PALATIN TECHNOLOGIES INC
Form 10-K
September 25, 2017

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10 - K
[X]
ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended June 30, 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 number: 001-15543

PALATIN TECHNOLOGIES, INC.
(Exact name of registrant as specified in its charter)

Delaware (State or other jurisdiction of incorporation or organization)	95-4078884 (I.R.S. Employer Identification No.)
4B Cedar Brook Drive Cranbury, New Jersey (Address of principal executive offices)	08512 (Zip Code)

(609) 495-2200
(Registrant's telephone number, including area code)

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

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, par value $.01 per share	NYSE MKT

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 [X]

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

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 [X] 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 [X] 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 the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. [ ]

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the 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	(Do not check if a smaller reporting company)	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). Yes [ ] No [X]

State the aggregate market value of the voting and non-voting common equity held by non-affiliates, computed by reference to the price at which the common equity was last sold, or the average bid and asked price of such common equity, as of the last business day of the registrant's most recently completed second fiscal quarter (December 31, 2016): $67,224,210.

Indicate the number of shares outstanding of each of the registrant's classes of common stock, as of the latest practicable date (September 21, 2017): 179,045,453.

PALATIN TECHNOLOGIES, INC.

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Forward-Looking Statements

Statements in this Annual Report on Form 10-K (this "Annual Report"), as well as oral statements that may be made by us or by our officers, directors, or employees acting on our behalf, that are not historical facts constitute "forward-looking statements," which are made pursuant to the safe harbor provisions of Section 21E of the Securities Exchange Act of 1934 (the "Exchange Act"). The forward-looking statements in this Annual Report do not constitute guarantees of future performance. Investors are cautioned that statements that are not strictly historical facts contained in this Annual Report, including, without limitation, those relating to our current or future financial performance, management's plans and objectives for future operations, ability to raise capital or repay debt, if required, clinical trials and results, uncertainties associated with product research and development, product plans and performance, management's assessment of market factors, as well as statements regarding our strategy and plans and those of our strategic partners, constitute forward-looking statements. In some cases, you can identify forward-looking statements by terminology such as "believe," will," "may," "estimate," "continue," "anticipated," "intend," "should," "plan," "expect," "p "potentially," or the negative of these terms or other similar expressions. Such forward-looking statements involve substantial risks, uncertainties and other factors that could cause our actual results to be materially different from our historical results or from any results expressed or implied by such forward-looking statements. Our future operating results are subject to risks and uncertainties and are dependent upon many factors, including, without limitation, the risks identified under the caption "Risk Factors" and elsewhere in this Annual Report, and any of those made in our other reports filed with the U.S. Securities and Exchange Commission (the "SEC"). Except as required by law, we do not intend, and undertake no obligation, to publicly update forward-looking statements to reflect events or circumstances after the date of this document or to reflect the occurrence of unanticipated events.

In this Annual Report, references to "we," "our," "us," the "Company" or "Palatin" means Palatin Technologies, Inc. and its subsidiary.

PART I

Item 1. Business.

Overview

We are a biopharmaceutical company developing targeted, receptor-specific peptide therapeutics for the treatment of diseases with significant unmet medical need and commercial potential. Our programs are based on molecules that modulate the activity of the melanocortin and natriuretic peptide receptor systems. Our lead product in clinical development is bremelanotide for the treatment of premenopausal women with hypoactive sexual desire disorder ("HSDD"), which is a type of female sexual dysfunction ("FSD"), defined as low desire with associated distress. In addition, we have drug candidates and development programs for cardiovascular diseases and inflammatory diseases.

The following drug development programs are actively under development:

Bremelanotide, an as-needed subcutaneous injectable product for the treatment of HSDD in premenopausal women. Bremelanotide is a synthetic peptide analog of the naturally occurring hormone alpha-MSH (melanocyte-stimulating hormone). In two pivotal Phase 3 clinical studies of bremelanotide for HSDD in premenopausal women, bremelanotide met the pre-specified co-primary efficacy endpoints of improvement in desire and decrease in distress associated with low sexual desire as measured using validated patient-reported outcome instruments. We have licensed North American rights to bremelanotide to AMAG Pharmaceuticals, Inc. ("AMAG"), and rights in China, Taiwan, Hong Kong and Macau to Shanghai Fosun Pharmaceutical Industrial Development Co., Ltd. ("Fosun");

Melanocortin peptide system program, focused on development of treatments for a variety of inflammatory disease indications. PL-8177 is a selective melanocortin receptor 1 ("MC1r") agonist peptide we have designated as our lead clinical development candidate for inflammatory bowel diseases. We are scheduled to file an IND application this year, and may thereafter initiate a Phase 1 clinical safety study. A dual melanocortin receptor 1 and 5 peptide we developed, PL-8331, is a preclinical development candidate for treating ocular inflammation. We anticipate completing preclinical IND enabling activities on PL-8331 this calendar year; and

Natriuretic peptide system program, including PL−3994, a natriuretic peptide receptor-A ("NPR-A") agonist, for treatment of cardiovascular indications. PL−3994, a synthetic mimetic of the neuropeptide hormone atrial natriuretic peptide ("ANP"), is in development for treatment of heart failure, and is scheduled to start Phase 2A clinical trials later this calendar year. A dual natriuretic peptide receptor A and C agonist we developed, PL-5028, is in preclinical development for cardiovascular diseases, including reducing cardiac hypertrophy and fibrosis. We may file an Investigational New Drug ("IND"), application in the first half of calendar year 2018, and thereafter initiate a Phase 1 clinical safety study.

The following chart illustrates the status of our drug development programs.

Our Strategy

Key elements of our business strategy include:

Using our technology and expertise to develop and commercialize products in our active drug development programs;

Entering into strategic alliances and partnerships with pharmaceutical companies to facilitate the development, manufacture, marketing, sale and distribution of our product candidates;

Partially funding our product development programs with the cash flow generated from existing license agreements, as well as any potential future research, collaboration or license agreements with third parties; and

Completing development and seeking regulatory approval of certain of our product candidates.

Our Melanocortin Receptor-Specific Programs

The melanocortin system is involved in a large and diverse number of physiologic functions. Therapeutic agents modulating this system may have the potential to treat a variety of conditions and diseases, including sexual dysfunction, obesity and related disorders, pigmentation disorders and inflammation-related diseases.

Bremelanotide for HSDD. We are developing subcutaneously administered bremelanotide for the treatment of HSDD in premenopausal women. HSDD is characterized by both a decrease in sexual desire and significant personal distress or interpersonal difficulty as a result of the lack of desire. Bremelanotide is a melanocortin agonist with a mechanism of action which we believe involves activation of endogenous neuronal pathways in the brain regulating sexual arousal and desire responses.

We completed last patient visits in the efficacy parts of our two pivotal Phase 3 clinical studies of bremelanotide for the treatment of HSDD in premenopausal women in the third quarter of calendar year 2016. We announced topline efficacy results in the fourth quarter of calendar year 2016. The open-label safety extension portions of our pivotal Phase 3 clinical studies were completed in the second quarter of calendar year 2017.

Our Phase 3 clinical study program consisted of two randomized, double-blinded, placebo-controlled Phase 3 studies, Studies 301 and 302, comparing the efficacy and safety of bremelanotide versus placebo in premenopausal women diagnosed with HSDD. The primary efficacy analysis population was the modified intent-to-treat patient population, consisting of 1,202 women with HSDD in the United States and Canada. Patients self-administered either 1.75 mg of bremelanotide or placebo as needed in anticipation of sexual activity. The efficacy portion of each study consisted of a 24-week treatment evaluation period.

