 License Agreement, Novartis will be solely responsible for the development and commercialization of gevokizumab and products containing the antibody.

Under the XOMA-052 License Agreement, we received total consideration of $30.0 million for the license and rights granted to Novartis. Of the total consideration, $15.7 million was paid in cash and $14.3 million (equal to €12.0 million) was paid by Novartis Institutes for Biomedical Research, Inc. ("NIBR"), on our behalf, to settle our loan with Les Laboratories Servier ("Servier"). In addition, NIBR extended the maturity date on our debt to Novartis to September 30, 2022. We also received $5.0 million related to the sale of 539,131 shares of our common stock, at a price per share of $9.2742. Based on the achievement of pre-specified criteria, we are eligible to receive up to $438.0 million in development, regulatory and commercial milestones. We are also eligible to receive royalties on sales of licensed products, which are tiered based on sales levels and range from a high single digit percentage rate to a low double-digit percentage rate.

Novartis – Anti-TGF  Antibody

In September 2015, we and Novartis International Pharmaceutical Ltd. ("Novartis International") entered into a license agreement (the "License Agreement") under which we granted Novartis International an exclusive, worldwide, royalty-bearing license to our anti-TGF-  antibody program. Novartis International is solely responsible for the development and commercialization of the antibodies and products containing the antibodies arising from this program.

Under the License Agreement, we received a $37.0 million upfront fee, and are eligible to receive up to a total of $480.0 million in development, regulatory and commercial milestones. We also are eligible to receive royalties on sales of licensed products, which are tiered based on sales levels and range from a mid-single digit percentage rate to a low double-digit percentage rate. This program is currently in early clinical testing.

Novartis – Anti-CD40 Antibody

In September 2015, we and Novartis Vaccines and Diagnostics, Inc. ("NVDI"), further amended our 2008 Amended and Restated Research, Development and Commercialization Agreement, relating to anti-CD40 antibodies. Under this agreement, NVDI is solely responsible for the development and commercialization of the antibodies and products containing the antibodies arising from this program. The parties agreed to reduce the royalty rates that we are eligible to receive on sales of NVDI's clinical stage anti-CD40 antibodies. These royalties are tiered based on sales levels and now range from a mid-single digit percentage rate to a low double-digit percentage rate.

In November 2017, Novartis presented the results of a Phase 2a study in Sjögren's syndrome at the American College of Rheumatology Annual Meeting. Our right to royalty payments expires on the later of the expiration of any licensed patent covering each product or 10 years from the first commercial sale of each product.

Rezolute

On December 6, 2017, we entered into a license agreement with Rezolute pursuant to which we granted an exclusive global license to Rezolute to develop and commercialize X358 (now RZ358), a Phase 2 product candidate, for all indications. We and Rezolute also entered into a common stock purchase agreement.

Under the terms of the license agreement, Rezolute is responsible for all development, regulatory, manufacturing and commercialization activities associated with RZ358 and is required to make certain clinical, regulatory and annual net sales milestone payments to us of up to $232.0 million in the aggregate based on the achievement of pre-specified criteria. Rezolute is also obligated to pay us royalties ranging from the high single digits to the mid-teens based upon annual net sales of RZ358. Rezolute is obligated to take customary steps to advance RZ358, including using diligent efforts to commence the next clinical study for RZ358 by a certain deadline and to meet certain spending requirements on an annual basis for the program until a marketing approval application for RZ358 is accepted by the Food and Drug Administration ("FDA"). Rezolute's obligation to pay royalties with respect to a particular RZ358 product and country will continue for the longer of the date of expiration of the last valid patent claim covering the product in that country, or twelve years from the date of the first commercial sale of the product in that country.

Pursuant to the license agreement and common stock purchase agreement, Rezolute is required to pay us $6.0 million in cash and to issue us $12.0 million worth of its common stock, contingent on the completion of its financing activities. Further, in the event that Rezolute does not complete a financing that raises at least $20.0 million in aggregate gross proceeds ("Qualified Financing") by March 31, 2019, it shall issue to us an additional number of shares of its common stock equal to $7.0 million divided by the weighted average of the closing bid and asked prices or the average closing prices of Rezolute's common stock on the ten-day trading period prior to March 31, 2019. Finally, if Rezolute is unable to complete a Qualified Financing by March 31, 2020, it will be obliged to pay us $15.0 million in order to maintain the license. Under the common stock purchase agreement, Rezolute granted us the right and option to sell the greater of (i) 5,000,000 shares of common stock or (ii) one third of the aggregate shares held by us upon failure by Rezolute to list its shares of its common stock on the Nasdaq Stock Market or a similar national exchange on or prior to December 31, 2018. As of December 31, 2017, we have not received any cash or common stock from Rezolute as they have not completed any financing or other activities outlined in the agreement.

In addition, under the terms of the license agreement, Rezolute is required to pay us a low single-digit royalty on sales of Rezolute's other products from its existing programs, currently in preclinical and early clinical stages. Rezolute's obligation to pay royalties with respect to a particular Rezolute product and country will continue for the longer of twelve years from the date of the first commercial sale of the product in that country or for so long as Rezolute or its licensee is selling such product in such country, provided that such royalty will terminate upon the termination of the licensee's obligation to make payments to Rezolute based on sales of such product in such country.

We also granted Rezolute an option through June 1, 2019 for an exclusive license for their choice of one of our preclinical insulin receptor monoclonal antibody fragments, including X129. If Rezolute exercises the option, we will be eligible for an upfront option fee and additional clinical, regulatory and annual net sales milestone payments to us of up to $237.0 million in the aggregate based on the achievement of pre-specified criteria as well as royalties ranging from a high single digit percentage rate to a low double-digit percentage rate based on annual net sales. The license agreement contains customary termination rights relating to material breach by either party. Rezolute also has a unilateral right to terminate the license agreement in its entirety on ninety-days' notice at any time. We have the right to terminate the license agreement if Rezolute challenges the licensed patents.

Ology Bioservices

On November 4, 2015, we entered into an asset purchase agreement with Ology Bioservices, Inc. ("Ology Bioservices") (formerly Nanotherapeutics Inc.) (the "Ology Bioservices Purchase Agreement"), under which Ology Bioservices agreed to acquire our biodefense business and related assets. Under the terms of this agreement, we are eligible to receive a 15% royalty on net sales of any future Ology Bioservices products covered by or involving the related patents or know-how. Further details of the Ology Bioservices Purchase Agreement are provided in the section below,

"Sale of Biodefense Assets and Manufacturing Facility."

Proprietary Product Candidates

We have a portfolio of unique monoclonal antibodies and technologies that we intend to license to pharmaceutical and biotechnology companies to further their clinical development. A summary of these product candidates is provided below:

- X213 (formerly LFA 102) is a first-in-class allosteric inhibitor of prolactin action. It is a humanized IgG1-Kappa monoclonal antibody that binds to the extracellular domain of the human prolactin receptor with high affinity at an allosteric site. The antibody has been shown to inhibit prolactin-mediated signaling, and it is potent and similarly active against several animal and human prolactin receptors. In August 2017, we entered into a license agreement with PRLA Pharma, Inc. ("PrlA") pursuant to which we granted PrlA an exclusive, worldwide license to develop and commercialize X213, contingent on PrlA obtaining a specified level of financing. In the event PrlA does not obtain adequate financing within the specified period, X213 will be returned to us.

- XMetA is an insulin receptor-activating antibody designed to provide long-acting reduction of hyperglycemia in Type 2 diabetic patients, potentially reducing the advancement to a number of insulin injections needed to control their blood glucose levels.
- Additional Preclinical Product Candidates: In November 2016, we unveiled two novel oncology and oncology-related preclinical product candidates.
  - The first targets interleukin 2, ("IL-2"), which has long been recognized as an effective therapy for metastatic melanoma and renal cell carcinoma, but it has serious dose-limiting toxicities that prevent broad clinical use. We have generated novel antibodies that, when given with IL-2, are intended to steer IL-2 to enhance its positive impact with less toxicity, potentially improving the therapeutic index over standard IL-2 therapy.
  - The other is an anti-parathyroid receptor ("PTH1R") portfolio that includes several unique functional antibody antagonists targeting PTH1R, a G-protein-coupled receptor involved in the regulation of calcium metabolism. These antibodies have shown promising efficacy in in vivo studies and could potentially address unmet medical needs, including primary hyperparathyroidism and humoral hypercalcemia of malignancy ("HHM"). HHM is present in many advanced cancers and is caused by high serum calcium due to increased levels of the PTH1R ligand PTH-related peptide ("PTHrP"). Current HHM treatments often fall short and many cancer patients die from 'metabolic death'. Our PTH1R antibodies could be beneficial for the treatment of HHM.

Technologies Available for Non-Exclusive License

We have a unique set of antibody discovery, optimization and development technologies available for licensing, including:

- ADAPT™ (Antibody Discovery Advanced Platform Technologies): proprietary human antibody phage display libraries, integrated with yeast and mammalian display, which can be integrated into antibody discovery programs through license agreements. We believe access to ADAPT™ Integrated Display offers a number of benefits because it enables the diversity of phage libraries to be combined with accelerated discovery due to rapid immunoglobulin ("IgG") reformatting and fluorescence-activated cell sorting based screening using yeast and mammalian display. This increases the probability of success in finding rare and unique functional antibodies directed to targets of interest.
- ModulX™: technology which allows modulation of biological pathways using monoclonal antibodies and offers insights into regulation of signaling pathways, homeostatic control, and disease biology. Using ModulX™, we have generated product candidates with novel mechanisms of action that specifically alter the kinetics of interaction between molecular constituents (e.g. receptor-ligand). ModulX™ technology enables expanded target and therapeutic options and offers a unique approach in the treatment of disease.
- OptimX™ technologies:
  - Human Engineering™ ("HE™"): a proprietary humanization technology that allows modification of non-human monoclonal antibodies to reduce or eliminate detectable immunogenicity and make them suitable for medical purposes in humans. The technology uses a unique method developed by us, based on analysis of the conserved structure-function relationships among antibodies. The method defines which residues in a non-human variable region are candidates to be modified. The result is an HE™ antibody with preserved antigen binding, structure and function that has eliminated or greatly reduced immunogenicity. HE™ technology was used in development of gevokizumab and certain other antibody products.
  - Targeted Affinity Enhancement™ ("TAE™"): a proprietary technology involving the assessment and guided substitution of amino acids in antibody variable regions, enabling efficient optimization of antibody binding affinity and selectivity. TAE™ generates a comprehensive map of the effects of amino acid mutations in the complementarity-determining region likely to impact binding. The technology has been licensed to a number of companies.
  - Flexible Manufacturing: patented technology relating to a flexible arrangement of mobile clean rooms ("MCRs") within a manufacturing facility, with each MCR providing a portable, self-contained environment that allows for drug development. The facility design allows MCRs to connect easily and quickly to a central supply of utilities such as air, water, and electricity. This unique arrangement facilitates flexible manufacturing and eliminates change-over downtime. This translates into significantly reduced capital expenditures, production costs, and maintenance costs

while offering meaningful time advantages over conventional manufacturing facilities. When MCRs are not in use, they can be easily moved to cleaning/refurbishing areas and prepared MCRs can be "plugged in" for manufacturing. The flexible manufacturing system can be applied to fields as diverse as pharmaceuticals, biologics, and electronics.

Sale of Biodefense Assets and Manufacturing Facility

Ology Bioservices

On November 4, 2015, we entered the Ology Bioservices Purchase Agreement with Ology Bioservices, under which Ology Bioservices agreed to acquire our biodefense business and related assets (including, subject to regulatory approval, certain contracts with the U.S. government), and to assume certain liabilities of XOMA. As part of that transaction, the parties, subject to the satisfaction of certain conditions, entered into an intellectual property license agreement (the "Ology Bioservices License Agreement"), under which we agreed to license to Ology Bioservices certain intellectual property rights related to the purchased assets. Under the Ology Bioservices License Agreement, we were eligible for up to $4.5 million of cash payments and 23,008 shares of common stock of Ology Bioservices, based upon Ology Bioservices achieving certain specified future operational objectives. In February 2017, we executed an Amendment and Restatement to both the Ology Bioservices Purchase Agreement and Ology Bioservices License Agreement primarily to (i) remove the obligation to issue 23,008 shares of common stock of Ology Bioservices under the Ology Bioservices Purchase Agreement, and (ii) revise the payment schedule related to the timing of the $4.5 million cash payments due to us under the Ology Bioservices License Agreement. Of the $4.5 million, $3.0 million was contingent upon Ology Bioservices achieving certain specified future operating objectives. In the first quarter of 2017, we were entitled to receive $1.6 million under the agreement in quarterly payments through September 2018. During the third quarter of 2017, Ology Bioservices achieved the specified operating objectives and we earned the $3.0 million milestone payment that we are entitled to receive in monthly payments through July 2018. Of the total $4.6 million owed to us, we received $2.2 million during the year ended December 31, 2017 which was recognized as other income in our consolidated statement of operations.

In addition, we are eligible to receive a 15% royalty on net sales of any future Ology Bioservices products covered by or involving the related patents or know-how. Our right to royalties continues until the expiration of the last-to-expire licensed patent.

Agenus

On November 5, 2015, we entered into an asset purchase agreement (the "Agenus Purchase Agreement") with Agenus West, LLC, a wholly-owned subsidiary of Agenus Inc. ("Agenus"), pursuant to which Agenus agreed to acquire our pilot scale manufacturing facility in Berkeley, California, together with certain related assets, including a license to certain intellectual property related to the purchased assets, and to assume certain liabilities of XOMA, in consideration for the payment to us of up to $5.0 million in cash and the issuance to us of shares of Agenus's common stock having an aggregate value of up to $1.0 million. The Agenus Purchase Agreement closed on December 31, 2015. At closing, we received cash of $4.7 million, net of the assumed liabilities of $0.3 million. In addition to the cash consideration, we received shares of common stock of Agenus with an aggregate value of $0.5 million, which we subsequently sold in August 2016 for $0.6 million. The remaining common stock of Agenus will only be received upon our satisfaction of certain operational matters, which we are unlikely to satisfy.

Sale of Future Revenue Streams

Royalty Acquisition Agreements

On December 21, 2016, we entered into two Royalty Interest Acquisition Agreements (together, the "Royalty Acquisition Agreements") with HealthCare Royalty Partners II, L.P. ("HCRP"). Under the first Royalty Acquisition Agreement, we sold our right to receive milestone payments and royalties on future sales of products subject to a license agreement, dated August 18, 2005, between XOMA and Pfizer, Inc. ("Pfizer") (formerly Wyeth) for an upfront cash payment of $6.5 million, plus potential additional payments totaling $4.0 million in the event three specified net

sales milestones are met by Pfizer in 2017, 2018 and 2019. Based on estimated sales for 2017, the 2017 sales milestone was not achieved. We remain eligible to receive up to $3.0 million if specified net sales milestones are achieved in 2018 and 2019. Under the second Royalty Acquisition Agreement, we sold all rights to royalties under an Amended and Restated License Agreement dated October 27, 2006 between XOMA and Shire Plc. (formerly Dyax, Corp.) for a cash payment of $11.5 million.

Recently Terminated Agreements

Novo Nordisk

In December 2015, we entered into a license agreement with Novo Nordisk under which we granted Novo Nordisk an exclusive, world-wide, royalty-bearing license to our XMetA program of allosteric monoclonal antibodies that positively modulate the insulin receptor (the “XMetA Program”), subject to our retained commercialization rights for rare disease indications. Novo Nordisk had an option to add these additional rights to its license upon payment of an option fee.

Under the agreement, we received a $5.0 million, non-creditable, non-refundable, upfront payment. Based on the achievement of pre-specified criteria, we were eligible to receive up to $290.0 million in development, regulatory and commercial milestones. We were also eligible to receive royalties on sales of licensed products, which are tiered up to a high single-digit percentage rate based on sales levels.