Based on discussions with the U.S. Food and Drug Administration (“FDA”), it was decided that the co-primary endpoints for the Phase 3 clinical trials were the Female Sexual Function Index: Desire Domain (“FSFI-D”) and Female Sexual Distress Scale-Desires/Arousal/Orgasm (“FSDS-DAO”) Item 13. The FSFI-D is a validated patient reported outcome measurement tool of sexual desire in the context of overall sexual function. The FSDS-DAO Item 13 is a validated patient reported outcome measurement tool of distress related to sexual dysfunction, measuring personal distress associated with low sexual desire. Both Phase 3 Studies 301 and 302 with bremelanotide for HSDD in premenopausal women met the pre-specified co-primary efficacy endpoints.

The FSFI-D showed a statistically significant increase for bremelanotide compared to placebo in both trials in the modified intent-to-treat patient population:

Study 301: Mean change of 0.54 vs. 0.24, median change of 0.60 vs. 0.00, p=0.0002; and,

Study 302: Mean change of 0.63 vs. 0.21, median change of 0.60 vs. 0.00, p<0.0001.

The FSDS-DAO Item 13 showed a statistically significant reduction in distress related to low sexual desire for bremelanotide compared to placebo in both trials in the modified intent-to-treat patient population:

Study 301: Mean change of -0.73 vs. -0.36, median change of -1.0 vs. 0.0, p<0.0001; and,

Study 302: Mean change of -0.71 vs. -0.42, median change of -1.0 vs. 0.0, p=0.0053.

The changes seen in both co-primary endpoints were clinically significant. An independent committee evaluated the clinical significance of co-primary endpoint study results using multiple assessments of patient benefit, and was based on discussions with the FDA and FDA guidance documents.

In the safety population (1,247 patients), bremelanotide appeared to be well tolerated. The most frequent adverse event was nausea, which was generally mild in nature. The safety profile of bremelanotide was consistent with prior clinical experience.

In the Phase 3 clinical study program patients self-administered bremelanotide with a single-use autoinjector pen. The bremelanotide single-use autoinjector pen, intended to be the commercial drug product, does not have a visible needle, is stored at room temperature and is easy to use. Women administer bremelanotide by pressing the autoinjector pen collar against either their thigh or abdomen, and the autoinjector pen automatically introduces the needle, administers the dose of bremelanotide under the skin and audibly signals when the drug had been delivered and the needle has been retracted.

Ongoing Studies and New Drug Application. We are conducting multiple pharmacokinetic and safety pharmacology studies, including an abuse-liability study and drug-to-drug interaction studies, as well as certain chemistry, manufacturing and controls activities, including a drug product process validation study. We anticipate that the required human clinical studies will be completed this calendar year. We currently expect that we will, with AMAG, our North American licensee of bremelanotide, submit a New Drug Application ("NDA") to FDA for bremelanotide for the treatment of HSDD in early calendar year 2018 following completion of ongoing studies. We cannot assure you that a complete review of the Phase 3 efficacy data and the pharmacokinetic and safety pharmacology studies will support approval of bremelanotide for HSDD or that the FDA will approve an NDA for bremelanotide.

Medical Need — HSDD. HSDD, either with or without arousal difficulties, is the largest single category of FSD. FSD is a multifactorial condition that has anatomical, physiological, medical, psychological and social components, and is defined as persistent or recurring problems during one or more of the stages of sexual response with associated distress. HSDD has a significant impact on a patient's self-image, relationships and general well-being. The 2006 PRESIDE (Prevalence of Female Sexual Problems Associated with Distress and Determinants of Treatment Seeking) study, a cross-sectional, population-based survey of 31,581 female adult respondents in the United States published in 2008 in the journal Obstetrics & Gynecology, found that approximately 22% of women reported a sexual problem and 11% were women with HSDD. Based on the number of premenopausal women in the United States according to the U.S. Census, the presenting market size of premenopausal women with primary HSDD is at least 5.8 million women.

Subcutaneous Bremelanotide. Bremelanotide, which is believed to act through activation of melanocortin receptors in the central nervous system, is a first-in-class pharmaceutical agent in development as a treatment of HSDD. Bremelanotide is intended for as needed use and is self-administered by the patient, using a simple and patient-friendly single-use autoinjector pen, thirty minutes to one hour prior to anticipated sexual activity.

Partnering. In January 2017, we entered into a license agreement with AMAG, pursuant to which we granted AMAG an exclusive license in all countries of North America, with the right to grant sublicenses, to research, develop and commercialize products containing bremelanotide. AMAG also has a non-exclusive license, with the right to grant sublicenses, to manufacture products containing bremelanotide in North America, and to research, develop and manufacture, but not commercialize, products containing bremelanotide in countries outside North America. Upon the license agreement becoming effective on February 2, 2017, AMAG paid us $60 million as a one-time initial payment, and is required to pay us up to $25 million to reimburse us for direct out-of-pocket expenses incurred in development and regulatory activities necessary to file an NDA. In addition, we may receive up to $80 million in specified regulatory payments upon achievement of certain regulatory milestones, and up to $300 million in sales milestone payments based on achievement of certain annual net sales amounts of products containing bremelanotide. AMAG will also pay tiered royalties on annual net sales of products containing bremelanotide at rates ranging from the high single-digits to the low double-digits.

In early September 2017, we entered into a license agreement with Fosun for exclusive rights to commercialize bremelanotide in the territories of mainland China, Taiwan, Hong Kong S.A.R. and Macau S.A.R. We will receive an upfront payment of $5.0 million and, when regulatory approval for a bremelanotide product is obtained in China, a $7.5 million milestone payment. We may receive up to $92.5 million in sales related milestones, and will receive high single-digit to low double-digit royalties on net sales in the licensed territories.

We retain worldwide rights for bremelanotide for FSD, HSDD and all other indications outside North America and the territories licensed to Fosun. We are in active discussions with potential partners for marketing and commercialization rights for bremelanotide in other jurisdictions, including Europe. We may not be able to enter into suitable agreements with potential partners on acceptable terms, if at all.

Prior Clinical Trials. We have completed several Phase 1 clinical studies in which various safety parameters, including blood pressure effects of subcutaneously administered bremelanotide, were studied. Based in part on these studies, our Phase 2B clinical trial assessed the magnitude and duration of blood pressure effect, and determined that subcutaneous administration of selected doses of bremelanotide for treatment of HSDD in premenopausal women provides acceptable control of blood pressure effects.

MC1r Peptide Agonists. We have conducted preclinical animal studies with MC1r peptide drug candidates for a number of inflammatory disease and autoimmune indications. The MC1r is upregulated in a number of diseases, including inflammatory bowel disease, nephritis, which is inflammation of the kidneys, and rheumatoid arthritis, and in ocular indications such as uveitis and dry eye. We believe that MC1r peptides have broad anti-inflammatory effects and appear to utilize mechanisms engaged by the endogenous melanocortin system in regulation of the immune system and resolution of pro-inflammatory responses.

Our MC1r peptide drug candidates are highly specific, with substantially greater binding and activity at MC1r than at other melanocortin receptors. In vitro safety studies have shown that our MC1r peptide drug candidates have no activity in a wide range of receptors, ion channels and kinases. We have selected one of our MC1r peptide drug candidates, designated PL-8177, as a clinical trial candidate. PL-8177 is a selective MC1r agonist peptide we have designated as our lead clinical development candidate for inflammatory bowel diseases. We have completed preclinical toxicology testing on PL-8177 and chemistry, controls and manufacturing activities to support Phase 1 studies, and anticipate filing an IND application on PL-8177 this calendar year, and may thereafter to initiate Phase 1 clinical safety studies.

We are also developing a peptide which is a dual melanocortin receptor 1 and 5 agonist, PL-8331, which is a preclinical development candidate for treating ocular inflammatory diseases. We anticipate completing preclinical IND enabling activities with PL-8331 by the first half of calendar year 2018.

Next Generation Melanocortin Receptor 4 (“MC4r”) Peptide and Small Molecule Agonists. We have developed a series of highly selective MC4r peptides and orally active small molecules. In developing these compounds, we examined effectiveness in animal models of sexual response, obesity and related metabolic signals, and also determined cardiovascular effects, primarily looking at changes in blood pressure. Results of these studies suggest that certain of these compounds may have significant medical and commercial potential for treatment of conditions responsive to MC4r activation, including HSDD, FSD, ED, obesity and diabetes. We are seeking collaboration and development partners for these compounds for obesity and related clinical indications, but may not be able to enter into suitable agreements on acceptable terms with potential partners, if at all.

Our Natriuretic Peptide Receptor-Specific Programs

The natriuretic peptide receptor system has numerous cardiovascular functions, and therapeutic agents modulating this system may be useful in treatment of heart failure, acute asthma, other pulmonary diseases and hypertension. While the therapeutic potential of modulating this system is well appreciated, development of therapeutic agents has been difficult due, in part, to the short biological half-life of native peptide agonists.

We have designed and are developing potential candidate drugs that are selective for different natriuretic peptide receptors, including NPR-A, natriuretic peptide receptor B (“NPR-B”), natriuretic peptide receptor C, and both NPR-A and NPR-B.

PL-3994. PL-3994 is our lead natriuretic peptide receptor product candidate, and is a synthetic mimetic of the neuropeptide hormone ANP and an NPR-A agonist. PL-3994 is in development for treatment of heart failure (with preserved or reduced ejection fraction) and may be suitable for replacement therapy in patients with prohormone processing deficiencies. PL-3994 activates NPR-A, a receptor known to play a role in cardiovascular homeostasis. Consistent with being an NPR-A agonist, PL-3994 increases plasma cyclic guanosine monophosphate (“cGMP”), levels, a pharmacological response consistent with the effects of endogenous (naturally produced) natriuretic peptides on cardiovascular function and smooth muscle relaxation. PL-3994 also decreases activity of the renin-angiotensin-aldosterone system (“RAAS”), a hormone system that regulates blood pressure and fluid balance. The RAAS system is frequently over-activated in heart failure patients, leading to worsening of cardiovascular function.

PL-3994, our lead product development candidate which is ready for Phase 2 safety and efficacy studies, is one of a number of natriuretic peptide receptor agonist compounds we have developed. In conjunction with clinicians at a major research institution, PL-3994 is scheduled to enter Phase 2A clinical trials later in calendar year 2017. PL-3994 is a synthetic molecule incorporating a novel and proprietary amino acid mimetic structure, and has an extended circulation half-life and metabolic stability compared to endogenous ANP. Based on the half-life and pharmacokinetics, we believe that PL-3994 is amenable to once daily chronic use subcutaneous administration.

Prior Clinical Studies with PL-3994. Human clinical studies of PL-3994 commenced with a Phase 1 trial, which concluded in 2008. This was a randomized, double-blind, placebo-controlled study in 26 healthy volunteers who received either PL-3994 or a placebo subcutaneously. Dosing concluded with the successful achievement of the primary endpoint of the study, a pre-specified reduction in systemic blood pressure. No volunteer experienced a serious or severe adverse event. Elevations in plasma cGMP levels, increased diuresis and increased natriuresis were all observed for several hours after single subcutaneous doses. Later in 2008, we conducted a trial in volunteers with controlled hypertension who were receiving one or more conventional antihypertensive medications. No volunteer experienced a serious or severe adverse event. Elevations in plasma cGMP levels were observed for several hours after single subcutaneous doses. Based on the studies to date, PL-3994 is ready for Phase 2 safety and efficacy studies.

PL-5028. We are in preclinical development with PL-5028, a dual natriuretic peptide receptor A and C agonist we developed, for cardiovascular disease indications, including reducing cardiac hypertrophy and fibrosis. We may file an IND application in the first half of calendar year 2018, and thereafter initiate a Phase 1 clinical safety study.

Administration of PL-3994 and PL-5028. For heart failure and other cardiovascular disease indications we believe that subcutaneous administration may be employed. In studies to date, PL-3994 is well absorbed through the subcutaneous route of administration. In human studies with PL-3994, the pharmacokinetic and pharmacodynamic half-lives were on the order of hours, significantly longer than the comparable half-lives of endogenous natriuretic peptides. We believe that subcutaneous PL-3994 or PL-5028, if successful, will be appropriate for self-administration by patients, similar to insulin and other self-administered drugs.

Heart Failure. Heart failure is an illness in which the heart is unable to pump blood efficiently, and includes acutely decompensated heart failure with dyspnea (shortness of breath) at rest or with minimal activity. Endogenous natriuretic peptides have a number of beneficial effects, including vasodilation (relaxation of blood vessels), natriuresis (excretion of sodium) and diuresis (excretion of fluids).

Patients who have been admitted to the hospital with an episode of worsening heart failure have an increased risk of either death or hospital readmission in the three months following discharge. Up to 15% of patients die in this period and as many as 30% need to be readmitted to the hospital. We believe that decreasing mortality and hospital readmission in patients discharged following hospitalization for worsening heart failure is a large unmet medical need for which PL-3994 may be effective. PL-3994 could potentially be utilized as an adjunct to existing heart failure medications, and may, if successfully developed, be self-administered by patients as a subcutaneous injection following hospital discharge. We believe that our natriuretic peptide products under development may, if successful, reduce cardiac hypertrophy (increase in heart size due to disease), which is an independent risk factor for cardiovascular morbidity and mortality.

According to a report from the American Heart Association published in 2014 in the journal Circulation, an estimated 5.7 million Americans suffer from heart failure, with 870,000 new cases of heart failure diagnosed each year, with disease incidence expected to increase with the aging of the American population. Heart failure has tremendous human and financial costs. The same report estimated that the 2012 total costs in the United States for heart failure were $30.7 billion, with heart failure constituting the leading cause of hospitalization in people over 65 years of age and with over 1 million hospital discharges for heart failure in 2010. Heart failure is a high mortality disease, with approximately one-half of heart failure patients dying within five years of initial diagnosis.

Patient populations have been identified which have reduced levels of endogenous active natriuretic peptides, including endogenous active ANP. The reduced levels have a variety of causes, including mutations in endogenous natriuretic peptides and in enzymes necessary to convert natriuretic peptide sequences to their active form. Patients with reduced levels of endogenous active natriuretic peptides are reported to have a poor response to current drug therapies and to have increased rates of cardiac remodeling and cardiac events.