On April 20, 2017, we received notice from Novo Nordisk regarding the termination of the exclusive license agreement due to strategic and business reasons. The termination of the exclusive license agreement became effective on July 20, 2017 and XMetA program is now available to license to other parties.

Financing Agreements

Novartis

In connection with the collaboration between XOMA and Novartis AG (then Chiron Corporation), a secured note agreement was executed in May 2005. The note agreement is secured by our interest in the collaboration and was due and payable in full on June 21, 2015. On June 19, 2015, we and NVDI, who assumed the note agreement, agreed to extend the maturity date of our secured note agreement from June 21, 2015 to September 30, 2015, which was then subsequently extended to September 30, 2020. On September 22, 2017, in connection with the XOMA-052 License Agreement with Novartis, we and NIBR, who assumed the note agreement from NVDI, executed an amendment to the note agreement under which we further extended the maturity date of the note to September 30, 2022. At December 31, 2017, the outstanding principal balance under this note agreement totaled $14.6 million.

Servier

In December 2010, we entered into a license and collaboration agreement (the “Collaboration Agreement”) with Servier to jointly develop and commercialize gevokizumab in multiple indications. Under the terms of the Collaboration Agreement, Servier obtained worldwide rights to cardiovascular disease and diabetes indications (cardiometabolic field) and rights outside the United States and Japan to all other indications, including NIU, Behçet’s disease uveitis and other inflammatory and oncology indications. We retained development and commercialization rights in the United States and Japan for all indications other than cardiovascular disease and diabetes.

In December 2010, we also entered into a loan agreement with Servier (the “Servier Loan Agreement”) that provided for an advance of up to €15.0 million. The loan was fully funded in January 2011, with the proceeds converting to approximately $19.5 million at the date of funding. The loan was secured by an interest in XOMA’s intellectual property rights to all gevokizumab indications worldwide, excluding certain rights in the United States and Japan. Interest was calculated at a floating rate based on a Euro Inter-Bank Offered Rate and was subject to a cap. The interest rate was reset semi-annually in January and July of each year. The Servier Loan Agreement was subsequently amended by a Consent, Transfer, Assumption and Amendment Agreement entered into as of August 12, 2013, where the loan was transferred from XOMA Ireland Limited to XOMA (US) LLC.

On January 9, 2015, Servier and we entered into Amendment No. 2 (“Loan Amendment”) to the Servier Loan Agreement. The Loan Amendment extended the maturity date of the loan from January 13, 2016 to three tranches of principal to be repaid as follows: €3.0 million on January 15, 2016, €5.0 million on January 15, 2017, and €7.0 million on January 15, 2018. In addition, the loan would become immediately due and payable upon certain customary events of default. In January 2016, we paid the principal amount of €3.0 million. In January 2017, we entered into Amendment No. 3 to the Servier Loan Agreement (“Amendment No. 3”). Amendment No. 3 extended the maturity date of the €5.0 million due on January 15, 2017 to July 15, 2017. The other terms of the loan remained unchanged.

On August 25, 2017, NIBR settled the Servier Loan Agreement in cash by paying directly to Servier $14.3 million, which represented the outstanding balance of the loan based on a euro to dollar exchange rate of 1.1932. The funds that NIBR paid directly to Servier were a portion of the upfront payment due to us under the XOMA-052 License Agreement. As a result of the debt being fully paid, the intellectual property securing the Servier Loan Agreement was released.

Hercules Loan and Security Agreement

In February 2015, we entered into a Loan and Security Agreement with Hercules Technology Growth Capital, Inc., (the "Hercules Loan Agreement") under which we borrowed $20.0 million.

The interest rate under the Hercules Loan Agreement was calculated at a rate equal to the greater of either (i) 9.40% plus the prime rate as reported from time to time in The Wall Street Journal minus 7.25%, and (ii) 9.40%. Payments under the Hercules Loan Agreement were interest only until June 1, 2016, after which we paid equal monthly payments of principal and interest amortized over a 30-month schedule through the scheduled maturity date of September 1, 2018 (the "Hercules Loan Maturity Date"). The entire principal balance, including a balloon payment of principal, would be due and payable on the Hercules Loan Maturity Date. In addition, a final payment of $1.2 million would be due on the Hercules Loan Maturity Date, or such earlier date specified in the Hercules Loan Agreement. If we prepaid the loan prior to the Hercules Loan Maturity Date, we would be required to pay Hercules a prepayment charge equal to 1.00% of the amount prepaid. Our obligations under the Hercules Loan Agreement were secured by a security interest in substantially all of our assets, other than our intellectual property.

On December 21, 2016, we entered into Amendment No. 1 (the "Hercules Amendment") to the Hercules Loan Agreement. Under the Hercules Amendment, Hercules agreed to release its security interest on the assets subject to the Acquisition Agreements with HCRP. In turn, in January 2017, we paid $10.0 million of the outstanding principal balance owed to Hercules. The $10.0 million payment was not subject to any prepayment charge. After taking into account the January 2017 payment, the principal balance of the Hercules Loan was $6.9 million.

On March 21, 2017, the Hercules Term Loan was paid in full and we were not required to pay the 1% prepayment charge due pursuant to the terms of the loan.

In connection with the Hercules Loan Agreement, we issued a warrant to Hercules that is exercisable for an aggregate of up to 9,063 shares of our common stock at an exercise price of $66.20 per share (the "Hercules Warrant"). The Hercules Warrant may be exercised on a cashless basis and is exercisable for a term beginning on the date of issuance and ending on the earlier to occur of five years from the date of issuance or the consummation of certain acquisitions of XOMA as set forth in the Hercules Warrant. The number of shares for which the Hercules Warrant is exercisable and the associated exercise price are subject to certain proportional adjustments as set forth in the Hercules Warrant.

Research and Development

Our research and development expenses include costs of personnel, supplies, facilities and equipment, consultants, third-party costs and other expenses related to preclinical and clinical testing. In 2017, our research and development expenses were $7.9 million, compared with $44.2 million in 2016 and $70.9 million in 2015.

Prior to 2017, our research and development activities can be divided into those related to our internal projects and those related to collaborative and contract arrangements, which are reimbursed by our collaborators. In March 2017, we initiated a corporate reorganization to discontinue internal product development and terminated our clinical programs as of June 30, 2017, both of which significantly reduced our research and development expenses. Research and development expenses relating to internal projects were $42.8 million in 2016 and $50.2 million in 2015. Research and development expenses related to collaborative and contract arrangements were $1.4 million in 2016 and $20.7 million in 2015.

Competition

The biotechnology and pharmaceutical industries are subject to continuous and substantial technological change. Some of the drugs our licensees are developing may compete with existing therapies or other drugs in development by other companies. Furthermore, academic institutions, government agencies and other public and private organizations conducting research may seek patent protection with respect to potentially competing products or technologies and may establish collaborative arrangements with our competitors. There can be no assurance that developments by others will not render our, or our licensees', products or technologies obsolete or uncompetitive.

Additionally, our recently-undertaken royalty aggregator model faces competition on at least two fronts. First, there are other companies, funds and other investment vehicles seeking to aggregate royalties or provide alternative financing to development-stage biotechnology and pharmaceutical companies. The competitive companies, funds and other investment vehicles may have a lower target rate of return, a lower cost of capital or access to greater amounts of capital and thereby may be able to acquire assets that we are also targeting for acquisitions. Second, existing or potential competitors to our partners' and licensee's products, particularly large pharmaceutical companies, may have greater financial, technical and human resources than our licensees. Accordingly, these competitors may be better equipped to develop, manufacture and market products. Many of these companies also have extensive experience in preclinical testing and human clinical trials, obtaining FDA and other regulatory approvals and manufacturing and marketing pharmaceutical products.

For a discussion of the risks associated with competition, see below under "Item 1A. Risk Factors."

Government Regulation

The research and development, manufacturing and marketing of pharmaceutical products are subject to regulation by numerous governmental authorities in the United States and other countries. We and our partners and licensees, depending on specific activities performed, are subject to these regulations. In the United States, pharmaceuticals are subject to regulation by both federal and various state authorities, including the FDA. The Federal Food, Drug and Cosmetic Act and the Public Health Service Act govern the testing, manufacture, safety, efficacy, labeling, storage, record keeping, approval, advertising and promotion of pharmaceutical products and there are often comparable regulations that apply at the state level. There are similar regulations in other countries as well. For both currently marketed and products in development, failure to comply with applicable regulatory requirements can, among other things, result in delays, the suspension of regulatory approvals, as well as possible civil and criminal sanctions. In addition, changes in existing regulations could have a material adverse effect on us or our partners. For a discussion of the risks associated with government regulations, see below under “Item 1A. Risk Factors.”

Intellectual Property

Intellectual property is important to our business and our future income streams will depend in part on our ability to obtain issued patents, and our partners’ and licensees’ ability to operate without infringing on the proprietary rights of others. We hold and have filed applications for a number of patents in the United States and internationally to protect our products and technology. We also have obtained or have the right to obtain licenses to, or income streams based on, certain patents and applications filed by others. However, the patent position of biotechnology companies generally is highly uncertain and consistent policy regarding the breadth of allowed claims has not emerged from the actions of the U.S. Patent and Trademark Office with respect to biotechnology patents. Accordingly, no assurance can be given that our, or our partners’ or licensees’ patents will afford protection against competitors with similar products or others will not obtain patents claiming aspects similar to those covered by our, or our partners’ or licensees’ patent applications. Below is a list of our patents and patent applications related to our programs:

| Licensee/Partner | Program | Representative Patents/Applications | Subject matter | Expected expiry |
|---|---|---|---|---|
| Novartis | Anti-IL-1b | | | |
| | | US 7,531,166<br>US 7,582,742 | Gevokizumab and other antibodies and antibody fragments with similar binding properties for IL-1 | 2027 |
| | | | Methods of treating Type 2 diabetes or Type 2 diabetes-induced diseases or conditions with high affinity antibodies and antibody fragments that bind to IL-1 | |
| | | US 7,695,718 | | |
| | | US 8,101,166<br>US 8,586,036 | Methods of treating gout with certain doses of IL-1 binding antibodies or binding fragments | 2027 |

| | | | | |
|---|---|---|---|---|
| | | US 9,163,082 | Pharmaceutical compositions comprising anti-IL-1 binding antibodies or fragments for reducing acute coronary syndrome in a subject with a history of myocardial infarction. | |
| | | US 8,637,029 | | 2028 |
| | | JP 5763625 | | 2030 |
| Novartis | Anti-TGFb | | | 2032 |
| | | US 8,569,464 | TGF antibodies and methods of use thereof | |
| | | US 9,145,458 | | 2036 |
| | | US 9,714,285 | | |
| | | WO2016/161410 | Combination therapy using an inhibitor of TGFb and an inhibitor of PD-1 for treating or preventing recurrence of cancer | |

9

| | | | | |
|---|---|---|---|---|
| Novartis | Anti-CD40 | US 8,828,396* | Silent Fc variants of anti-CD40 antibodies | 2031 |
| Rezolute | Anti-INSR | EP 2 480 254<br><br>JP 5849050 | Insulin receptor-modulating antibodies having the functional properties of RZ358<br><br>Methods of treating or preventing post-prandial hypoglycemia after gastric bypass surgery using a negative modulator antibody to the insulin receptor | 2030 |
| | | WO2016/141111 | | 2036 |
| Ology Bio | Anti-BoNT | | | 2030 |
| | | US 8,821,879<br><br>EP 2 473 191 | Coformulations of anti- botulinum neurotoxin antibodies | |
| PrlA Pharma | Anti-PRLR | US 7,867,493<br><br>EP 2 059 535 | Prolactin receptor antibodies | 2027 |
| Various | Bacterial cell expression/ Phage display libraries | CA 1,341,235 | Methods for expression and secretion of recombinant proteins from bacteria | 2018 |
| | | US 8,546,307<br><br>EP 2 344 686<br><br>US 7,094,579<br><br>EP 2 060 628 | XOMA phage display library components | 2022 |
| Actively seeking out license | Anti-PTH1R | WO2018/026748 | Parathyroid Hormone Receptor 1 Antibodies and Uses Thereof | 2037 |
| Actively seeking out license | Anti-IL2 | PCT publication pending** | Interleukin-2 Antibodies and Uses Thereof | 2037 |

* Novartis-owned patent

**Jointly-owned with Medical University of South Carolina Foundation for Research Development

If certain patents issued to others are upheld or if certain patent applications filed by others are issued and upheld, our partners and licensees may require certain licenses from others to develop and commercialize certain potential

products incorporating our technology. There can be no assurance that such licenses, if required, will be available on acceptable terms.

We protect our proprietary information, in part, by confidentiality agreements with our employees, consultants and partners. These parties may breach these agreements, and we may not have adequate remedies for any breach. To the extent that we or our consultants or partners use intellectual property owned by others, we may have disputes with our consultants or partners or other third parties, as to the rights in related or resulting know-how and inventions.

Financial Information about Geographic Areas

When and if we are able to generate income, a portion of that income may be derived from product sales and other activities of our third-party licensees and partners outside the United States.

We have determined that we operate in one business segment as we only report operating results on an aggregate basis to the chief operating decision maker of XOMA. Our property and equipment is held in the United States.

Financial information regarding the geographic areas in which we operate and segment information is included in Note 14 to the December 31, 2017, Financial Statements: Concentration of Risk, Segment and Geographic Information.

Concentration of Risk

Novartis accounted for 95 percent of our total revenue in 2017. Five Prime, Servier, and National Institute of Allergy and Infectious Diseases ("NIAID") accounted for 27 percent, 22 percent, and 19 percent, respectively, of our total revenue in 2016. In 2015, Novartis accounted for 67 percent of our total revenue. At December 31, 2017, Janssen Biotech, Inc. (formerly Centocor Biotech Inc.) accounted for 100 percent of the accounts receivable balance. At December 31, 2016, NIAID accounted for 85 percent of the accounts receivable balance. None of these parties represent a related party to XOMA and the loss of one or more of these partners could have a material effect on our business and financial condition.

Employees

As of March 2, 2018, we employed 12 full-time employees. None of our employees are unionized. Our employees are primarily engaged in executive, business development, finance and administrative positions.

Available Information

The following information can be found on our website at http://www.xoma.com or can be obtained free of charge by contacting our Investor Relations Department at investorrelations@xoma.com or by calling (910) 726-1372:

- Our annual reports 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 under Section 13(a) or 15(d) of the Exchange Act will be available as soon as reasonably practicable after such material is electronically filed with the SEC. All reports we file with the SEC also can be obtained free of charge via EDGAR through the SEC's website at http://www.sec.gov.
- Our policies related to corporate governance, including our Code of Ethics applying to our directors, officers and employees (including our principal executive officer and principal financial and accounting officer) that we have adopted to meet the requirements set forth in the rules and regulations of the SEC and its corporate governance principles.
- The charters of the Audit, Compensation and Nominating & Governance Committees of our Board of Directors.

We intend to satisfy the applicable disclosure requirements regarding amendments to, or waivers from, provisions of our Code of Ethics by posting such information on our website.

Item 1A. Risk Factors

The following risk factors and other information included in this annual report should be carefully considered. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties not presently known to us also may impair our business operations. If any of the following risks occur, our business, financial condition, operating results and cash flows could be materially adversely affected.

Risks Related to our Recently Undertaken Royalty Aggregator Strategy

Our planned acquisition of royalties may not produce anticipated revenues, and if such transactions are secured by collateral, we may be, or may become, under-secured by the collateral or such collateral may lose value and we will not be able recuperate our capital expenditures in the acquisition.