We believe that PL-3994 has the potential to treat heart failure with preserved ejection fraction (“HFpEF”), which is a high unmet medical need with no approved treatment options, heart failure with reduced ejection fraction (“HFrEF”), and patients with reduced levels of endogenous active natriuretic peptides, such as corin deficiencies, which is a high unmet medical need in patients with a poor response to current therapies, with the objective to restore normal natriuretic peptide function.

Technologies We Use

We used a rational drug design approach to discover and develop proprietary peptide, peptide mimetic and small molecule agonist compounds, focusing on melanocortin and natriuretic peptide receptor systems. Computer-aided drug design models of receptors are optimized based on experimental results obtained with peptides and small molecules that we develop. With our approach, we believe we are developing an advanced understanding of the factors which drive agonism.

We have developed a series of proprietary technologies used in our drug development programs. One technology employs novel amino acid mimetics in place of selected amino acids. These mimetics provide the receptor-binding functions of conventional amino acids while providing structural, functional and physiochemical advantages. The amino acid mimetic technology is employed in PL-3994, our compound in development for treatment of heart failure.

Some compound series have been derived using our proprietary and patented platform technology, called MIDAS™, or Metal Ion-induced Distinctive Array of Structures. This technology employs metal ions to fix the three-dimensional configuration of peptides, forming conformationally rigid molecules that remain folded specifically in their active state. These MIDAS molecules are generally simple to synthesize, are chemically and proteolytically stable, and have the potential to be orally bioavailable. In addition, MIDAS molecules are information-rich and provide data on structure-activity relationships that may be used to design small molecule, non-peptide drugs.

Amount Spent on Research and Development Activities

Research and development expenses were approximately $45.7 million for the fiscal year ended June 30, 2017 (“ fiscal 2017”), $43.1 million for the fiscal year ended June 30, 2016 (“fiscal 2016”), and $24.6 million for the fiscal year ended June 30, 2015 (“fiscal 2015”).

Competition

General. Our products under development will compete on the basis of quality, performance, cost effectiveness and application suitability with numerous established products and technologies. We have many competitors, including pharmaceutical, biopharmaceutical and biotechnology companies. Furthermore, there are several well-established products in our target markets that we will have to compete against. Products using new technologies which may be competitive with our proposed products may also be introduced by others. Most of the companies selling or developing competitive products have financial, technological, manufacturing and distribution resources significantly greater than ours and may represent significant competition for us. In addition, if any of our product candidates are approved by FDA, they will eventually face competition from generic versions that will sell at significantly reduced prices, be preferred by managed care and health insurance payers, and be eligible for automatic pharmacy substitution even when a prescriber writes a prescription for our product. The timing and extent of future generic competition is dependent upon both our intellectual property rights and the FDA regulatory process, but cannot be accurately predicted.

The pharmaceutical and biotechnology industries are characterized by extensive research efforts and rapid technological change. Many biopharmaceutical companies have developed or are working to develop products similar to ours or that address the same markets. Such companies may succeed in developing technologies and products that are more effective or less costly than any of those that we may develop. Such companies may be more successful than us in developing, manufacturing and marketing products.

We cannot guarantee that we will be able to compete successfully in the future or that developments by others will not render our proposed products under development or any future product candidates obsolete or noncompetitive or that our collaborators or customers will not choose to use competing technologies or products.

Bremelanotide for Treatment of HSDD. There is competition and financial incentive to develop, market and sell drugs for the treatment of HSDD and other forms of FSD. Flibanserin, sold under the trade name Addyi®, is the only drug currently approved in the United States for treatment of HSDD. Flibanserin, a non-hormonal oral serotonin 5-HT1A agonist, 5-HT2A antagonist, which requires chronic dosing, was approved by the FDA on August 18, 2015 for treatment of premenopausal women with HSDD. The FDA approval included a risk evaluation and mitigation strategy (“REMS”) because of the increased risk of severe hypotension and syncope due to the interaction between flibanserin and alcohol, and a Boxed Warning to highlight the risks of severe hypotension and syncope in patients who drink alcohol during treatment with flibanserin, in those who also use moderate or strong CYP3A4 inhibitors, and in those who have liver impairment. We are aware of several other drugs at various stages of development, most of which are taken on a chronic, typically once-daily, basis. There are other companies reported to be developing new drugs for FSD indications, some of which may be in clinical trials in the United States or elsewhere. We are not aware of any company actively developing a melanocortin receptor agonist drug for HSDD.

PL-3994 and PL-5028 for Heart Failure Indications. Nesiritide (sold under the trade name Natrecor®), a recombinant human B-type natriuretic peptide drug, is marketed in the United States by Scios Inc., a Johnson & Johnson company. Nesiritide is approved for treatment of acutely decompensated congestive heart failure patients who have dyspnea at rest or with minimal activity. Other peptide drugs, including carperitide, a recombinant human ANP drug, and ularitide, a synthetic form of urodilatin, a naturally occurring human natriuretic peptide related to ANP, have been

investigated for treatment of congestive heart failure, but we are not aware of any active development in the United States. We are aware of other companies developing intravenously administered natriuretic peptide drugs, with at least one reported to have completed Phase 2 clinical trials for acute heart failure. A combination drug comprised of sacubitril and valsartan developed by Novartis AG, sold under the trade name Entresto®, inhibits both the angiotensin II receptor and neprilysin (an enzyme which inactivates endogenous active natriuretic peptides). This combination drug, which was approved by the FDA in July 2015, results in increases of endogenous active ANP levels, and thus has a mechanism of action with similarities to PL-3994 and PL-5028. In a Phase 3 trial, the combination drug was compared to an angiotensin-converting-enzyme inhibitor, enalapril, in heart failure patients with reduced ejection fraction. It significantly improved the rate of death from cardiovascular causes, significantly reduced hospitalization for heart failure and significantly improved heart failure symptoms. This combination drug demonstrated that upregulation of the natriuretic peptide system in combination with angiotensin-converting-enzyme inhibition is superior to angiotensin-converting-enzyme inhibition alone, and thus provides validation of the natriuretic peptide system as a target for improving outcomes in treating heart failure patients. In addition, there are a number of approved drugs and drugs in development for treatment of heart failure through mechanisms or pathways other than agonism of NPR-A.

MC1r Peptides for Inflammatory Disease-Related Indications. Many inflammatory disease-related indications are treated using systemic steroids or other immunosuppressant drugs, all of which have side effects which can be dose limiting. There are a large number of approved biological drugs and biological drugs under development for treatment of inflammatory disease-related indications. For inflammatory bowel diseases, FDA-approved drugs include mesalazine and immunosuppressive drugs such as prednisone and other steroids, tumor necrosis factor inhibitors such as infliximab and adalimumab, and immune system suppressants such as azathioprine, mercaptopurine and methotrexate.

Obesity. There are a number of FDA-approved drugs and medical devices for the treatment of obesity, and a large number of products in clinical development by other companies, including products which target melanocortin receptors. At least one Phase 2 study has been reported on use of an MC4r agonist for obesity indications.

Patents and Proprietary Information

Patent Protection. Our success will depend in substantial part on our ability to obtain, defend and enforce patents, maintain trade secrets and operate without infringing upon the proprietary rights of others, both in the United States and abroad. We own a number of issued United States patents and have pending United States patent applications, many with issued or pending counterpart patents in selected foreign countries. We seek patent protection for our technologies and products in the United States and those foreign countries where we believe patent protection is commercially important.

We own two issued United States patents claiming the bremelanotide substance and an issued patent claiming the bremelanotide substance in each of Australia, Austria, Belgium, Brazil, Canada, Cyprus, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, Monaco, Netherlands, New Zealand, Portugal, Spain, Sweden, Switzerland, and the United Kingdom. The issued United States patents have a term until 2020, which term may be subject to extension for a maximum period of up to five years as compensation for patent term lost during drug development and the FDA regulatory review process, pursuant to the Drug Price Competition and Patent Term Restoration Act of 1984, or the Hatch-Waxman Amendments. Whether we will be able to obtain patent term extensions under the Hatch-Waxman Amendments and the length of any such extension cannot be determined until the FDA approves for marketing, if ever, a product in which bremelanotide is the active ingredient. In addition, the claims of issued patents covering bremelanotide may not provide meaningful protection. Further, third parties may challenge the validity or scope of any issued patent, and under the Hatch-Waxman Amendments, potentially receive approval of a competing generic version of our product or products even before a court rules on the validity or infringement of our patents.

We own two issued United States patents and pending patent applications in the United States for methods of treating FSD with bremelanotide, and related patent applications are pending in Australia, Brazil, Canada, China, Georgia, Hong Kong, India, Indonesia, Israel, Japan, Korea, Malaysia, Mexico, New Zealand, Philippines, South Africa, Ukraine, Vietnam and before the European and Eurasian patent offices. The issued United States patent has a term until 2033. Whether we will be able to obtain a patent term extension in the United States under the Hatch-Waxman Amendments, assuming that a relevant patent issues in the United States, and the length of any such extension, cannot be determined until the FDA approves for marketing, if ever, a product utilizing bremelanotide by methods claimed in the patent. Issued patents and pending applications in the United States and elsewhere in the world have a presumptive term, if a patent is issued, until 2033.

We have patents and patent applications on an alternative class of melanocortin receptor-specific peptides for treatment of sexual dysfunction and other indications, including obesity, consisting of two issued patents in the United States, an issued patent in each of Australia, Canada, China, France, Germany, Ireland, Israel, Japan, Korea, Mexico, New Zealand, Russia, Switzerland and the United Kingdom, and pending patent applications on the same class in

Brazil, India, and South Africa. The presumptive term of the issued patents and pending patent applications is until 2029. We also have patents and pending patent applications for a second class of alternative melanocortin receptor-specific peptides for treatment of sexual dysfunction and other indications, including obesity, consisting of issued patents in the United States, Australia, China, Japan, Israel, Korea, New Zealand, Russia, and South Africa and pending patent applications on the same class in Brazil, Canada, China, India, Mexico, and before the European patent office. The presumptive term of the issued patents and pending patent applications is until 2030. Until one or more product candidates covered by a claim of one of these patents and patent applications are developed for commercialization, which may never occur, we cannot evaluate the duration of any potential patent term extension under the Hatch-Waxman Amendments.

We own issued patents in the United States, Mexico, New Zealand, South Africa and Russia claiming highly selective MC1r agonist peptides for treatment of inflammation-related diseases and disorders and related indications, and pending patent applications on two broad classes of highly selective MC1r agonist peptides in the United States, Australia, Brazil, Canada, China, India, Israel, Japan, Korea, and Mexico and before the European patent office. The presumptive term of the issued patents and pending patent applications is until 2030. Until one or more product candidates covered by a claim of one of these patent applications are developed for commercialization, which may never occur, we cannot evaluate the duration of any potential patent term extension under the Hatch-Waxman Amendments.

We own two issued United States patents claiming the PL-3994 substance and other natriuretic peptide receptor agonist compounds that we have developed and an issued United States patent claiming a precursor molecule to the PL-3994 substance, both of which expire in 2027. Corresponding patents on the PL-3994 substance and other natriuretic peptide receptor agonist compounds were issued in Australia, Austria, Belgium, China, Colombia, Denmark, Finland, France, Germany, Hong Kong, Hungary, India, Ireland, Israel, Italy, Japan, Korea, Mexico, Netherlands, Philippines, Russia, South Africa, Spain, Sweden, Switzerland, and the United Kingdom, with terms until 2027. Patent applications on the PL-3994 substance and other natriuretic peptide receptor agonist compounds are pending in Brazil and Canada, with presumptive terms until 2027. Applications claiming precursor molecules for the PL-3994 substance and other compounds have issued in the United States, Australia, China, France, Germany, Hong Kong, India, Ireland, Israel, Japan, Mexico, Netherlands, Philippines, Korea, South Africa, Sweden, Switzerland and the United Kingdom, and expire in 2027. Patent applications on the precursor molecules are pending in Brazil, Canada, and before the Eurasian Patent Office, with presumptive terms until 2027. We also own an issued United States patent claiming use of the PL-3994 substance for treatment of acute asthma and chronic obstructive pulmonary disease, which expires in 2031. We do not know the full scope of patent coverage we will obtain, or whether any patents will issue other than the patents already issued. Until one or more product candidates covered by a claim of the issued patents or one of these patent applications are developed for commercialization, which may never occur, we cannot evaluate the duration of any potential patent term extension under the Hatch-Waxman Amendments.

We additionally have 31 issued United States patents on melanocortin receptor specific peptides and small molecules, and five issued United States patents on natriuretic peptide receptor agonist compounds, but we are not actively developing any product candidate covered by a claim of any of these patents.

In the event that a third party has also filed a patent application relating to an invention we claimed in a patent application, we may be required to participate in an interference proceeding adjudicated by the United States Patent and Trademark Office (“USPTO”) to determine priority of invention. The possibility of an interference proceeding could result in substantial uncertainties and cost, even if the eventual outcome is favorable to us. An adverse outcome could result in the loss of patent protection for the subject of the interference, subjecting us to significant liabilities to third parties, the need to obtain licenses from third parties at undetermined cost, or requiring us to cease using the technology.

Future Patent Infringement. We do not know for certain that our commercial activities will not infringe upon patents or patent applications of third parties, some of which may not even have been issued. Although we are not aware of any valid United States patents which are infringed by bremelanotide or PL-3994, we cannot exclude the possibility that such patents might exist or arise in the future. We may be unable to avoid infringement of any such patents and may have to seek a license, defend an infringement action, or challenge the validity of such patents in court. Patent litigation is costly and time consuming. If such patents are valid and we do not obtain a license under any such patents, or we are found liable for infringement, we may be liable for significant monetary damages, may encounter significant delays in bringing products to market, or may be precluded from participating in the manufacture, use or sale of products or methods of treatment covered by such patents.

Proprietary Information. We rely on proprietary information, such as trade secrets and know-how, which is not patented. We have taken steps to protect our unpatented trade secrets and know-how, in part through the use of confidentiality and intellectual property agreements with our employees, consultants and certain contractors. If our employees, scientific consultants, collaborators or licensees develop inventions or processes independently that may be applicable to our product candidates, disputes may arise about the ownership of proprietary rights to those inventions and processes. Such inventions and processes will not necessarily become our property, but may remain the property of those persons or their employers. Protracted and costly litigation could be necessary to enforce and determine the scope of our proprietary rights.

If trade secrets are breached, our recourse will be solely against the person who caused the secrecy breach. This might not be an adequate remedy to us because third parties other than the person who causes the breach will be free to use the information without accountability to us. This is an inherent limitation of the law of trade secret protection.