We are engaged in a continual review of opportunities to acquire royalties and other intellectual property assets as part of our royalty aggregator strategy or to acquire companies that hold royalty assets. We currently, and generally at any time, have acquisition opportunities in various stages of active review, including, for example, our engagement of consultants and advisors to analyze particular opportunities, technical, financial and other confidential information, submission of indications of interest and involvement as a bidder in competitive auctions. Many potential acquisition targets do not meet our criteria, and for those that do, we may face significant competition for these acquisitions from other royalty buyers and enterprises. Competition for future asset acquisition opportunities in our markets could increase the price we pay for such assets and could reduce the number of potential acquisition targets. The success of our acquisitions is based on our ability to make accurate assumptions regarding the valuation, timing and amount of future royalty and milestone payments as well as the viability of the underlying technology. The failure of any of these acquisitions to produce anticipated revenues may materially and adversely affect our financial condition and results of operations.

Some of these acquisitions may expose us to credit risk in the event of default by the counterparty. To mitigate this risk, on occasion, we may obtain a security interest as collateral in the assets of such counterparty. Our credit risk in respect of such counterparty may be exacerbated when the collateral held by us cannot be realized upon or is liquidated at prices not sufficient to recover the full amount we are due pursuant to the terms of the particular assets. This could occur in circumstances where the original collateral was not sufficient to cover a complete loss (e.g., our interests were only partially secured) or may result from the deterioration in value of the collateral, so that, in either such case, we are unable to recuperate our full capital outlay. Any such losses resulting therefrom could materially and adversely affect our financial condition and results of operations.

Many of our potential royalty acquisitions are in companies or assets that have no approved or commercialized products or are dependent on the actions of unrelated third parties, which may negatively impact our investment returns.

As part of our recently launched royalty aggregator strategy, we will likely make investments in royalty assets, such as an upfront payment for a profit share or royalty stream in the healthcare industry, many of which investments are in companies that, at the time of investment, have limited or no approved or commercialized products. If the assets are not successfully developed and subsequently commercialized, the value of our investments will be negatively affected. The ultimate success of our royalty aggregator strategy will depend on the ability of the counterparty to innovate, develop and commercialize their products, in increasingly competitive and highly regulated markets. Their inability to do so would negatively affect our investment. In addition, we are dependent, to a large extent, on third parties to enforce certain rights for our benefit, such as protection of a patent estate, and their failure to do so would negatively impact our investment returns.

We depend on our licensees and royalty-agreement counterparties for the determination of royalty and milestone payments. While we have rights to audit our licensees and royalty-agreement counterparties, the independent auditors may have difficulty determining the correct royalty calculation, we may not be able to detect errors and payment calculations may call for retroactive adjustments. We may have to exercise legal remedies to resolve any disputes resulting from the audit.

The royalty and milestone payments we receive are determined by our licensees based on their reported development and product sales. Each licensee's calculation of the royalty payments is subject to and dependent upon the adequacy and accuracy of its sales and accounting functions, and errors may occur from time to time in the calculations made by a licensee. Our license and royalty agreements provide us the right to audit the calculations and sales data for the associated royalty payments; however, such audits may occur many months following our recognition of the royalty revenue, may require us to adjust our royalty revenues in later periods and may require expense on the part of the Company. Further, our licensees and royalty-agreement counterparties may be uncooperative or have insufficient records, which may complicate and delay the audit process.

Although we intend to regularly exercise our royalty audit rights, we rely in the first instance on our licensees and royalty-agreement counterparties to accurately report sales and calculate and pay applicable royalties and, upon exercise of such royalty audit rights, we rely on licensees' and royalty-agreement counterparties' cooperation in performing such audits. In the absence of such cooperation, we may be forced to exercise legal remedies to enforce our agreements.

The lack of liquidity in our acquisitions may adversely affect our business and, if we need to sell any of our acquired assets, we may not be able to do so at a favorable price. As a result, we may suffer losses.

We generally acquire patents, license agreements and royalty rights that have limited secondary resale markets. The illiquidity of most of our assets may make it difficult for us to dispose of them at a favorable price and, as a result, we may suffer losses if we are required to dispose of any or all such assets in a liquidation or otherwise. In addition, if we liquidate all or a portion of our assets quickly or relating to a liquidation, we may realize significantly less than the value at which we had previously recorded these assets.

As we continue to develop our business, our mix of assets and our sources of income may require that we register with the SEC as an “investment company” in accordance with the Investment Company Act of 1940.

We have not been and have no current intention to register as an "investment company" under the Investment Company Act of 1940, or the ‘40 Act, because we believe the nature of our assets and the sources of our income currently exclude us from the definition of an investment company pursuant to Sections (3)(a)(1)(A) and (3)(a)(1)(C) under the ‘40 Act and Rule 3a-1 thereunder. Accordingly, we are not currently subject to the provisions of the ‘40 Act, such as compliance with the ‘40 Act’s registration and reporting requirements, capital structure requirements, affiliate transaction restrictions, conflict of interest rules, requirements for disinterested directors, and other substantive provisions. Generally, to avoid being a company that is an "investment company" under the ‘40 Act, it must both: (a) not be or hold itself out as being engaged primarily in the business of investing, reinvesting or trading in securities, and (b) either (i) not be engaged or propose to engage in the business of investing in securities or own or propose to acquire investment securities having a value exceeding 40% of the value of its total assets (exclusive of U.S. government securities and cash items) on an unconsolidated basis or (ii) not have more than 45% of the value of its total assets (exclusive of government securities and cash items) consist of or more than 45% of its net income after taxes (for the last four fiscal quarters combined) be derived from certain types of securities. In addition, we would not be an “investment company” if an exception, exemption, or safe harbor under the ‘40 Act applies.

We monitor our assets and income for compliance with the tests under the ‘40 Act and seek to conduct our business activities to ensure that we do not fall within its definitions of “investment company.” If we were to become an “investment company” and be subject to the restrictions of the ‘40 Act, those restrictions would likely require changes in the way we do business and add significant administrative burdens to our operations. To ensure that we do not fall within the ‘40 Act, we may need to take various actions which we might otherwise not pursue. These actions may include restructuring the Company and/or modifying our mixture of assets and income.

Specifically, our mixture of securities vs. royalty assets will be important to our classification as an “investment company”. While we currently believe that none of the definitions of “investment company” apply to us, we may in the future rely on an exception under the ‘40 Act provided by Section 3(c)(5)(A). To qualify under Section 3(c)(5)(A), as interpreted by the staff of the SEC, we would be required to have at least 55% of our total assets in "notes, drafts, acceptances, open accounts receivable, and other obligations representing part or all of the sales price of merchandise, insurance, and services" (or Qualifying Assets). The SEC staff has stated in a no action letter that royalty interests are Qualifying Assets under this exception. If the SEC or its staff in the future adopts a contrary interpretation or otherwise restricts the conclusions in the staff's no-action letter such that our royalty interests are no longer Qualifying Assets for purposes of Section 3(c)(5)(A), or if we fail to have 55% of our total assets in Qualifying Assets, we could be required to register under the ‘40 Act.

The rules and interpretations of the SEC and the courts, relating to the definition of "investment company" are very complex. While we currently intend to conduct our operations so that we will not be an investment company under applicable SEC interpretations, we can provide no assurance that the SEC would not take the position that the Company would be required to register under the ‘40 Act.

Risks Related to our Financial Results and Capital Requirements

We have sustained losses in the past, and we expect to sustain losses in the foreseeable future.

We had net income of $14.6 million for the year ended December 31, 2017, and net losses of $53.5 million and $20.6 million for the years ended December 31, 2016, and 2015, respectively. As of December 31, 2017, we had an

accumulated deficit of $1.2 billion.

We do not know whether we will ever achieve sustained profitability or whether cash flow from future operations will be sufficient to meet our needs.

To date, we have financed our operations primarily through the sale of equity securities and debt, and collaboration and licensing arrangements. The size of our future net losses will depend, in part, on the rate of our future expenditures and our partner's ability to generate revenues. If our partner's product candidates are not successfully developed or commercialized by our licensees, or if revenues are insufficient following marketing approval, we will not achieve profitability and our business may fail. Our ability to achieve profitability is dependent in large part on the success of our ability to license our product candidates, and the success of our licensees' development programs, both of which are uncertain. Our success is also dependent on our licensees obtaining regulatory approval to market our product candidates which may not materialize or prove to be successful.

Our new strategy may require us to raise additional funds to acquire royalty assets; we cannot be certain that funds will be available, and if they are not available, we may be unsuccessful in acquiring assets to sustain the business in the future.

We may need to commit substantial funds to continue our business, and we may not be able to obtain sufficient funds on acceptable terms, or at all. Any additional debt financing or additional equity that we raise may contain terms that are not favorable to our stockholders or us. If we raise additional funds through licensing arrangements with third parties, we may be required to relinquish some rights to our technologies or our product candidates, grant licenses on terms that are not favorable to us or enter into a license arrangement for a product candidate at an earlier stage of development or for a lesser amount than we might otherwise choose.

Additional funds may not be available when we need them on terms that are acceptable to us, or at all. If adequate funds are not available on a timely basis, we may:

- reduce or eliminate royalty aggregation efforts; or
- further reduce our capital or operating expenditures; or
- curtail our spending on protecting our intellectual property.

We have significantly restructured our business and revised our business plan and there are no assurances that we will be able to successfully implement our business plan or successfully operate as a royalty aggregator.

We have historically been focused on discovering and developing innovative therapeutics derived from our unique platform of antibody technologies. Prospectively, we will become a royalty aggregator where we focus on expanding our portfolio of fully-funded programs by out-licensing our internally developed product candidates and acquiring potential milestone and royalty revenue streams on additional product candidates. Our strategy is based on a number of factors and assumptions, some of which are not within our control, such as the actions of third parties. There can be no assurance that we will be able to successfully execute all or any elements of our strategy, or that our ability to successfully execute our strategy will be unaffected by external factors. If we are unsuccessful in acquiring potential milestone and royalty revenue streams on additional product candidates, or those acquisitions do not perform to our expectations, our financial performance could be adversely affected.

We may not realize the expected benefits of our cost-saving initiatives.

Reducing costs is a key element of our current business strategy. On August 21, 2015, in connection with our efforts to lower operating expenses and preserve capital while continuing to focus on our product pipeline, we implemented a workforce reduction, which led to the termination of 52 employees during the second half of 2015. On December 19, 2016, we approved a restructuring of our business based on our decision to focus our efforts on clinical development, with an initial focus on the X358 clinical program. The restructuring included a reduction-in-force in which we terminated 57 employees (the “2016 Restructuring”). In early 2017, we implemented a royalty-aggregator business model (the “2017 Restructuring”), which resulted in the termination of five additional employees effective June 30, 2017.

If we experience excessive unanticipated inefficiencies or incremental costs in connection with restructuring activities, such as unanticipated inefficiencies caused by reducing headcount, we may be unable to meaningfully realize cost savings and we may incur expenses in excess of what we anticipate. Either of these outcomes could prevent us from meeting our strategic objectives and could adversely impact our results of operations and financial condition.

14

Risks Related to Our Reliance on Third Parties

We rely heavily on licensee relationships, and any disputes or litigation with our partners or termination or breach of any of the related agreements could reduce the financial resources available to us, including milestone payments and future royalty revenues.

Our existing collaborations may not continue or be successful, and we may be unable to enter into future collaborative arrangements to develop and commercialize our unpartnered assets. Generally, our current collaborative partners also have the right to terminate their collaborations at will or under specified circumstances. If any of our collaborative partners breach or terminate their agreements with us or otherwise fail to conduct their collaborative activities successfully (for example, by not making required payments when due, or at all), our product development under these agreements will be delayed or terminated. Disputes or litigation may also arise with our collaborators (with us and/or with one or more third parties), including those over ownership rights to intellectual property, know-how or technologies developed with our collaborators. For example, we are asserting our rights to receive payment against one of our collaborative partners which could harm our relationship with such partner. Such disputes or litigation could adversely affect our rights to one or more of our product candidates and could delay, interrupt or terminate the collaborative research, development and commercialization of certain potential products, create uncertainty as to ownership rights of intellectual property, or could result in litigation or arbitration. In addition, a significant downturn or deterioration in the business or financial condition of our collaborators or partners could result in a loss of expected revenue and our expected returns on investment. The occurrence of any of these problems could be time-consuming and expensive and could adversely affect our business.

Our licensees rely on third parties to provide services in connection with our product candidate development and manufacturing programs. The inadequate performance by or loss of any of these service providers could affect our licensees' product candidate development.

Third parties provide services in connection with preclinical and clinical development programs, including in vitro and in vivo studies, assay and reagent development, immunohistochemistry, toxicology, pharmacokinetics, clinical trial support, manufacturing and other outsourced activities. If these service providers do not adequately perform the services for which we or our licensees have contracted, or cease to continue operations, and we are not able to find a replacement provider quickly or we lose information or items associated with our product candidates, our development programs may be delayed.

Agreements with other third parties, many of which are significant to our business, expose us to numerous risks.

Because our licensees, suppliers and contractors are independent third parties, they may be subject to different risks than we are and have significant discretion in, and different criteria for, determining the efforts and resources they will apply related to their agreements with us. If these licensees, suppliers and contractors do not successfully perform the functions for which they are responsible, we may not have the capabilities, resources or rights to do so on our own.

We do not know whether we or our licensees will successfully develop and market any of the products that are or may become the subject of any of our licensing arrangements. In addition, third-party arrangements such as ours also increase uncertainties in the related decision-making processes and resulting progress under the arrangements, as we and our licensees may reach different conclusions, or support different paths forward, based on the same information, particularly when large amounts of technical data are involved.

Under our contract with NIAID, a part of the National Institute of Health ("NIH"), we invoiced using NIH provisional rates, and these are subject to future audits at the discretion of NIAID's contracting office. These audits can result in an adjustment to revenue previously reported, which potentially could be significant.

Failure of our licensees' product candidates to meet current Good Manufacturing Practices standards may subject us to delays in regulatory approval and penalties for noncompliance.

Our licensees may rely on third party manufacturers and such contract manufacturers are required to produce clinical product candidates under current Good Manufacturing Practices ("cGMP") to meet acceptable standards for use in clinical trials and for commercial sale, as applicable. If such standards change, the ability of contract manufacturers to produce our product candidates on the schedule required for our clinical trials or to meet commercial requirements may be affected. In addition, contract manufacturers may not perform their obligations under their agreements with our licensees, may discontinue their business before the time required by us to successfully produce clinical and commercial supplies of our product candidates.

Contract manufacturers are subject to pre-approval inspections and periodic unannounced inspections by the FDA and corresponding state and foreign authorities to ensure strict compliance with cGMP and other applicable government regulations and corresponding foreign standards. We do not have control over a third-party manufacturer's compliance with these regulations and standards. Any difficulties or delays in contractors' manufacturing and supply of our product candidates or any failure of our licensees' contractors to maintain compliance with the applicable regulations and standards could increase costs, cause us to reduce revenue, make us or our licensees postpone or cancel clinical trials, prevent or delay regulatory approval by the FDA and corresponding state and foreign authorities, prevent the import and/or export of our product candidates, or cause any of our product candidates that may be approved for commercial sale to be recalled or withdrawn.

Certain of our technologies are in-licensed from third parties, so our and our licensees' capabilities using them are restricted and subject to additional risks.

We have licensed technologies from third parties. These technologies include phage display technologies licensed to us in connection with our bacterial cell expression technology licensing program and antibody products. However, our and our licensees' use of these technologies is limited by certain contractual provisions in the licenses relating to them, and although we have obtained numerous licenses, intellectual property rights in the area of phage display are particularly complex. If we are unable to maintain our licenses, patents or other intellectual property, we could lose important protections that are material to continuing our operations and for future prospects. Our licensors also may seek to terminate our license, which could cause us and our licensees to lose the right to use the licensed intellectual property and adversely affect our ability to commercialize our technologies, products or services.