U.S. Governmental Regulation of Pharmaceutical Products

General

Regulation by governmental authorities in the United States and other countries will continue to significantly impact our research, product development, manufacturing and marketing of any pharmaceutical products. The nature and the extent to which regulations apply to us will vary depending on the nature of any such products. Our potential pharmaceutical products will require regulatory approval by governmental agencies prior to commercialization. The products we are developing are subject to federal regulation in the United States, principally by the FDA under the Federal Food, Drug, and Cosmetic Act ("FFDCA"), and by state and local governments, as well as regulatory and other authorities in foreign governments that include rigorous preclinical and clinical testing and other approval procedures. Such regulations govern or influence, among other things, the research, development, testing, manufacture, safety and efficacy requirements, labeling, storage, recordkeeping, licensing, advertising, promotion, distribution and export of products, manufacturing and the manufacturing process. In many foreign countries, such regulations also govern the prices charged for products under their respective national social security systems and availability to consumers.

All drugs intended for human use are subject to rigorous regulation by the FDA in the United States and similar regulatory bodies in other countries. The steps ordinarily required by the FDA before an innovative new drug product may be marketed in the United States are similar to steps required in most other countries and include, but are not limited to:

completion of preclinical laboratory tests, preclinical animal testing and formulation studies;

submission to the FDA of an IND, which must be in effect before clinical trials may commence;

submission to the FDA of an NDA that includes preclinical data, clinical trial data and manufacturing information;

payment of substantial user fees for filing the NDA and other recurring user fees;

FDA review of the NDA;

satisfactory completion of an FDA pre-approval inspection of the manufacturing facilities; and

FDA approval of the NDA, including approval of all product labeling.

For combination products deemed to have a ‘‘drug’’ primary mode of action, primary review of the product will be conducted by the appropriate division within the Center for Drug Evaluation and Research ("CDER"), but CDER will consult with the Center for Devices and Radiological Health to ensure that the device components of the product meet all applicable device requirements.

The research, development and approval process requires substantial time, effort and financial resources, and approvals may not be granted on a timely or commercially viable basis, if at all.

Preclinical testing includes laboratory evaluations to characterize the product's composition, impurities, stability, and mechanism of its pharmacologic effect, as well as animal studies to assess the potential safety and efficacy of each product. Preclinical safety tests must be conducted by laboratories that comply with FDA regulations regarding Good Laboratory Practices and the U.S. Department of Agriculture's Animal Welfare Act. Violations of these laws and regulations can, in some cases, lead to invalidation of the tests, requiring such tests to be repeated and delaying approval of the NDA. The results of the preclinical tests, together with manufacturing information and analytical data, are submitted to the FDA as part of an IND and are reviewed by the FDA before the commencement of human clinical trials. Unless the FDA objects to an IND by placing the study on clinical hold, the IND will go into effect 30 days following its receipt by the FDA. The FDA may authorize trials only on specified terms and may suspend ongoing clinical trials at any time on various grounds, including a finding that patients are being exposed to unacceptable health risks. If the FDA places a study on clinical hold, the sponsor must resolve all of the FDA's concerns before the study may begin or continue. The IND application process may become extremely costly and substantially delay development of products. Similar restrictive requirements also apply in other countries. Additionally, positive results of preclinical tests will not necessarily indicate positive results in clinical trials.

Clinical trials involve the administration of the investigational product to humans under the supervision of qualified principal investigators. Our clinical trials must be conducted in accordance with Good Clinical Practice regulations under protocols submitted to the FDA as part of an IND. In addition, each clinical trial is approved and conducted under the auspices of an institutional review board ("IRB"), and requires the patients' informed consent. An IRB considers, among other things, ethical factors, the safety of human subjects, and the possibility of liability of the institutions conducting the trial. The IRB at each institution at which a clinical trial is being performed may suspend a clinical trial at any time for a variety of reasons, including a belief that the test subjects are being exposed to an unacceptable health risk. As the sponsor, we can also suspend or terminate a clinical trial at any time.

Clinical trials are typically conducted in three sequential phases, Phases 1, 2, and 3, involving an increasing number of human subjects. These phases may sometimes overlap or be combined. Phase 1 trials are performed in a small number of healthy human subjects or subjects with the targeted condition, and involve testing for safety, dosage tolerance, absorption, distribution, metabolism and excretion. Phase 2 studies, which may involve up to hundreds of subjects, seek to identify possible adverse effects and safety risks, preliminary information related to the efficacy of the product for specific targeted diseases, dosage tolerance, and optimal dosage. Finally, Phase 3 trials may involve up to thousands of individuals often at geographically dispersed clinical trial sites, and are intended to provide the documentation of effectiveness and important additional safety data required for approval. Prior to commencing Phase 3 clinical trials many sponsors elect to meet with FDA officials to discuss the conduct and design of the proposed trial or trials.

In addition, federal law requires the listing, on a publicly-available website, of detailed information on clinical trials for investigational drugs. Some states have similar or supplemental clinical trial reporting laws.

Success in early-stage animal studies and clinical trials does not necessarily assure success in later-stage clinical trials. Data obtained from animal studies and clinical activities are not always conclusive and may be subject to alternative interpretations that could delay, limit or even prevent regulatory approval.

All data obtained from the preclinical studies and clinical trials, in addition to detailed information on the manufacture and composition of the product, would be submitted in an NDA to the FDA for review and approval for the manufacture, marketing and commercial shipments of any of our products. FDA approval of the NDA is required before commercial marketing or non-investigational interstate shipment may begin in the United States. The FDA may also conduct an audit of the clinical trial data used to support the NDA.

The FDA may deny or delay approval of an NDA that does not meet applicable regulatory criteria. For example the FDA may determine that the preclinical or clinical data or the manufacturing information does not adequately establish the safety and efficacy of the drug. The FDA has substantial discretion in the approval process and may disagree with an applicant’s interpretation of the data submitted in its NDA. The FDA can request additional information, seek clarification regarding information already provided in the submission or ask that new additional clinical trials be conducted, all of which can delay approval. Similar types of regulatory processes will be encountered as efforts are made to market any drug internationally. We will be required to assure product performance and manufacturing processes from one country to another.

Even if the FDA approves a product, it may limit the approved uses for the product as described in the product labeling, require that contraindications, warning statements or precautions be included in the product labeling, require that additional studies be conducted following approval as a condition of the approval, impose restrictions and conditions on product distribution, prescribing or dispensing in the form of a REMS, or otherwise limit the scope of any approval or limit labeling. Once it approves an NDA, the FDA may revoke or suspend the product approval if compliance with post-market regulatory standards is not maintained or if problems occur after the product reaches the marketplace. In addition, the FDA may require post-marketing studies to monitor the effect of approved products, and may limit further marketing of the product based on the results of these post-market studies. The FDA and other government agencies have broad post-market regulatory and enforcement powers, including the ability to levy civil and criminal penalties, suspend or delay issuance of approvals, seize or recall products and revoke approvals.

Pharmaceutical manufacturers, distributors and their subcontractors are required to register their facilities with the FDA and state agencies. Manufacturers are required to list their marketed drugs with the FDA, are subject to periodic inspection by the FDA and other authorities, where applicable, and must comply with the FDA’s current Good Manufacturing Practices (“GMP”) regulations, and the product specifications set forth in the approved NDA. The GMP requirements for pharmaceutical products are extensive and compliance with them requires considerable time,

resources and ongoing investment. The regulations require manufacturers and suppliers of raw materials and components to establish validated systems and to employ and train qualified employees to ensure that products meet high standards of safety, efficacy, stability, sterility (where applicable), purity, and potency. The requirements apply to all stages of the manufacturing process, including the synthesis, processing, sterilization, packaging, labeling, storage and shipment of the drug product. For all drug products, the regulations require investigation and correction of any deviations from GMP requirements and impose documentation requirements upon us and any third-party manufacturers that we may decide to use. Manufacturing establishments are subject to mandatory user fees, and to periodic unannounced inspections by the FDA and state agencies for compliance with all GMP requirements. The FDA is authorized to inspect manufacturing facilities without a warrant at reasonable times and in a reasonable manner.

We or our present or future suppliers may not be able to comply with GMP and other FDA regulatory requirements. Failure to comply with the statutory and regulatory requirements subjects the manufacturer and/or the NDA sponsor or distributor to possible legal or regulatory action, such as a delay or refusal to approve an NDA, suspension of manufacturing, seizure or recall of a product, or civil or criminal prosecution of the company or individual officers or employees.

Post-Marketing Regulation

Any drug products manufactured or distributed by us pursuant to FDA approvals, as well as the materials and components used in our products, are subject to pervasive and continuing regulation by the FDA, including:

recordkeeping requirements;

periodic reporting requirements;

GMP requirements related to all stages of manufacturing, testing, storage, packaging, labeling and distribution of finished dosage forms of the product;

monitoring and reporting of adverse experiences with the product; and

advertising and promotional reporting requirements and restrictions.

Adverse experiences with the product must be reported to the FDA and could result in the imposition of market restriction through labeling changes or product removal. Product approvals may be revoked if compliance with regulatory requirements is not maintained or if problems concerning safety or effectiveness of the product occur following approval. The FDA is developing a national electronic drug safety tracking system known as SENTINEL that may impose additional safety monitoring burdens, and enhanced FDA enforcement authority, beyond the extensive requirements already in effect. As a condition of NDA approval, the FDA may require post-approval testing and surveillance to monitor a product's safety or efficacy. The FDA also may impose other conditions, including labeling restrictions which can materially impact the potential market and profitability of a product.

With respect to post-market product advertising and promotion, the FDA and other government agencies including the Department of Health and Human Services and the Department of Justice, and individual States, impose a number of complex regulations on entities that advertise and promote pharmaceuticals, including, among others, standards and restrictions on direct-to-consumer advertising, off-label promotion, industry-sponsored scientific and educational activities and promotional activities involving the Internet. The FDA has very broad enforcement authority under the FFDCA, and failure to abide by these regulations can result in administrative and judicial enforcement actions, including the issuance of a Warning Letter directing correction of deviations from FDA standards, a requirement that future advertising and promotional materials be pre-cleared by the FDA, False Claims Act prosecution based on alleged off-label marketing seeking monetary and other penalties, including potential exclusion of the drug and/or the company from participation in government health care programs, and state and federal civil and criminal investigations and prosecutions. Foreign regulatory bodies also strictly enforce these and other regulatory requirements and drug marketing may be prohibited in whole or in part in other countries.

We, our collaborators or our third-party contract manufacturers may not be able to comply with the applicable regulations. After regulatory approvals are obtained, the subsequent discovery of previously unknown problems, or the failure to maintain compliance with existing or new regulatory requirements, may result in:

restrictions on the marketing or manufacturing of a product;

Warning Letters or Untitled Letters from the FDA asking us, our collaborators or third-party contractors to take or refrain from taking certain actions;

withdrawal of the product from the market;

the FDA’s refusal to approve pending applications or supplements to approved applications;

voluntary or mandatory product recall;

fines or disgorgement of profits or revenue;

suspension or withdrawal of regulatory approvals;

refusals to permit the import or export of products;

product seizure; and

injunctions or the imposition of civil or criminal penalties.

We may also be subject to healthcare laws, regulations and enforcement and our failure to comply with any such laws, regulations or enforcement could adversely affect our business, operations and financial condition. Certain federal and state healthcare laws and regulations pertaining to fraud and abuse and patients' rights are and will be applicable to our business. We are subject to regulation by both the federal government and the states in which we or our partners conduct our business. The laws and regulations that may affect our ability to operate include:

the federal Anti-Kickback Statute, which prohibits, among other things, any person or entity from knowingly and willfully offering, soliciting, receiving or providing any remuneration (including any kickback, bribe or rebate), directly or indirectly, overtly or covertly, in cash or in kind, to induce either the referral of an individual or in return for the purchase, lease, or order of any good, facility item or service, for which payment may be made, in whole or in part, under federal healthcare programs such as the Medicare and Medicaid programs;

federal civil and criminal false claims laws and civil monetary penalty laws, including, for example, the federal civil False Claims Act, which impose criminal and civil penalties, including civil whistleblower or qui tam actions, against individuals or entities for, among other things, knowingly presenting, or causing to be presented, to the federal government, including the Medicare and Medicaid programs, claims for payment that are false or fraudulent or making a false statement to avoid, decrease or conceal an obligation to pay money to the federal government;

the federal Health Insurance Portability and Accountability Act of 1996 ("HIPAA"), which created new federal criminal statutes that prohibit knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program or obtain, by means of false or fraudulent pretenses, representations or promises, any of the money or property owned by, or under the custody or control of, any healthcare benefit program, regardless of the payer (e.g., public or private), knowingly and willfully embezzling or stealing from a health care benefit program, willfully obstructing a criminal investigation of a health care offense and knowingly and willfully falsifying, concealing or covering up by any trick or device a material fact or making any materially false statements in connection with the delivery of, or payment for, healthcare benefits, items or services relating to healthcare matters;

HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, and their implementing regulations, which impose obligations on covered entities, including healthcare providers, health plans, and healthcare clearinghouses, as well as their respective business associates that create, receive, maintain or transmit individually identifiable health information for or on behalf of a covered entity, with respect to safeguarding the privacy, security and transmission of individually identifiable health information;

the federal physician sunshine requirements under the Patient Protection and Affordable Care Act ("Affordable Care Act"), which require manufacturers of drugs, devices, biologics and medical supplies to report annually to the Centers for Medicare & Medicaid Services information related to payments and other transfers of value provided to physicians and teaching hospitals, and ownership and investment interests held by physicians and their immediate family members; and

state law equivalents of each of the above federal laws, such as anti-kickback and false claims laws, which may apply to items or services reimbursed by any third-party payer, including commercial insurers; state 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

provided to healthcare providers and other potential referral sources; state laws that require drug manufacturers to report information related to payments and other transfers of value to healthcare providers or marketing expenditures; 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 and the narrowness of the statutory exceptions and safe harbors available, it is possible that some of our business activities could be subject to challenge under one or more of such laws. In addition, recent health care reform legislation has strengthened these laws. For example, the Affordable Care Act, among other things, amended the intent requirement of the federal Anti-Kickback Statute and certain criminal healthcare fraud statutes. A person or entity no longer needs to have actual knowledge of the statute or specific intent to violate it. In addition, the Affordable Care Act provided that the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal civil False Claims Act.

Achieving and sustaining compliance with these laws may prove costly. In addition, any action against us for violation of these laws, even if we successfully defend against it, could cause us to incur significant legal expenses and divert our management's attention from the operation of our business. If our operations are found to be in violation of any of the laws described above or any other governmental laws or regulations that apply to us, we may be subject to penalties, including administrative, civil and criminal penalties, damages, fines, disgorgement, the exclusion from participation in federal and state healthcare programs, individual imprisonment or the curtailment or restructuring of our operations, any of which could adversely affect our ability to operate our business and our financial results.