Because many of the companies with which we do business also are in the biotechnology sector, the volatility of that sector can affect us indirectly as well as directly.

The same factors that affect us directly also can adversely affect us indirectly by affecting the ability of our partners and others with whom we do business to meet their obligations to us and reduce our ability to realize the value of the consideration provided to us by these other companies.

For example, in connection with our dispositions or license arrangements, we have in the past and may in the future agree to accept equity securities of the licensee in payment of fees. The future value of these or any other shares we receive is subject both to market risks affecting our ability to realize the value of these shares and more generally to the business and other risks to which the issuer of these shares may be subject.

Risks Related to an Investment in Our Common Stock

Our share price may be volatile, and there may not be an active trading market for our common stock.

There can be no assurance the market price of our common stock will not decline below its present market price or there will be an active trading market for our common stock. The market prices of biotechnology companies have been and are likely to continue to be highly volatile. Fluctuations in our operating results and general market conditions for biotechnology stocks could have a significant impact on the volatility of our common stock price. We have experienced significant volatility in the price of our common stock. From January 1, 2017, through March 2,

2018, the share price of our common stock has ranged from a high of $37.25 to a low of $3.96. Additionally, we have two significant holders of our stock that could affect the liquidity of our stock and have a significant negative impact on our stock price if one or both of the holders were to quickly sell their ownership positions.

If we fail to meet continued listing standards of NASDAQ, our common stock may be delisted, which could have a material adverse effect on the liquidity of our common stock.

Our common stock is currently traded on the Nasdaq Global Market. The NASDAQ Stock Market LLC ("NASDAQ") has requirements that a company must meet in order to remain listed on NASDAQ.

We have in the past temporarily fallen out of compliance with NASDAQ listing standards and there can be no assurance that we will continue to meet NASDAQ listing requirements in the future.

We received a letter from the Listing Qualifications Staff of The NASDAQ Stock Market LLC (the "Staff") on March 22, 2017, providing notification that we no longer complied with the $50 million in total assets and total revenue standard for continued listing on The Nasdaq Global Market under NASDAQ's Listing Rule 5450(b)(3)(A) and that we also did not comply with either of the two alternative standards of Listing Rule 5450(b), the equity standard and the market value standard.

On May 2, 2017, following ten consecutive business days where the market value of our listed securities was $50 million or greater, we regained compliance with NASDAQ Listing Rule 5450(b)(2)(A).

If future events cause our common stock to be delisted, the liquidity of our common stock would be adversely affected and the market price of our common stock could decrease.

We may issue additional equity securities and thereby materially and adversely affect the price of our common stock.

We expect that significant additional capital will be needed in the future to continue our planned operations. To the extent we raise additional capital by issuing equity securities, our stockholders may experience substantial dilution. We may sell common stock, convertible securities or other equity securities in one or more transactions at prices and in a manner we determine from time to time. If we sell common stock, convertible securities or other equity securities in more than one transaction, investors may be materially diluted by subsequent sales. These sales may also result in material dilution to our existing stockholders, and new investors could gain rights superior to our existing stockholders.

We are authorized to issue, without stockholder approval, 1,000,000 shares of preferred stock, of which 5,003 shares of Series X preferred stock were issued and outstanding as of March 2, 2018. Each share of Series X is convertible into 1,000 shares of registered common stock based on a conversion price of $4.03 per share of common stock. The total number of shares of common stock issued upon conversion of all issued Series X convertible preferred stock will be 5,003,000 shares. Each share is convertible at the option of the holder at any time, provided that the holder will be prohibited from converting into common stock if, as a result of such conversion, the holder, together with its affiliates, would beneficially own a number of shares above a conversion blocker, which is initially set at 19.99% of our total common stock then issued and outstanding immediately following the conversion of such shares. In addition, we are authorized to issue, generally without stockholder approval, up to 277,333,332 shares of common stock, of which 8,329,098 were issued and outstanding as of March 2, 2018. If we issue additional equity securities, the price of our common stock may be materially and adversely affected.

In addition, funding from collaboration partners and others has in the past and may in the future involve issuance by us of our common stock. We cannot be certain how the purchase price of such shares, the relevant market price or premium, if any, will be determined or when such determinations will be made.

Any issuance by us of equity securities, whether through an underwritten public offering, an at the market offering, a private placement, in connection with a collaboration or otherwise could result in dilution in the value of our issued and outstanding shares, and a decrease in the trading price of our common stock.

We may sell additional equity or debt securities to fund our operations, which may result in dilution to our stockholders and impose restrictions on our business.

In order to raise additional funds to support our operations, we may sell additional equity or debt securities, which would result in dilution to our stockholders and may impose restrictive covenants that would adversely impact our business. The sale of additional equity or convertible debt securities could result in the issuance of additional shares of our capital stock and dilution to all of our stockholders. The incurrence of indebtedness would result in increased fixed payment obligations and could also result in certain restrictive covenants, such as limitations on our ability to incur additional debt, limitations on our ability to acquire, sell or license intellectual property rights and other operating

restrictions that could adversely impact our ability to conduct our business. If we are unable to expand our operations or otherwise capitalize on our business opportunities, our business, financial condition and results of operations could be materially adversely affected and we may not be able to meet our debt service obligations.

Our organizational documents contain provisions that may prevent transactions that could be beneficial to our stockholders and may insulate our management from removal.

Our charter and by-laws:

- require certain procedures to be followed and time periods to be met for any stockholder to propose matters to be considered at annual meetings of stockholders, including nominating directors for election at those meetings; and
- authorize our Board of Directors to issue up to 1,000,000 shares of preferred stock without stockholder approval and to set the rights, preferences and other designations, including voting rights, of those shares as the Board of Directors may determine.

In addition, we are subject to the provisions of Section 203 of the Delaware General Corporation Law (the “DGCL”), that may prohibit large stockholders, in particular those owning 15% or more of our outstanding common stock, from merging or combining with us.

These provisions of our organizational documents and the DGCL, alone or in combination with each other, may discourage transactions involving actual or potential changes of control, including transactions that otherwise could involve payment of a premium over prevailing market prices to holders of common stock, could limit the ability of stockholders to approve transactions that they may deem to be in their best interests, and could make it considerably more difficult for a potential acquirer to replace management.

As a public company in the United States, we are subject to the Sarbanes-Oxley Act. We have determined our disclosure controls and procedures and our internal control over financial reporting are effective. We can provide no assurance that we will, at all times, in the future be able to report that our internal controls over financial reporting are effective.

Companies that file reports with the SEC, including us, are subject to the requirements of Section 404 of the Sarbanes-Oxley Act of 2002 (“SOX”). Section 404 requires management to establish and maintain a system of internal control over financial reporting, and annual reports on Form 10-K filed under the Securities Exchange Act of 1934, as amended (the “Exchange Act”), must contain a report from management assessing the effectiveness of our internal control over financial reporting. Ensuring we have adequate internal financial and accounting controls and procedures in place to produce accurate financial statements on a timely basis is a time-consuming effort that needs to be re-evaluated frequently. Failure on our part to have effective internal financial and accounting controls would cause our financial reporting to be unreliable, could have a material adverse effect on our business, operating results, and financial condition, and could cause the trading price of our common stock to fall.

We incur significant costs as a result of operating as a public company, which may adversely affect our operating results and financial condition.

As a public company, we incur significant accounting, legal and other expenses, including costs associated with our public company reporting requirements. We also anticipate that we will continue to incur costs associated with corporate governance requirements, including requirements and rules under SOX and the Dodd-Frank Wall Street Reform and Consumer Protection Act ("Dodd-Frank") among other rules and regulations implemented by the SEC, as well as listing requirements of NASDAQ. Furthermore, these laws and regulations could make it difficult or costly for us to obtain certain types of insurance, including director and officer liability insurance, and we may be forced to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. The impact of these requirements could also make it difficult for us to attract and retain qualified persons to serve on our Board of Directors, our Board Committees or as executive officers.

New laws and regulations as well as changes to existing laws and regulations affecting public companies, including the provisions of SOX and Dodd-Frank and rules adopted by the SEC and NASDAQ, would likely result in increased costs to us as we respond to their requirements. We continue to invest resources to comply with evolving laws and regulations, and this investment may result in increased general and administrative expense.

Our ability to use our net operating loss carry-forwards and other tax attributes will be substantially limited by Section 382 of the U.S. Internal Revenue Code.

Under the newly enacted federal income tax law, federal net operating losses incurred in 2018 and in future years may be carried forward indefinitely, but the deductibility of such federal net operating losses is limited. It is uncertain if and to what extent various states will conform to the newly enacted federal tax law. In addition, Section 382 of the U.S. Internal Revenue Code of 1986, as amended, and corresponding provisions of state law, generally limit the ability of a corporation that undergoes an "ownership change" to utilize its net operating loss carry-forwards ("NOLs") and certain other tax attributes against any taxable income in taxable periods after the ownership change. The amount of taxable income in each taxable year after the ownership change that may be offset by pre-change NOLs and certain other pre-change tax attributes is generally equal to the product of (a) the fair market value of the corporation's outstanding shares (or, in the case of a foreign corporation, the fair market value of items treated as connected with the conduct of a trade or business in the United States) immediately prior to the ownership change and (b) the long-term tax exempt rate (i.e., a rate of interest established by the U.S. Internal Revenue Service that fluctuates from month to month). In general, an "ownership change" occurs whenever the percentage of the shares of a corporation owned, directly or indirectly, by "5-percent shareholders" (within the meaning of Section 382 of the Internal Revenue Code) increases by more than 50 percentage points over the lowest percentage of the shares of such corporation owned, directly or indirectly, by such "5-percent shareholders" at any time over the preceding three years.

Based on an analysis under Section 382 of the Internal Revenue Code (which subjects the amount of pre-change NOLs and certain other pre-change tax attributes that can be utilized to an annual limitation), we experienced ownership changes in 2009 and 2012, which substantially limit the future use of our pre-change NOLs and certain other pre-change tax attributes per year. In February 16, 2017, we completed an equity financing for net proceeds of $24.8 million which triggered an additional ownership change under Section 382 that significantly impacted the availability of our tax attributes against future income. Further, due to the existence of a net unrealized built-in loss at the ownership change date, Section 382 further limits our ability to fully utilize the tax deductions associated with certain of our assets, including depreciation and amortization deductions recognized during the 60-month period following the ownership change ending in 2022. Although these deductions will occur in the post-change period, Section 382 treats the deductions as pre-change losses subject to the annual 382 limitation. As of December 31, 2017, we have excluded the NOLs and research and development credits that will expire as a result of the annual limitations. To the extent that we do not utilize our carry-forwards within the applicable statutory carry-forward periods, either because of Section 382 limitations or the lack of sufficient taxable income, the carry-forwards will also expire unused.

The recently passed comprehensive tax reform bill could adversely affect our business and financial condition.

On December 22, 2017, the Tax Cuts and Jobs Act of 2017 was signed into law that significantly revises the Internal Revenue Code of 1986, as amended. The newly enacted federal income tax law, among other things, contains significant changes to corporate taxation, including reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%, limitation of the tax deduction for interest expense to 30% of adjusted earnings (except for certain small businesses), limitation of the deduction for net operating losses to 80% of current year taxable income and elimination of net operating loss carrybacks, one time taxation of offshore earnings at reduced rates regardless of whether they are repatriated, immediate deductions for certain new investments instead of deductions for depreciation expense over time, and modifying or repealing many business deductions and credits (including reducing the business tax credit for certain clinical testing expenses incurred in the testing of certain drugs for rare diseases or conditions). Notwithstanding the reduction in the corporate income tax rate, the overall impact of the new federal tax law is uncertain and our business and financial condition could be adversely affected. In addition, it is uncertain if and to what extent various states will conform to the newly enacted federal tax law. The impact of this tax reform on holders of our common stock is also uncertain and could be adverse. We urge our stockholders to consult with their legal and tax advisors with respect to this legislation and the potential tax consequences of investing in or holding our common stock.

Risks Related to the Development and Commercialization of our Current and Future Product Candidates

We may not be able to successfully identify and acquire and/or in-license other products, product candidates, programs or companies to grow and diversify our business, and, even if we are able to do so, we may not be able to successfully manage the risks associated with integrating any such products, product candidates, programs or companies into our business or we may otherwise fail to realize the anticipated benefits of these licenses or acquisitions.

To grow and diversify our business, we plan to continue our business development efforts to identify and seek to acquire and/or in-license other products, product candidates, programs or companies. Future growth through acquisition or in-licensing will depend upon the availability of suitable products, product candidates, programs or

companies for acquisition or in-licensing on acceptable prices, terms and conditions. Even if appropriate opportunities are available, we may not be able to acquire rights to them on acceptable terms, or at all. The competition to acquire or in-license rights to promising products, product candidates, programs and companies is fierce, and many of our competitors are large, multinational pharmaceutical and biotechnology companies with considerably more financial, development and commercialization resources, personnel, and experience than we have. In order to compete successfully in the current business climate, we may have to pay higher prices for assets than may have been paid historically, which may make it more difficult for us to realize an adequate return on any acquisition.

Even if we are able to successfully identify and acquire or in-license new products, product candidates, programs or companies, we may not be able to successfully manage the risks associated with integrating any products, product candidates, programs or companies into our business or the risks arising from anticipated and unanticipated problems in connection with an acquisition or in-licensing. Further, while we seek to mitigate risks and liabilities of potential acquisitions through, among other things, due diligence, there may be risks and liabilities that such due diligence efforts fail to discover, that are not disclosed to us, or that we inadequately assess. Any failure in identifying and managing these risks and uncertainties effectively would have a material adverse effect on our business. In any event, we may not be able to realize the anticipated benefits of any acquisition or in-licensing for a variety of reasons, including the possibility that a product candidate fails to advance to clinical development, proves not to be safe or effective in clinical trials, or that a product fails to reach its forecasted commercial potential or that the integration of a product, product candidate, program or company gives rise to unforeseen difficulties and expenditures. Any failure in identifying and managing these risks and uncertainties would have a material adverse effect on our business.

We may not be successful in entering into out-license agreements for our product candidates, which may adversely affect our liquidity and business.

We intend to pursue a strategy to out-license all of our product candidates in order to provide for potential payments, funding and/or royalties on future product sales. The out-license agreements may be structured to share in the proceeds received by a licensee as a result of further development or commercialization of the product candidates. We may not be successful in entering into out-licensing agreements with favorable terms as a result of factors, many of which are outside of our control. These factors include:

- research and spending priorities of potential licensing partners;
- willingness of, and the resources available to, pharmaceutical and biotechnology companies to in-license drug candidates to fill their clinical pipelines; or
- our inability to generate proof-of-concept data and to agree with a potential partner on the value of our product candidates, or on the related terms.

If we are unable to enter into out-licensing agreements for our product candidates and realize license, milestone and royalty fees when anticipated, it may adversely affect our liquidity, which in turn may harm our business.

If our licensees' therapeutic product candidates do not receive regulatory approval, our licensees will be unable to market them.

Our licensees' product candidates cannot be manufactured and marketed in the United States or any other countries without required regulatory approvals. The U.S. government and governments of other countries extensively regulate many aspects of our product candidates, including:

- clinical development and testing;
- manufacturing;
- labeling;
- storage;
- record keeping;
- promotion and marketing; and
- importing and exporting.

In the United States, the FDA regulates pharmaceutical products under the Federal Food, Drug, and Cosmetic Act and other laws, including, in the case of biologics, the Public Health Service Act. At the present time, we believe all of our product candidates will be regulated by the FDA as biologics.

Initiation of clinical trials requires approval by health authorities. Clinical trials involve the administration of the investigational new drug to healthy volunteers or to patients under the supervision of a qualified principal investigator. Clinical trials must be conducted in accordance with FDA and International Conference on Harmonization Good Clinical Practices and the European Clinical Trials Directive, as applicable, under protocols that detail the objectives of the study, the parameters to be used to monitor safety and the efficacy criteria to be evaluated. Other national, foreign and local regulations also may apply. The developer of the drug must provide information relating to the characterization and controls of the product before administration to the patients participating in the clinical trials. This requires developing approved assays of the product to test before administration to the patient and during the conduct of the trial. In addition, developers of pharmaceutical products must provide periodic data regarding clinical trials to the FDA and other health authorities, and these health authorities may issue a clinical hold upon a trial if they

do not believe, or cannot confirm, that the trial can be conducted without unreasonable risk to the trial participants.

The results of the preclinical studies and clinical testing, together with chemistry, manufacturing and controls information, are submitted to the FDA and other health authorities in the form of a New Drug Application ("NDA") for a drug, and in the form of a Biologic License Application ("BLA") for a biological product, requesting approval to commence commercial sales. In responding to an NDA or BLA, the FDA or foreign health authorities may grant marketing approvals, request additional information or further research, or deny the application if they determine the application does not satisfy regulatory approval criteria. Regulatory approval of an NDA, BLA, or supplement is never guaranteed. The approval process can take several years, is extremely expensive and can vary substantially based upon the type, complexity, and novelty of the products involved, as well as the target indications. Our licensees ultimately may not be able to obtain approval in a timely fashion or at all.

The FDA and foreign health authorities have substantial discretion in the drug and biologics approval processes. Despite the time and expense incurred, failure can occur at any stage, and our potential development partners could encounter problems that cause abandonment of clinical trials or to repeat or perform additional preclinical, clinical or manufacturing-related studies.

Changes in the regulatory approval policy during the development period, changes in, or the enactment of additional regulations or statutes, or changes in regulatory review for each submitted product application may cause delays in the approval or rejection of an application.

The FDA and other regulatory agencies have substantial discretion in both the product approval process and manufacturing facility approval process, and as a result of this discretion and uncertainties about outcomes of testing, we cannot predict at what point, or whether, the FDA or other regulatory agencies will be satisfied with our licensees' submissions or whether the FDA or other regulatory agencies will raise questions that may be material and delay or preclude product approval or manufacturing facility approval. In light of this discretion and the complexities of the scientific, medical and regulatory environment, our licensees' interpretation or understanding of the FDA's or other regulatory agencies' requirements, guidelines or expectations may prove incorrect, which also could delay further or increase the cost of the approval process.

Our licensees face uncertain results of clinical trials of product candidates.

Drug development has inherent risk, and our licensees are required to demonstrate through adequate and well-controlled clinical trials that product candidates are effective, with a favorable benefit-risk profile for use in their target profiles before they can seek regulatory approvals for commercial use. It is possible we or our licensees may never receive regulatory approval for any licensed product candidates. Even if a product candidate receives regulatory approval, the resulting product may not gain market acceptance among physicians, patients, healthcare payors and the medical community.

Our licensees' product candidates require significant additional research and development, extensive preclinical studies and clinical trials and regulatory approval prior to any commercial sales. This process is lengthy and expensive, often taking a number of years. As clinical results frequently are susceptible to varying interpretations that may delay, limit or prevent regulatory approvals, the length of time necessary to complete clinical trials and to submit an application for marketing approval for a final decision by a regulatory authority varies significantly. As a result, it is uncertain whether:

- our licensees' future filings will be delayed;
- our licensees' preclinical studies will be successful;
- our licensees will be successful in generating viable product candidates;
- we will be successful in finding collaboration and licensing partners to advance our product candidates on our behalf;
- our licensees will be able to provide necessary data;
- results of future clinical trials by our licensees will justify further development; or
- our licensees ultimately will achieve regulatory approval for our product candidates.

The timing of the commencement, continuation and completion of clinical trials by our licensees may be subject to significant delays relating to various causes, including failure to complete preclinical testing and earlier-stage clinical trials in a timely manner, engaging contract research organizations and other service providers, scheduling conflicts with participating clinicians and clinical institutions, changes in key personnel at clinical institutions, difficulties in identifying and enrolling patients who meet trial eligibility criteria and shortages of available drug supply. In addition, since we license our product candidates to others to fund and conduct clinical trials, we have limited control over how

quickly and efficiently such licensees advance those trials. Patient enrollment is a function of many factors, including the size of the patient population, the proximity of patients to clinical sites, the concentration of patients in specialist centers, the eligibility criteria for the trial, the existence of competing clinical trials and the availability of alternative or new treatments. Regardless of the initial size or relative complexity of a clinical trial, the costs of such trial may be higher than expected due to increases in duration or size of the trial, changes in the protocol under which the trial is being conducted, additional or special requirements of one or more of the healthcare centers where the trial is being conducted, or changes in the regulatory requirements applicable to the trial or in the standards or guidelines for approval of the product candidate being tested or for other unforeseen reasons.

In addition, our licensees conduct clinical trials in foreign countries, which may subject us to further delays and expenses as a result of increased drug shipment costs, additional regulatory requirements and the engagement of foreign clinical research organizations, and may expose us to risks associated with foreign currency transactions to make contract payments denominated in the foreign currency where the trial is being conducted.

All of our licensees' product candidates are prone to the risks of failure inherent in drug development. Preclinical studies may not yield results that satisfactorily support the filing of an Investigational New Drug application ("IND") (or a foreign equivalent) with respect to our product candidates. Even if these applications would be or have been filed with respect to our product candidates, the results of preclinical studies do not necessarily predict the results of clinical trials. Similarly, early stage clinical trials may not predict the results of later-stage clinical trials, including the safety and efficacy profiles of any particular product candidates.

In addition, there can be no assurance the design of our licensees' clinical trials will be focused on appropriate indications, patient populations, dosing regimens or other variables that will result in obtaining the desired efficacy data to support regulatory approval to commercialize the drug. Moreover, FDA officials or foreign regulatory agency officials may question the integrity of our data or otherwise subject our licensees' clinical trials to additional scrutiny when the clinical trials are conducted by principal investigators who serve, or previously served, as scientific advisors or consultants to us and receive cash compensation in connection with such services. Preclinical and clinical data can also be interpreted in different ways. Accordingly, FDA officials or officials from foreign regulatory authorities could interpret the data differently than we or our collaboration or development partners do, which could delay, limit or prevent regulatory approval.

Administering any of our product candidates may produce undesirable side effects, also known as adverse effects. Toxicities and adverse effects that we have observed in preclinical studies for some compounds in a particular research and development program may occur in preclinical studies or clinical trials of other compounds from the same program. Such toxicities or adverse effects could delay or prevent the filing of an IND (or a foreign equivalent) with respect to such product candidates or cause us to cease clinical trials with respect to any drug candidate. In clinical trials, administering any of our product candidates to humans may produce adverse effects. These adverse effects could interrupt, delay or halt clinical trials of our product candidates and could result in the FDA or other regulatory authorities denying approval of our product candidates for any or all targeted indications. The FDA, other regulatory authorities, our development partners or we may suspend or terminate clinical trials at any time. Even if one or more of our product candidates were approved for sale, the occurrence of even a limited number of toxicities or adverse effects when used in large populations may cause the FDA or other regulatory authorities to impose restrictions on, or stop, the further marketing of such drugs. Indications of potential adverse effects or toxicities that may occur in clinical trials and that we believe are not significant during the course of such clinical trials may actually turn out later to constitute serious adverse effects or toxicities when a drug has been used in large populations or for extended periods of time. Any failure or significant delay in completing preclinical studies or clinical trials for our product candidates, or in receiving and maintaining regulatory approval for the sale of any drugs resulting from our product candidates, may severely harm our reputation and business.

Products and technologies of other companies may render some or all of our licensees' product candidates noncompetitive or obsolete.

Developments by others may render our licensees' product candidates or technologies obsolete or uncompetitive. Technologies developed and utilized by the biotechnology and pharmaceutical industries are changing continuously and substantially. Competition in antibody-based technologies is intense and is expected to increase in the future as a number of established biotechnology firms and large chemical and pharmaceutical companies advance in these fields. Many of these competitors may be able to develop products and processes competitive with or superior to our own for many reasons, including that they may have:

- significantly greater financial resources;
- larger research and development staffs;

- entered into arrangements with, or acquired, biotechnology companies to enhance their capabilities; or
- extensive experience in preclinical testing and human clinical trials.

These factors may enable others to develop products and processes competitive with or superior to our own or those of our licensees. In addition, a significant amount of research in biotechnology is being carried out in universities and other non-profit research organizations. These entities are becoming increasingly interested in the commercial value of their work and may become more aggressive in seeking patent protection and licensing arrangements. Furthermore, many companies and universities tend not to announce or disclose important discoveries or development programs until their patent position is secure or, for other reasons, later. As a result, we and our licensees may not be able to track development of competitive products, particularly at the early stages.

Positive developments in connection with a potentially competing product may have an adverse impact on our revenue derived from development milestones. For example, if another product is perceived to have a competitive advantage, or another product's failure is perceived to increase the likelihood that our licensed product will fail, our licensees may halt development of our licensed product candidates.

Our licensees may be unable to price our products effectively or obtain adequate reimbursement for sales of our products, which would prevent our products from becoming profitable.

If our third-party licensees succeed in bringing our product candidates to the market, they may not be considered cost effective, and reimbursement to the patient may not be available or may not be sufficient to allow us to sell our products on a competitive basis. In both the United States and elsewhere, sales of medical products and treatments are dependent, in part, on the availability of reimbursement to the patient from third-party payors, such as government and private insurance plans. Third-party payors are increasingly challenging the prices charged for pharmaceutical products and services. Our business is affected by the efforts of government and third-party payors to contain or reduce the cost of healthcare through various means. In the United States, there have been and will continue to be a number of federal and state proposals to implement government controls on pricing.

In addition, the emphasis on managed care in the United States has increased and will continue to increase the pressure on the pricing of pharmaceutical products. We cannot predict whether any legislative or regulatory proposals will be adopted or the effect these proposals or managed care efforts may have on our business.

We do not know whether there will be, or will continue to be, a viable market for the product candidates in which we have an ownership or royalty interest.

Even if product candidates in which we have an interest receive approval in the future, they may not be accepted in the marketplace. In addition, we or our licensees may experience difficulties in launching new products, many of which are novel and based on technologies that are unfamiliar to the healthcare community. We have no assurance healthcare providers and patients will accept such products, if developed. Similarly, physicians may not accept a product if they believe other products to be more effective or more cost effective or are more comfortable prescribing other products.

Furthermore, government agencies, as well as private organizations involved in healthcare, from time to time publish guidelines or recommendations to healthcare providers and patients. Such guidelines or recommendations can be very influential and may adversely affect product usage directly (for example, by recommending a decreased dosage of a product in conjunction with a concomitant therapy) or indirectly (for example, by recommending a competitive product over our product). Consequently, we do not know if physicians or patients will adopt or use our products for their approved indications.

Even approved and marketed products are subject to risks relating to changes in the market for such products. Introduction or increased availability of generic or biosimilar versions of products can alter the market acceptance of branded products. In addition, unforeseen safety issues may arise at any time, regardless of the length of time a product has been on the market.

We are exposed to an increased risk of product liability claims.

The testing, marketing and sales of medical products entails an inherent risk of allegations of product liability. In the past, we were party to product liability claims filed against Genentech Inc. and, even though Genentech agreed to indemnify us in connection with these matters and these matters have been settled, there can be no assurance other product liability lawsuits will not result in liability to us or that our insurance or contractual arrangements will provide us with adequate protection against such liabilities. In the event of one or more large, unforeseen awards of damages against us, our product liability insurance may not provide adequate coverage. A significant product liability claim for

which we were not covered by insurance or indemnified by a third party would have to be paid from cash or other assets, which could have an adverse effect on our business and the value of our common stock. To the extent we have sufficient insurance coverage, such a claim would result in higher subsequent insurance rates. In addition, product liability claims can have various other ramifications, including loss of future sales opportunities, increased costs associated with replacing products, a negative impact on our goodwill and reputation, and divert our management's attention from our business, each of which could also adversely affect our business and operating results.

If we and our partners are unable to protect our intellectual property, in particular our patent protection for our principal products, product candidates and processes, and prevent the use of the covered subject matter by third parties, our licensees' ability to compete in the market will be harmed, and we may not realize our profit potential.

We rely on patent protection, as well as a combination of copyright, trade secret, and trademark laws to protect our proprietary technology and prevent others from duplicating our products or product candidates. However, these means may afford only limited protection and may not:

- prevent our competitors from duplicating our products;
- prevent our competitors from gaining access to our proprietary information and technology; or
- permit us to gain or maintain a competitive advantage.

Because of the length of time and the expense associated with bringing new products to the marketplace, we and our collaboration and development partners hold and are in the process of applying for a number of patents in the United States and abroad to protect our product candidates and important processes and also have obtained or have the right to obtain exclusive licenses to certain patents and applications filed by others. However, the mere issuance of a patent is not conclusive as to its validity or its enforceability.

The U.S. Federal Courts, the U.S. Patent & Trademark Office or equivalent national courts or patent offices elsewhere may invalidate our patents or find them unenforceable. The America Invents Act introduced post-grant review procedures subjecting U.S. patents to post-grant review procedures similar to European oppositions. U.S. patents owned or licensed by us may therefore be subject to post-grant review procedures, as well as other forms of review and re-examination. A decision in such proceedings adverse to our interests could result in the loss of valuable patent rights, which would have a material adverse effect on our business. In addition, the laws of foreign countries may not protect our intellectual property rights effectively or to the same extent as the laws of the United States.

If our intellectual property rights are not protected adequately, our licensees may not be able to commercialize our technologies or products, and our competitors could commercialize our technologies or products, which could result in a decrease in our licensees' sales and market share that would harm our business and operating results. Specifically, the patent position of biotechnology companies generally is highly uncertain and involves complex legal and factual questions. The legal standards governing the validity of biotechnology patents are in transition, and current defenses as to issued biotechnology patents may not be adequate in the future. Accordingly, there is uncertainty as to:

- whether any pending or future patent applications held by us will result in an issued patent, or whether issued patents will provide meaningful protection against competitors or competitive technologies;
- whether competitors will be able to design around our patents or develop and obtain patent protection for technologies, designs or methods that are more effective than those covered by our patents and patent applications; or
- the extent to which our product candidates could infringe on the intellectual property rights of others, which may lead to costly litigation, result in the payment of substantial damages or royalties, and prevent our licensees from using our technology or product candidates.

If certain patents issued to others are upheld or if certain patent applications filed by others issue and are upheld, our licensees may require licenses from others to develop and commercialize certain potential products incorporating our technology or we may become involved in litigation to determine the proprietary rights of others. These licenses, if required, may not be available on acceptable terms, and any such litigation may be costly and may have other adverse effects on our business, such as inhibiting our licensees' ability to compete in the marketplace and absorbing significant management time.

Due to the uncertainties regarding biotechnology patents, we also have relied and will continue to rely upon trade secrets, know-how and continuing technological advancement to develop and maintain our competitive position. All of our employees and contractors have signed confidentiality agreements under which they have agreed not to use or disclose any of our proprietary information. Research and development contracts and relationships between us and our scientific consultants and potential licensees provide access to aspects of our know-how that are protected generally under confidentiality agreements. These confidentiality agreements may be breached or may not be enforced by a court. To the extent proprietary information is divulged to competitors or to the public generally, such disclosure may affect our licensees' ability to develop or commercialize our products adversely by giving others a competitive advantage or by undermining our patent position.

Litigation regarding intellectual property can be costly and expose us to risks of counterclaims against us.

We may be required to engage in litigation or other proceedings to protect our intellectual property. The cost to us of this litigation, even if resolved in our favor, could be substantial. Such litigation also could divert management's attention and resources. If this litigation is resolved against us, our patents may be declared invalid, and we could be held liable for significant damages.

In addition, we may be subject to claims that we, or our licensees, are infringing other parties' patents. If such claims are resolved against us, we or our licensees may be enjoined from developing, manufacturing, selling or importing products, processes or services unless we obtain a license from the other party. Such license may not be available on reasonable terms, thus preventing us, or our licensees, from using these products, processes or services and adversely affecting our revenue.

Risks Related to Employees, Location, Data Integrity, and Litigation

The loss of key personnel, including our Chief Executive Officer or Chief Financial Officer, could delay or prevent achieving our objectives.

Our business efforts could be affected adversely by the loss of one or more key members of our staff, particularly our executive officers: James R. Neal, our Chief Executive Officer and Thomas Burns, our Senior Vice President, Finance and Chief Financial Officer. We currently do not have key person insurance on any of our employees.

Because we are a small biopharmaceutical company with limited resources, we may not be able to attract and retain qualified personnel.

After a series of restructuring activities during 2016 and 2017, we had 12 employees as of March 2, 2018. We may require additional experienced executive, accounting, legal, administrative and other personnel from time to time in the future. There is intense competition for the services of these personnel, especially in California. Moreover, we expect that the high cost of living in the San Francisco Bay Area, where our headquarters are located, may impair our ability to attract and retain employees in the future. If we do not succeed in attracting new personnel and retaining and motivating existing personnel, our business may suffer and we may be unable to implement our current initiatives or grow effectively.

Calamities, power shortages or power interruptions at our Emeryville headquarters could disrupt our business and adversely affect our operations.

Our principal operations are located in Northern California, including our corporate headquarters in Emeryville, California. This location is in an area of seismic activity near active earthquake faults. Any earthquake, terrorist attack, fire, power shortage or other calamity affecting our facilities may disrupt our business and could have material adverse effect on our results of operations.

Our business and operations would suffer in the event of system failures.

Despite the implementation of security measures, our internal computer systems and those of our current and any future licensees, suppliers, contractors and consultants are vulnerable to damage from cyber−attacks, computer viruses, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failures. We could experience failures in our information systems and computer servers, which could be the result of a cyber−attack and could result in an interruption of our normal business operations and require substantial expenditure of financial and administrative resources to remedy. System failures, accidents or security breaches can cause interruptions in our operations and can result in a material disruption of our development programs and other business operations. The loss of clinical trial data from completed or future clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. Similarly, we rely on third parties to manufacture our product candidates, and conduct clinical trials of our product candidates, and similar events relating to their computer systems could also have a material adverse effect on our business. To the extent that any disruption or security breach were 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 development of any of our product candidates

could be delayed or otherwise adversely affected.

Data breaches and cyber-attacks could compromise our intellectual property or other sensitive information and cause significant damage to our business and reputation.

In the ordinary course of our business, we maintain sensitive data on our networks, including our intellectual property and proprietary or confidential business information relating to our business and that of our customers and business partners. The secure maintenance of this information is critical to our business and reputation. We believe companies have been increasingly subject to a wide variety of security incidents, cyber-attacks and other attempts to gain unauthorized access. These threats can come from a variety of sources, all ranging in sophistication from an individual hacker to a state-sponsored attack. Cyber threats may be generic, or they may be custom-crafted against our information systems. Cyber-attacks have become more prevalent and much harder to detect and defend against. Our network and storage applications may be subject to unauthorized access by hackers or breached due to operator error, malfeasance or other system disruptions. It is often difficult to anticipate or immediately detect such incidents and the damage caused by such incidents. These data breaches and any unauthorized access or disclosure of our information or intellectual property could compromise our intellectual property and expose sensitive business information. A data security breach could also lead to public exposure of personal information of our clinical trial patients, customers and others. Cyber-attacks could cause us to incur significant remediation costs, result in product development delays, disrupt key business operations and divert attention of management and key information technology resources. These incidents could also subject us to liability, expose us to significant expense and cause significant harm to our reputation and business.

Shareholder lawsuits, and potential similar or related lawsuits, could result in substantial damages, divert management's time and attention from our business, and have a material adverse effect on our results of operations.

Securities-related class action and shareholder derivative litigation has often been brought against companies, including many biotechnology companies, which experience volatility in the market price of their securities. This risk is especially relevant for us because biotechnology and biopharmaceutical companies often experience significant stock price volatility in connection with their product development programs.

It is possible that suits will be filed, or allegations received from stockholders, naming us and/or our officers and directors as defendants. These potential lawsuits are subject to inherent uncertainties, and the actual defense and disposition costs will depend upon many unknown factors. The outcome of these lawsuits are uncertain. We could be forced to expend significant resources in the defense of these suits and we may not prevail. In addition, we may incur substantial legal fees and costs in connection with these lawsuits. It is possible that we could, in the future, incur judgments or enter into settlements of claims for monetary damages. A decision adverse to our interests on these actions could result in the payment of substantial damages, or possibly fines, and could have a material adverse effect on our cash flow, results of operations and financial position.

Monitoring, initiating and defending against legal actions, including the currently pending litigation, are time-consuming for our management, are likely to be expensive and may detract from our ability to fully focus our internal resources on our business activities. The outcome of litigation is always uncertain, and in some cases could include judgments against us that require us to pay damages, enjoin us from certain activities, or otherwise affect our legal or contractual rights, which could have a significant adverse effect on our business. In addition, the inherent uncertainty of the currently pending litigation and any future litigation could lead to increased volatility in our stock price and a decrease in the value of an investment in our common stock.

Risks Related to Government Regulation

Even after FDA approval, a product may be subject to additional testing or significant marketing restrictions, its approval may be withdrawn or it may be removed voluntarily from the market.

Even if we or our licensees receive regulatory approval for our product candidates, we or our licensees will be subject to ongoing regulatory oversight and review by the FDA and other regulatory entities. The FDA, the European Medicines Agency ("EMA"), or another regulatory agency may impose, as a condition of the approval, ongoing requirements for post-approval studies or post-approval obligations, including additional research and development and clinical trials, and the FDA, EMA or other regulatory agency subsequently may withdraw approval based on these additional trials.

Even for approved products, the FDA, EMA or other regulatory agency may impose significant restrictions on the indicated uses, conditions for use, labeling, advertising, promotion, marketing and production of such product. In addition, the labeling, packaging, adverse event reporting, storage, advertising, promotion and record-keeping for our products are subject to extensive regulatory requirements.

Furthermore, marketing approval of a product may be withdrawn by the FDA, the EMA or another regulatory agency or such a product may be withdrawn voluntarily by us based, for example, on subsequently arising safety concerns. The FDA, EMA and other agencies also may impose various civil or criminal sanctions for failure to comply with regulatory requirements, including withdrawal of product approval.

Healthcare reform measures and other statutory or regulatory changes could adversely affect our business.

The United States and some foreign jurisdictions have enacted or are considering a number of legislative and regulatory proposals to change the healthcare system in ways that could affect our or our licensees' ability to sell our products, if approved, profitably. Among policy makers and payers 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 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.

An expansion in the government's role in the U.S. healthcare industry may cause general downward pressure on the prices of prescription drug products, lower reimbursements for providers, reduced product utilization and adversely affect our business and results of operations. Moreover, certain politicians have announced plans to regulate the prices of pharmaceutical products. We cannot know what form any such legislation may take or the market's perception of how such legislation would affect us. Any reduction in reimbursement from government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability, or commercialize our current product candidates and those for which we may receive regulatory approval in the future. In addition, given the uncertainties related to the Trump Administration's stated goal of letting the Affordable Care Act (the "ACA") fail, we cannot be certain that current provisions of the ACA will continue to cover prescription drug products.

We and our licensees are subject to various state and federal healthcare-related laws and regulations that may impact the commercialization of our product candidates or could subject us to significant fines and penalties.

Our operations may be directly or indirectly subject to various state and federal healthcare laws, including the federal Anti-Kickback Statute, the federal False Claims Act and state and federal privacy and security laws. These laws may impact, among other things, the commercial operations for any of our product candidates that may be approved for commercial sale.

The federal Anti-Kickback Statute prohibits persons from knowingly and willfully soliciting, offering, receiving or providing remuneration, directly or indirectly, in exchange for or to induce either the referral of an individual, or the furnishing or arranging for a good or service for which payment may be made under a federal healthcare program, such as the Medicare and Medicaid programs. Several courts have interpreted the statute's intent requirement to mean that if any one purpose of an arrangement involving remuneration is to induce referrals of federal healthcare covered business, the statute has been violated. The Anti-Kickback Statute is broad and prohibits many arrangements and practices that are lawful in businesses outside of the healthcare industry. Penalties for violations of the federal Anti-Kickback Statute include criminal penalties and civil sanctions such as fines, penalties, imprisonment and possible exclusion from Medicare, Medicaid and other federal healthcare programs.

The federal False Claims Act prohibits persons from knowingly filing, or causing to be filed, a false claim to, or the knowing use of false statements to obtain payment from the federal government. Suits filed under the False Claims Act, known as "qui tam" actions, can be brought by any individual on behalf of the government and such individuals, commonly known as "whistleblowers," may share in any amounts paid by the entity to the government in fines or settlement. The filing of qui tam actions has caused a number of pharmaceutical, medical device and other healthcare companies to have to defend a False Claims Act action. When an entity is determined to have violated the False Claims Act, it may be required to pay up to three times the actual damages sustained by the government, plus civil penalties for each separate false claim. Various states also have enacted laws modeled after the federal False Claims Act.

The Federal Health Insurance Portability and Accountability Act of 1996 ("HIPAA"), created new federal criminal statutes that prohibit executing a scheme to defraud any healthcare benefit program and making false statements relating to healthcare matters. The health care fraud statute prohibits knowingly and willfully executing a scheme to defraud any health care benefit program, including private payors. The statute prohibits knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for health care benefits, items or services. HIPAA, as amended by the Health Information Technology and Clinical Health Act, and its implementing regulations, also impose certain requirements relating to the privacy, security and transmission of individually identifiable health information. We take

our obligation to maintain our compliance with these various laws and regulations seriously.

Many states also have adopted laws similar to each of the federal laws described above, some of which apply to healthcare items or services reimbursed by any source, not only the Medicare and Medicaid programs. In addition, some states have laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the applicable compliance guidance promulgated by the federal government, or otherwise restrict payments that may be made to healthcare providers and other potential referral sources, and to report information related to payments and other transfers of value to physicians and other healthcare providers; and state laws governing the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts.

Because of the breadth of these laws, it is possible that some of our or our licensees' business activities could be subject to challenge under one or more of such laws.

If we or our licensees are found to be in violation of any of the laws and regulations described above or other applicable state and federal healthcare laws, we may be subject to penalties, including civil and criminal penalties, damages, fines, exclusion from government healthcare reimbursement programs and the curtailment or restructuring of our operations, any of which could have a material adverse effect on our business and results of operations.

As we or our licensees do more business internationally, we will be subject to additional political, economic and regulatory uncertainties.

We or our licensees may not be able to operate successfully in any foreign market. We believe that because the pharmaceutical industry is global in nature, international activities will be a significant part of future business activities and when and if we or our licensees are able to generate income, a substantial portion of that income will be derived from product sales and other activities outside the United States. Foreign regulatory agencies often establish standards different from those in the United States, and an inability to obtain foreign regulatory approvals on a timely basis could put us at a competitive disadvantage or make it uneconomical to proceed with a product or product candidate's development. International sales may be limited or disrupted by:

- imposition of government controls;
- export license requirements;
- political or economic instability;
- trade restrictions;
- changes in tariffs;
- restrictions on repatriating profits;
- exchange rate fluctuations; and
- withholding and other taxation.

Item 1B. Unresolved Staff Comments
None.

Item 2. Properties
Our corporate headquarters is located in Emeryville, California. We currently lease three buildings that housed our office space and legacy research and development laboratories. Our building leases expire in the period from 2021 to 2023, and total minimum lease payments due from January 2018 until expiration of the leases is $18.9 million. We have the option to renew our lease agreements for up to two successive five-year periods. On November 21, 2017, we entered into a sublease agreement for a portion of one of our leased facilities. Under the term of the sublease agreement, we will receive $5.1 million over the term of the sublease, which ends at the same time as the original lease in April 2023.

Item 3. Legal Proceedings
On July 24, 2015, a purported securities class action lawsuit was filed in the United States District Court for the Northern District of California, captioned Markette v. XOMA Corp., et al. (Case No. 3:15-cv-3425) naming as defendants us and certain of our officers. The complaint asserted that all defendants violated Section 10(b) of the Exchange Act and SEC Rule 10b-5, by making materially false or misleading statements regarding our EYEGUARD-B study between November 6, 2014 and July 21, 2015. The plaintiff also alleged that Messrs. Varian and Rubin violated Section 20(a) of the Exchange Act. On September 2, 2016, the defendants filed a motion to dismiss. On September 28, 2017, the Court granted defendants' motion to dismiss with leave to amend. All parties

subsequently agreed to dismiss the action and on October 25, 2017, the Court issued an Order of Dismissal, dismissing the action with prejudice with respect to the named Plaintiff's individual claims and without prejudice with respect to unnamed class members.

On October 1, 2015, a stockholder purporting to act on our behalf, filed a derivative lawsuit in the Superior Court of California for the County of Alameda, purportedly asserting claims on behalf of the Company against certain of our officers and the members of our board of directors, captioned Silva v. Scannon, et al. (Case No. RG15787990). The lawsuit asserted claims for breach of fiduciary duty, corporate waste and unjust enrichment based on the dissemination of allegedly false and misleading statements related to the Company's EYEGUARD-B study. The plaintiff was seeking unspecified monetary damages and other relief, including reforms and improvements to our corporate governance and internal procedures. On December 6, 2017, the parties filed a joint stipulation, agreeing to dismiss the action. On December 7, 2017, the Court granted the stipulation, issuing an order of dismissal. The order dismissed the action without prejudice.

On November 16, and November 25, 2015, two derivative lawsuits were filed purportedly on our behalf in the United States District Court for the Northern District of California, captioned Fieser v. Van Ness, et al. (Case No. 4:15-CV-05236-HSG) and Csoka v. Varian, et al. (Case No. 3:15-cv-05429-SI), against certain of our officers and the members of our board of directors. The lawsuits asserted claims for breach of fiduciary duty and other violations of law based on the dissemination of allegedly false and misleading statements related to the Company's EYEGUARD-B study. The plaintiffs sought unspecified monetary damages and other relief including reforms and improvements to our corporate governance and internal procedures. On December 4, 2017, the parties in each case filed joint stipulations, agreeing to dismiss the actions. On December 6, 2017, the Court granted the stipulations, issuing an order of dismissal in each of the Fieser and Csoka actions. The order dismissed the actions without prejudice.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

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

Market for Registrant's Common Equity

Our common stock trades on The Nasdaq Global Market tier of the Nasdaq Stock Market LLC ("NASDAQ") under the symbol "XOMA." All references to numbers of common shares and per-share information in this Annual Report prior to October 17, 2016 reflect an adjustment for the Company's 1-for-20 reverse stock split. The following table sets forth the quarterly range of high and low reported sale prices of our common stock on NASDAQ for the periods indicated:

| | Price Range | |
|---|---|---|
| | High | Low |
| 2017 | | |
| First Quarter | $7.56 | $3.96 |
| Second Quarter | $8.13 | $5.86 |
| Third Quarter | $22.69 | $6.85 |
| Fourth Quarter | $37.25 | $18.94 |
| | | |
| 2016 | | |
| First Quarter | $27.20 | $13.80 |
| Second Quarter | $19.00 | $8.80 |
| Third Quarter | $14.00 | $8.80 |
| Fourth Quarter | $9.60 | $4.16 |

On March 2, 2018, there were 212 stockholders of record of our common stock, one of which was Cede & Co., a nominee for Depository Trust Company ("DTC"). All of the shares of our common stock held by brokerage firms, banks and other financial institutions as nominees for beneficial owners are deposited into participant accounts at DTC and are therefore considered to be held of record by Cede & Co. as one stockholder.

Dividend Policy

We have not paid dividends on our common stock. We currently intend to retain any earnings for use in the operations of our business. We, therefore, do not anticipate paying cash dividends on our common stock in the foreseeable future.

Recent Sales of Unregistered Securities

Except as previously reported in our quarterly reports on Form 10-Q and current reports on Form 8-K filed with the Securities and Exchange Commission ("SEC"), during the year ended December 31, 2017, there were no unregistered sales of equity securities by us during the year ended December 31, 2017.

30

Performance Graph

The following graph compares the five-year cumulative total stockholder return for XOMA's common stock with the comparable cumulative return of certain indices. The graph assumes $100 invested on the same date in each of the indices. Returns of the company are not indicative of future performance.

This Section is not "soliciting material," is not deemed "filed" with the SEC and is not to be incorporated by reference in any filing of XOMA Corporation under the Securities Act, or the Exchange Act, whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.

| As of December 31, | XOMA | Nasdaq Composite Index | Arca Biotechnology Index |
|---|---|---|---|
| 2012 | $100.00 | $ 100.00 | $ 100.00 |
| 2013 | $280.42 | $ 138.32 | $ 150.64 |
| 2014 | $149.58 | $ 156.85 | $ 222.30 |
| 2015 | $55.42 | $ 165.84 | $ 246.53 |
| 2016 | $8.79 | $ 178.28 | $ 198.77 |
| 2017 | $74.17 | $ 228.63 | $ 272.92 |

Item 6.Selected Consolidated Financial Data

The following table contains our selected financial information including consolidated statement of operations and consolidated balance sheet data for the years 2013 through 2017. The consolidated statement of operations data for the years ended December 31, 2017, 2016, and 2015 and the consolidated balance sheet data as of December 31, 2017 and 2016 are derived from our audited consolidated financial statements included elsewhere in this Annual Report on Form 10-K. The consolidated statement of operations data for the years ended December 31, 2014 and 2013, and the consolidated balance sheet data as of December 31, 2015, 2014 and 2013 were derived from our audited consolidated financial statements that are not included in this Annual Report on Form 10-K. The selected financial information should be read in conjunction with Item 8: Financial Statements and Supplementary Data and Item 7: Management's Discussion and Analysis of Financial Condition and Results of Operations included in this Annual Report. The data set forth below is not necessarily indicative of the results of future operations. All references to number of common shares and per-share information prior to October 17, 2016 reflect an adjustment for XOMA's 1-for-20 reverse stock split.

| | Year Ended December 31, | | | | |
|---|---|---|---|---|---|
| | 2017 | 2016 | 2015 | 2014 | 2013 |
| | (In thousands, except per share amounts) | | | | |
| Consolidated Statement of Operations Data | | | | | |
| Total revenues | $52,690 | $5,564 | $55,447 | $18,866 | $35,451 |
| Research and development | 7,875 | 44,234 | 70,852 | 80,748 | 74,851 |
| General and administrative | 24,337 | 18,322 | 20,620 | 19,866 | 18,477 |
| Restructuring costs | 3,447 | 4,566 | 3,699 | 84 | 328 |
| Income (loss) from operations | 17,031 | (61,558) | (39,724) | (81,832) | (58,205) |
| Other income (expense), net [1] | (773) | 8,028 | 19,118 | 43,531 | (65,867) |
| Income (loss) before taxes | 16,258 | (53,530) | (20,606) | (38,301) | (124,072) |
| Income tax (expense) benefit | (1,662) | — | — | — | 14 |
| Net income (loss) | $14,596 | $(53,530) | $(20,606) | $(38,301) | $(124,058) |
| Basic net income (loss) per share available to common stockholders | $0.75 | $(8.89) | $(3.50) | $(7.13) | $(28.54) |
| Diluted net income (loss) per share available to common stockholders | $0.73 | $(8.89) | $(3.50) | $(13.49) | $(28.54) |
| Shares used in computing basic net income (loss) per share available to common stockholders | 7,619 | 6,021 | 5,890 | 5,372 | 4,347 |
| Shares used in computing diluted net income (loss) per share available to common stockholders | 7,980 | 6,021 | 5,890 | 5,767 | 4,347 |

| | December 31, | | | | |
|---|---|---|---|---|---|
| | 2017 | 2016 | 2015 | 2014 | 2013 |
| | (In thousands) | | | | |
| Consolidated Balance Sheet Data | | | | | |
| Cash and cash equivalents | $43,471 | $25,742 | $65,767 | $78,445 | $101,659 |

| | | | | | |
|---|---|---|---|---|---|
| Marketable securities | $— | $— | $496 | $— | $19,990 |
| Current assets | $44,195 | $27,160 | $72,219 | $83,613 | $127,060 |
| Working capital (deficiency) | $36,773 | $(5,346) | $48,924 | $47,367 | $97,415 |
| Total assets | $44,935 | $28,677 | $74,880 | $89,402 | $134,782 |
| Current liabilities | $7,422 | $32,506 | $23,295 | $36,246 | $29,645 |
| Long-term liabilities [2] | $14,572 | $25,381 | $53,894 | $50,057 | $109,124 |
| Accumulated deficit | $(1,179,059) | $(1,193,613) | $(1,140,083) | $(1,119,477) | $(1,081,176) |
| Total stockholders' equity (deficit) | $5,786 | $(47,210) | $(2,309) | $3,099 | $(3,987) |

(1) 2016, 2015, 2014, and 2013 include $10.5 million, $17.8 million, $45.8 million, and ($61.0) million, respectively, related to the revaluation of contingent warrant liabilities issued in connection with equity financings in June 2009, February 2010, March 2012 and December 2014. There was no gain or loss on revaluation of contingent warrant liabilities recognized in 2017. All outstanding warrants issued in June 2009, February 2010, December 2014 and March 2012 expired in June 2014, February 2015, December 2016 and March 2017, respectively.

(2) 2015, 2014, and 2013 include $10.5 million, $31.8 million and $69.9 million, respectively, related to contingent warrant liabilities in connection with equity financings in June 2009, February 2010, March 2012 and December 2014. There was no contingent warrant liabilities in 2017 and 2016. All outstanding warrants issued in June 2009, February 2010, December 2014 expired in June 2014, February 2015, December 2016 and March 2017, respectively. The balance in 2017, 2016, 2015, 2014, and 2013 includes total non-current interest bearing obligations equal to $14.6 million, $25.3 million, $42.8 million, $16.3 million, and $35.2 million, respectively. During the year ended December 31, 2017, we paid off our outstanding obligations aggregating to $31.8 million under our loans with Hercules Technology Growth Capital, Inc. and Les Laboratories Servier.

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

Overview

We have a long history of discovering and developing innovative therapeutics derived from our unique platform of antibody technologies. Over our 37 year history, we built an extensive portfolio of fully-funded programs by advancing product candidates into the earlier stages of development and then licensing them to licensees who assumed the responsibilities of later stage development, approval and commercialization. Fully-funded programs are those for which our partners pay all of the development and commercialization costs. As licensees advance these programs, we are eligible for potential development, regulatory and commercial milestone and royalty payments.

In March 2017, we transformed our business model to become a royalty aggregator where we focus on expanding our portfolio of fully-funded programs by out-licensing our internally developed product candidates and acquiring potential milestone and royalty revenue streams on additional product candidates. We combined our royalty-aggregator model with a significantly reduced corporate cost structure to further build value for our shareholders. We expect that a significant portion of our future revenue will be based on payments we may receive for development, regulatory and commercial milestones and royalties related to these programs.

Our business model is designed to create value for stockholders by assembling a diversified portfolio of biotech and pharmaceutical revenue streams and operating that business with an efficient and low corporate cost structure.

Significant Developments in 2017

Equity Financing

In February 2017, we sold 1,200,000 shares of our common stock and 5,003 shares of Series X convertible preferred stock directly to Biotechnology Value Fund, L.P. and certain of its affiliates ("BVF") in a registered direct offering, for aggregate net proceeds of $24.8 million.

Novartis License Agreements

On August 24, 2017, we entered into two license agreements with Novartis AG ("Novartis"). Under the first license agreement (the "XOMA-052 License Agreement"), we granted Novartis an exclusive, worldwide, royalty-bearing license to gevokizumab, a novel anti-Interleukin-1 (IL-1) beta allosteric monoclonal antibody and related know-how and patents. Under the XOMA-052 License Agreement, we received total consideration of $30.0 million, which included $15.7 million in cash and $14.3 million (equal to €12.0 million) paid by Novartis Institutes for BioMedical Research, Inc. ("NIBR") on our behalf to settle our debt to Les Laboratories Servier ("Servier Loan"). We also received $5.0 million cash related to the sale of 539,131 shares of our common stock. We are eligible to receive up to $438.0 million in development, regulatory and commercial milestones and royalties on sales of licensed products, which are tiered based on sales levels and range from the high single digits to mid-teens.

Under the second license agreement (the "IL-1 Target License Agreement"), we granted to Novartis non-exclusive licenses to our intellectual property covering the use of IL-1 beta targeting antibodies in the treatment of cardiovascular disease and other diseases and conditions. We also granted Novartis the right of first negotiation with respect to certain transactions relating to the licensed intellectual property. Under the IL-1 Target License Agreement, we received a $10.0 million upfront payment and are eligible to receive low-single-digit royalties on canakinumab sales in cardiovascular indications. We also granted Novartis an exclusive option to convert its non-exclusive license with respect to cardiovascular indications into an exclusive license. If Novartis exercises this option, the royalties on canakinumab sales will increase to the mid-single digits.

Extension of Novartis Note Maturity Date

In September 2017, in connection with the XOMA-052 License Agreement with Novartis, we and NIBR executed an amendment to our secured note agreement ("Novartis Note") under which NIBR extended the maturity date of the Novartis Note from September 30, 2020 to September 30, 2022.

Rezolute

In December 2017, we entered into a license agreement with Rezolute, Inc. (formerly AntriaBio, Inc.) ("Rezolute") pursuant to which we granted an exclusive global license to Rezolute to develop and commercialize X358 for all indications.

Under the terms of the license agreement, Rezolute is responsible for all development, regulatory, manufacturing and commercialization activities associated with X358 and is required to make certain clinical, regulatory and commercial milestone payments to us of up to $232.0 million in the aggregate based on the achievement of pre-specified criteria. Rezolute is also obligated to pay us royalties ranging from the high single digits to the mid-teens based upon annual net sales of any commercial product incorporating X358. Rezolute is obligated to take customary steps to advance X358, including using diligent efforts to commence the next clinical study for X358 by a certain deadline and to meet certain spending requirements on an annual basis for the program until a marketing approval application for X358 is accepted by the FDA. Rezolute has an option to obtain an exclusive license for their choice of one of our preclinical monoclonal antibody fragments, including X129, in exchange for an option fee and additional clinical, regulatory and commercial milestone payments to us of up to $237.0 million in the aggregate based on the achievement of pre-specified criteria as well as royalties ranging from the high single digits to the mid-teens based on annual net sales.

Rezolute is required to pay us $6.0 million in cash and to issue us $12.0 million worth of its common stock contingent on the completion of its financing activities. Further, in the event that Rezolute does not complete a financing that raises at least $20.0 million in aggregate gross proceeds (“Qualified Financing”) by March 31, 2019, it shall issue to us an additional number of shares of its common stock equal to $7.0 million. Finally, in the event that Rezolute is unable to complete a Qualified Financing by March 31, 2020, it will be obliged to pay us $15.0 million in order to maintain the license.

The license agreement contains customary termination rights relating to material breach by either party. Rezolute also has a unilateral right to terminate the license agreement in its entirety on ninety days’ notice at any time. We have the right to terminate the license agreement if Rezolute challenges the licensed patents. As of December 31, 2017, we have not received any cash or common stock from Rezolute as they have not completed any financing or other activities outlined in the agreement.

Hercules Term Loan

In March 2017, we paid off our outstanding principal balance of $17.5 million under our loan and security agreement with Hercules Technology Growth Capital, Inc. (“Hercules”). We recognized a loss on extinguishment of $0.5 million from the payoff of the loan with Hercules.

Servier Loan

In August 2017, in connection with the XOMA-052 License Agreement, the Servier Loan balance of €12.0 million was paid in full. We recognized a loss on extinguishment of $0.1 million from the payoff of the loan with Servier.

Asset Purchase Agreement and License Agreement with Ology Bioservices, Inc.

In February 2017, we executed an Amendment and Restatement to both the asset purchase agreement and license agreement with Ology Bioservices, Inc. (formerly Nanotherapeutics, Inc.) (“Ology Bioservices”) primarily to (i) remove the obligation to issue 23,008 shares of common stock of Ology Bioservices under the asset purchase agreement, and (ii) revise the payment schedule related to the timing of the $4.5 million cash payments due to us under the license agreement. Of the $4.5 million, $3.0 million was contingent upon Ology Bioservices achieving certain specified future operating objectives. In the first quarter of 2017, we were entitled to receive $1.6 million under the agreement that we will receive in quarterly payments through September 2018. In the third quarter of 2017, Ology Bioservices achieved the specified operating objectives and we earned the $3.0 million milestone fee that we will receive in monthly payments through July 2018.

Termination of Novo Nordisk A/S License Agreement

In April 2017, we received notice from Novo Nordisk A/S regarding the termination of its license agreement with us due to strategic and business reasons. The termination of the license agreement became effective in July 2017.

Critical Accounting Estimates

The accompanying discussion and analysis of our financial condition and results of operations are based upon our consolidated financial statements and the related disclosures, which have been prepared in accordance with generally accepted accounting principles in the United States. The preparation of these consolidated financial statements requires us to make estimates, assumptions and judgments that affect the reported amounts in our consolidated financial statements and accompanying notes. On an ongoing basis, we evaluate our estimates, assumptions and judgments described below that have the greatest potential impact on our consolidated financial statements, including those related to revenue recognition and stock-based compensation. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Accounting assumptions and estimates are inherently uncertain and actual results may differ materially from these estimates under different assumptions or conditions.

While our significant accounting policies are more fully described in Note 2 to the consolidated financial statements, we believe the following policies to be the most critical to an understanding of our financial condition and results of operations because they require us to make estimates, assumptions and judgments about matters that are inherently uncertain.

Revenue Recognition

License Fees

Revenue from non-refundable license, technology access or other payments under license agreements are recognized over the estimated period when the transfer of related materials, process and know-how should be delivered to the licensee. After the delivery of the materials, process and know-how to the licensee, we do not have a continuing obligation to perform under the license agreements.

Our license agreements with certain third parties also provide for contingent payments to be paid to us based solely upon the performance of the partner. For such contingent payments, we recognize the payments as revenue upon completion of the milestone event, once confirmation is received from the third party, provided that collection is reasonably assured and the other revenue recognition criteria have been satisfied.

Sale of Future Revenue Streams

In December 2016, we sold our rights to receive milestone payments and royalties on future sales of products under our license agreement with Pfizer and our right to receive royalties on future sales of products under our license agreement with Shire PLC (formerly Dyax Corp.) to HealthCare Royalty Partners II, L.P. (“HCRP”). In the circumstance where we have sold our rights to future milestones and royalties under a license agreement and also maintain limited continuing involvement in the arrangement (but not significant continuing involvement in the generation of the cash flows that are due to the purchaser), we defer recognition of the proceeds we receive for the milestone or royalty stream and recognize such deferred revenues as contract and other revenue over the life of the underlying license agreement. We recognize this revenue under the "units-of-revenue" method. Under this method, amortization for a reporting period is calculated by computing a ratio of the proceeds received from the purchaser to the total payments expected to be made to the purchaser over the term of the agreement, and then applying that ratio to the period’s cash payment.

Estimating the total payments expected to be received by the purchaser over the term of such arrangements requires management to use subjective estimates and assumptions. Changes to our estimate of the payments expected to be

made to the purchaser over the term of such arrangements could have a material effect on the amount of revenues we recognize in any particular period.

Stock-based Compensation

Stock-based compensation expense for stock options and other stock awards is estimated at the grant date based on the award's fair value-based measurement. The valuation of stock-based compensation awards is determined at the date of grant using the Black-Scholes option pricing model (the "Black-Scholes Model"). This model requires highly complex and subjective inputs, such as the expected term of the option, expected volatility, and risk-free interest rate. These inputs are subjective and generally require significant analysis and judgment to develop. Our current estimate of volatility is based on the historical volatility of our stock price. To the extent volatility in our stock price increases in the future, our estimates of the fair value of options granted in the future could increase, thereby increasing stock-based compensation cost recognized in future periods. To establish an estimate of expected term, we consider the vesting period and contractual period of the award and our historical experience of stock option exercises, post-vesting cancellations and volatility. The risk-free rate is based on the yield available on United States Treasury zero-coupon issues. In January 2017, pursuant to the adoption of Accounting Standards Update No. 2016-09, Compensation—Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting, we made an election to record forfeitures when they occur.

We review our valuation assumptions quarterly and, as a result, we likely will change our valuation assumptions used to value stock-based awards granted in future periods. In the future, as additional empirical evidence regarding these input estimates becomes available, we may change or refine our approach of deriving these input estimates. These changes could impact our fair value-based measurement of stock options granted in the future. Changes in the fair value-based measurement of stock awards could materially impact our operating results.

For our stock options and service-based awards, we recognize compensation expense on a straight-line basis over the award's vesting period. In 2017, we granted to certain employees equity awards with performance-based conditions. The actual number of equity awards earned and eligible to vest will be determined based on a specified level of achievement against a Board-approved budget and operational targets. For awards with performance-based conditions, at the point that it becomes probable that the performance conditions will be met, we record a cumulative catch-up of the expense from the grant date to the current date, and we then amortize the remainder of the expense over the remaining service period. Management evaluates when the achievement of a performance-based condition is probable based on the expected satisfaction of the performance conditions as of the reporting date. The amount of stock-based compensation expense recognized during a period is based on the value of the portion of the awards that are ultimately expected to vest.

Results of Operations

Revenues

Total revenues for the years ended December 31, 2017, 2016, and 2015 were as follows (in thousands):

| | Year Ended December 31, | | | 2016-2017 | 2015-2016 |
|---|---|---|---|---|---|
| | 2017 | 2016 | 2015 | Change | Change |
| License fees | $52,311 | $3,296 | $49,064 | $ 49,015 | $ (45,768) |
| Contract and other | 379 | 2,268 | 6,383 | (1,889) | (4,115) |
| Total revenues | $52,690 | $5,564 | $55,447 | $ 47,126 | $ (49,883) |

License Fees

License fees include fees and milestone payments related to the out-licensing of our product candidates and technologies. The primary components of license fees in 2017 were $40.2 million of license fee revenue recognized in connection with the XOMA 052 License Agreement and IL-1 Target License Agreement with Novartis and a $10.0 million milestone earned under a previously existing license agreement with Novartis International Pharmaceutical Ltd.

The primary components of license fees in 2016 were $2.0 million in upfront and milestone payments related to various out-licensing arrangements, $0.7 million in annual maintenance fees related to various out-licensing arrangements and $0.6 million in revenue recognized related to the collaboration agreement with Servier, which was terminated in March 2016. The $2.0 million of upfront and milestone payments included a $1.5 million fee for a phage display library license delivered during the first quarter of 2016.

The primary components of license fees in 2015 were $46.3 million in upfront and milestone payments related to various out-licensing arrangements, $1.6 million in annual maintenance fees related to various out-licensing arrangements and $1.2 million in revenue recognized related to the loan agreement with Servier. The $46.3 million included a $37.0 million upfront payment from Novartis International Pharmaceutical Ltd., a $5.0 million upfront payment from Novo Nordisk A/S and a $3.8 million payment from Pfizer.

Contract and Other Revenues

Contract and other revenues include agreements where we have provided contracted research and development services to our contract and collaboration partners, including Servier and NIAID. Starting in 2017, contract and other revenues include revenue recognized under the Royalty Acquisition Agreements with HCRP. The following table shows the activity in contract and other revenues for the years ended December 31, 2017, 2016, and 2015, (in thousands):

| | Year Ended December 31, | | | 2016-2017 Change | 2015-2016 Change |
|---|---|---|---|---|---|
| | 2017 | 2016 | 2015 | | |
| NIAID | $101 | $1,082 | $5,084 | $ (981) | $ (4,002) |
| Servier | — | 586 | 1,178 | (586) | (592) |
| Royalties and other | 278 | 600 | 121 | (322) | 479 |
| Total contract and other revenues | $379 | $2,268 | $6,383 | $ (1,889) | $ (4,115) |

The novation of our NIAID contract to Ology Bioservices and the termination of our Servier collaboration in March 2016 resulted in the decreases in related contract revenue in 2017 and 2016, as compared with the relative prior periods. In addition, in December 2017, we recognized $0.1 million of deferred revenue related to the NIH rate audit related to billings from 2008-2009. Royalty and other revenue in 2017 relates primarily to the amortization of the deferred revenue from the sale of royalty interests in December 2016 under the Royalty Acquisition Agreements with HCRP.

The generation of future revenues related to license, milestone, and royalties is dependent on our ability to attract new licensees to our antibody technologies and the achievement of milestones or product sales by our existing licensees. Due to the novation of our contract with NIAID to Ology Bioservices and the termination of our collaboration agreement with Servier in March 2016, we do not anticipate significant future contract revenues.

Research and Development Expenses

Research and development expenses were $7.9 million in 2017, compared with $44.2 million in 2016 and $70.9 million in 2015. The decrease of $36.3 million in 2017, as compared with 2016, was primarily due to the implementation of our royalty-aggregator business model during the first quarter of 2017, which included the cessation of substantially all development activities. The decrease consisted of a $12.9 million decrease in salaries and related expenses due to a reduction in headcount, an $8.5 million decrease in external manufacturing activities, a $7.6 million decrease in clinical trial costs, a $4.0 million decrease in the allocation of facilities and information technology costs, and a $1.0 million decrease in consulting costs. The decrease in allocation of facilities and information technology costs is a result of a decreased proportion of research and development employees as a result of our restructuring activities in December 2016 and June 2017. The decrease of $26.7 million in 2016, as compared with 2015, was primarily due to decreases of $13.7 million in salaries and related expenses due to a reduction in headcount, $6.8 million in clinical trial costs, $2.2 million in consulting services due to the termination of the EYEGUARD global Phase 3 program in the third quarter of 2015 and gevokizumab in pyoderma gangrenosum (“PG”) global Phase 3 program in the first quarter of 2016, and $0.8 million in depreciation and facility expenses due to the sale of our manufacturing facility to Agenus in December 2015.

Salaries and related personnel costs are a significant component of research and development expenses. We recorded $2.1 million in research and development salaries and employee-related expenses in 2017, compared with $15.0 million in 2016 and $28.7 million in 2015. Included in these expenses for 2017 were $1.0 million for salaries and benefits, $0.2 million for bonus expense and $0.9 million for stock-based compensation, which is a non-cash expense. The decrease of $12.9 million in 2017, as compared with 2016, was primarily due to decreases of $10.2 million in salaries and benefits costs, $1.9 million in stock-based compensation and $0.8 million in bonus expense. The decreases were primarily due to the headcount reductions resulting from the restructuring activities initiated in December 2016 and June 2017.

We recorded $15.0 million in research and development salaries and employee-related expenses in 2016, compared with $28.7 million in 2015. Included in these expenses for 2016 were $11.2 million for salaries and benefits, $1.0 million for bonus expense and $2.8 million for stock-based compensation, which is a non-cash expense. The decrease of $13.7 million in 2016, as compared with 2015, was primarily due to decreases of $10.6 million in salaries and benefits costs due to fewer employees resulting from our 2015 restructuring activities, $0.9 million in bonus expense and $2.2 million in stock-based compensation.

As our business model has changed, so has our research and development spending activity. For the years ended December 31, 2016 and 2015, approximately 3% and 29%, respectively, of our research and development expense spending relate to collaborative and contract arrangements with Servier and NIAID with the remaining 97% and 71%, respectively, relating to our internal projects; whereas 100% of our research and development spending for the year ended December 31, 2017 relates to our internal projects.

For the year ended December 31, 2017, X358, for which we incurred the largest amount of expenses, accounted for between 40% and 50% of our total research and development expenses. Each of our remaining development programs accounted for less than 10% of our total research and development expenses. Due to our change in business model, for the third and fourth quarters of 2017, we did not incur significant expenses for internally developed projects.

For the year ended December 31, 2016, X358, for which we incurred the largest amount of expenses, accounted for between 50% and 60% of our total research and development expenses. The gevokizumab program and our endocrine research-stage programs each accounted for between 10% and 20% of our total research and development expenses. Each of our remaining development programs accounted for less than 10% of our total research and development expenses.

For the year ended December 31, 2015, the gevokizumab program, for which we incurred the largest amount of expense, accounted for between 40% and 50% of our total research and development expenses. A second development program, XMet, accounted for between 30% and 40% of our total research and development expenses. All remaining development programs accounted for less than 10% of our total research and development expenses.

We expect our research and development spending in 2018 will be reduced as compared with 2017 levels due to the implementation of our royalty-aggregator business model and related discontinuation of clinical trial activities.

General and Administrative Expenses

General and administrative expenses include salaries and related personnel costs, facilities cost and professional fees. In 2017, general and administrative expenses were $24.3 million compared with $18.3 million in 2016 and $20.6 million in 2015. The increase of $6.0 million in 2017 as compared with 2016 was primarily due to increases of $4.0 million in the allocation of facilities and information technology costs due to a greater proportion of general and administrative personnel after our restructuring activities, $2.9 million in costs related to the execution of license agreements, including the two Novartis agreements in August 2017, $2.2 million in stock-based compensation, and $0.4 million in consulting services, partially offset by decreases of $2.8 million in salaries as a result of our restructuring activities and $1.0 million in legal fees.

The decrease of $2.3 million in 2016 as compared with 2015 was primarily due to a $2.4 million decrease in salaries and related personnel costs due to fewer employees resulting from our 2015 restructuring activities, of which $0.5 million was a decrease in stock-based compensation, which is a non-cash expense.

We expect our general and administrative expenses during 2018 to be decreased as compared with 2017 levels due to expected cost savings related to our royalty-aggregator business model and streamlined operations.

Restructuring and Other Charges

On December 19, 2016, we announced a restructuring of our business based on our decision to focus our efforts on clinical development, with an initial focus on the X358 clinical programs. The restructuring included a reduction-in-force in which we terminated 57 employees, which was implemented in December 2016 (the “2016 Restructuring”). In early 2017, we transformed our business model to become a royalty aggregator where we focus on

expanding our portfolio of fully-funded programs by out-licensing our internally developed product candidates and acquiring potential milestone and royalty revenue streams on additional product candidates and eliminated an additional five employees with an effective termination date of June 30, 2017 (the "2017 Restructuring"). During the years ended December 31, 2017 and 2016, we recorded charges of $3.4 million and $3.8 million, respectively, related to severance, other termination benefits and outplacement services for the 2016 Restructuring and 2017 Restructuring activities. During the year ended December 31, 2016, we recognized an additional restructuring charge of $0.6 million in stock-based compensation resulting from the acceleration of vesting of stock awards granted to a former executive under his retention benefit agreement. In connection with the restructuring in 2016, we recorded an asset impairment charge of $0.2 million for leasehold improvements that have no future use.

On July 22, 2015, we announced the Phase 3 EYEGUARD-B study of gevokizumab in patients with Behçet's disease uveitis, run by Servier, did not meet the primary endpoint of time to first acute ocular exacerbation. In August 2015, we announced our intention to end the EYEGUARD global Phase 3 program. On August 21, 2015, in connection with our efforts to lower operating expenses and preserve capital while continuing to focus on our endocrine product pipeline, we implemented a restructuring plan that included a workforce reduction resulting in the termination of 52 employees during the second half of 2015. During the years ended December 31, 2016 and 2015, we recorded a credit of $32,000 and a charge of $2.9 million, respectively, related to severance, other termination benefits and outplacement services. In addition, we recognized additional restructuring charges of $29,000 and $0.8 million in contract termination costs in the years ended December 31, 2016 and 2015, respectively, which primarily include costs in connection with the discontinuation of the EYEGUARD studies.

Other Income (Expense)

Interest Expense

Amortization of debt issuance costs and discounts are included in interest expense. Interest expense is shown below for the years ended December 31, 2017, 2016, and 2015, (in thousands):

| | Year Ended December 31, | | | 2016-2017 Change | 2015-2016 Change |
|---|---|---|---|---|---|
| | 2017 | 2016 | 2015 | | |
| Novartis note | $490 | $405 | $329 | $ 85 | $ 76 |
| Servier loan | 431 | 892 | 1,083 | (461) | (191) |
| Hercules loan | 311 | 2,628 | 2,223 | (2,317) | 405 |
| GECC term loan | — | — | 119 | — | (119) |
| Other | 6 | 21 | 11 | (15) | 10 |
| Total interest expense | $1,238 | $3,946 | $3,765 | $ (2,708) | $ 181 |

Interest expense related to the Hercules term loan decreased by $2.3 million in 2017, compared with 2016. The decrease was due to the special prepayment of $10.0 million under the Hercules term loan in January 2017 and pay off of the remaining balance of the debt in March 2017. In addition, in August 2017, the remaining balance of the Servier Loan was paid off.

Interest expense related to the Servier loan and General Electric Capital Corporation ("GECC") term loan decreased by $0.2 million and $0.1 million, respectively in 2016, compared with 2015. The decrease was due to the payment of €3.0 million in principal under the Servier loan in January 2016 and the extinguishment of the GECC term loan in February 2015. This decrease was partially offset by an increase of $0.4 million in interest expense due under our term loan with Hercules that was entered into in February 2015.

We expect interest expense in 2018 to decrease as compared with 2017 due to the March 2017 payoff of the Hercules loan and August 2017 payoff of the Servier Loan.

Loss on Extinguishment of Debt

In March 2017, we paid off our outstanding principal balance, final payment fee and accrued interest totaling $6.5 million under our loan and security agreement with Hercules, and we were not required to pay the 1% prepayment

charge pursuant to the terms of the loan. We recognized a loss on extinguishment of $0.5 million from the payoff of the term loan.

In August 2017, NIBR, on our behalf, paid off our outstanding principal balance and accrued interest on our Servier Loan totaling $14.3 million in conjunction with the XOMA-052 License Agreement. We recognized a loss on extinguishment of $0.1 million from the payoff of the loan.

In February 2015, the GECC term loan was fully paid. We used a portion of the proceeds under the Hercules term loan to repay GECC's outstanding principle balance, final payment fee, prepayment fee, and accrued interest totaling $5.5 million. We recognized a loss on extinguishment of $0.4 million from the payoff of the GECC term loan.

Other Income, Net

The following table shows the activity in other income, net for the years ended December 31, 2017, 2016, and 2015, (in thousands):

| | Year Ended December 31, | | | 2016-2017 | 2015-2016 |
|---|---|---|---|---|---|
| | 2017 | 2016 | 2015 | Change | Change |
| Other income, net | | | | | |
| Gain on sale of business | $— | $— | $3,505 | $ — | $ (3,505) |
| Realized foreign exchange gain (loss) | (1,635) | 4 | 69 | (1,639) | (65) |
| Unrealized foreign exchange gain | — | 489 | 1,870 | (489) | (1,381) |
| Sublease income (loss) | | | | | |