Generic Competition

Orange Book Listing. In seeking approval for a drug through an NDA, applicants are required to list with the FDA each patent whose claims cover the applicant's product. Upon approval of a drug, the applicant identifies all patents that claim the approved product's active ingredient(s), the drug product's approved formulation, or an approved method of use of the drug. Each of the identified patents are then published in the FDA's Approved Drug Products with Therapeutic Equivalence Evaluations, commonly known as the Orange Book. Drugs listed in the Orange Book can, in turn, be cited by potential generic competitors in support of approval of an abbreviated new drug application ("ANDA"). An ANDA provides for marketing of a drug product that has the same active ingredients in the same strengths and dosage form as the listed drug and has been shown through bioequivalence testing, unless such testing is waived by the FDA, as is the case with some injectable drug products, to be therapeutically equivalent to the listed drug. Other than bioequivalence testing, ANDA applicants are not required to conduct, or submit results of, preclinical or clinical tests to prove the safety or effectiveness of their drug product. Drugs approved in this way are commonly referred to as ''generic equivalents'' to the listed drug, and can usually be substituted by pharmacists under prescriptions written for the original listed drug.

The ANDA applicant is required to certify to the FDA concerning any patents listed for the approved product in the FDA's Orange Book. Specifically, the applicant must certify either that: (1) the required patent information has not been filed (a Paragraph I Certification); (2) the listed patent has expired (a Paragraph II Certification); (3) the listed patent has not expired, but will expire on a particular date and the generic approval is being sought only after patent expiration (a Paragraph III Certification); or (4) the listed patent is invalid, unenforceable, or will not be infringed by the proposed generic product (a Paragraph IV Certification). In certain circumstances, the ANDA applicant may also elect to submit a ''section (viii)'' statement instead of a Paragraph IV Certification, certifying that its proposed ANDA label does not contain (or carves out) any language regarding the patented method-of-use rather than certify to a listed method-of-use patent. If the application contains only Paragraph I or Paragraph II Certifications, the ANDA may be approved as soon as FDA completes its review and concludes that all approval requirements have been met. If the ANDA contains one or more Paragraph III Certifications, the ANDA cannot not be approved until each listed patent for which a Paragraph III Certification was filed have expired.

If the ANDA applicant has provided a Paragraph IV certification to the FDA, the applicant must also send notice of the Paragraph IV certification to the NDA holder and patent owner once the ANDA has been accepted for filing by the FDA. The patent owner or NDA holder may then commence a patent infringement lawsuit in response to the notice of the Paragraph IV certification. The filing of a patent infringement lawsuit within 45 days of the receipt of a Paragraph IV certification automatically prevents the FDA from approving the ANDA until the earlier of 30 months (the ''30-month stay''), expiration of the patent, settlement of the lawsuit in which the patent owner admits that the patent is invalid or not infringed by the ANDA product, or a decision in the infringement case that holds the patent to be invalid or not infringed, or an order by the court shortening the 30-month stay due to actions by the patent holder to delay the litigation. In most circumstances, NDA holder is only eligible for one 30-month stay against an ANDA.

If a patent infringement action is filed against an ANDA applicant, any settlement of the litigation must be submitted to the Federal Trade Commission ("FTC"). If the FTC believes the terms or effects of the settlement are anticompetitive,

FTC may bring an antitrust enforcement action against the parties. Private parties may also bring antitrust lawsuits against drug companies based on such patent litigation settlements.

The ANDA also will not be approved until any applicable non-patent regulatory exclusivity listed in the Orange Book for the referenced product has expired.

Regulatory Exclusivity. Upon NDA approval of a new chemical entity ("NCE"), which is a drug that contains no active moiety that has been approved by the FDA in any other NDA, that drug receives five years of marketing exclusivity during which the FDA cannot receive for review any ANDA seeking approval of a generic version of that drug. An ANDA containing a Paragraph IV Certification may be received by FDA 4 years after the NCE drug's approval, but any 30-month stay that ensues would be extended so that it expires seven and one half years after the NCE approval date, subject to early termination by reason of a court decision or settlement as described above.

Certain changes to an NDA drug, such as the addition of a new indication to the package insert, for which new clinical trials, conducted or sponsored by the applicant are deemed by FDA to be essential to the approval of the change, can be eligible for a three-year period of exclusivity during which the FDA cannot approve an ANDA for a generic drug that includes the change. An ANDA that contains a section (viii) statement to a method of use patent may be approved with labeling that omits the patented use before the use patent expires. Generic drugs approved with such a labeling carve out may be substituted by pharmacists for the original branded drug before the method of use patent expires.

Section 505(b)(2) NDAs. Most drug products obtain FDA marketing approval pursuant to an NDA or an ANDA. A third alternative is a special type of NDA, commonly referred to as a 505(b)(2) NDA, which enables the applicant to rely, in part, on the FDA's previous approval of a similar product, or published literature, in support of its application.

505(b)(2) NDAs often provide an alternate path to FDA approval for new or improved formulations or new uses of previously approved products. A 505(b)(2) NDA may be used where at least some of the information required for approval comes from studies not conducted by, or for, the applicant and for which the applicant has not obtained a right of reference. If the 505(b)(2) applicant can establish that reliance on the FDA's previous approval is scientifically appropriate, it may eliminate the need to conduct certain preclinical or clinical studies of the new product. The FDA may also require companies to perform additional studies or measurements to support the change from the approved product. The FDA may then approve the new product candidate for all, or some, of the label indications for which the referenced product has been approved, as well as for any new indication or conditions of use sought by the Section 505(b)(2) applicant.

To the extent that the Section 505(b)(2) applicant is relying on studies conducted for an already approved product, the applicant is required to certify to the FDA concerning any patents listed for the approved product in the Orange Book to the same extent that an ANDA applicant would. As a result, approval of a 505(b)(2) NDA can be stalled until all the listed patents claiming the referenced product have expired, until any non-patent exclusivity, such as exclusivity for obtaining approval of a new chemical entity, listed in the Orange Book for the referenced product has expired, and, in the case of a Paragraph IV certification and subsequent patent infringement suit, until the expiration of any 30-month stay, subject to early termination of the stay as described above.

Changing Legal and Regulatory Landscape

Periodically, legislation is introduced in the U.S. Congress that could change the statutory and regulatory provisions governing the approval, manufacturing and marketing of our drugs. In addition, the FDCA, FDA regulations and guidance are often revised or reinterpreted by the FDA or the courts in ways that may significantly affect our business and products. We cannot predict whether or when legislation or court decisions impacting our business will be enacted or issued, what FDA regulations, guidance or interpretations may change, or what the impact of such changes, if any, may be in the future.

Third-Party Reimbursements

Successful sales of our proposed products in the United States and other countries depend, in large part, on the availability of adequate reimbursement from third-party payers such as governmental entities, managed care

organizations, health maintenance organizations (“HMOs”), and private insurance plans. Reimbursement by a third-party payer depends on a number of factors, including the payer’s determination that the product has been approved by the FDA for the indication for which the claim is being made, that it is neither experimental nor investigational, and that the use of the product is safe and efficacious, medically necessary, appropriate for the specific patient and cost effective.

Since reimbursement by one payer does not guarantee reimbursement by another, we or our licensees may be required to seek approval from each payer individually. Seeking such approvals is a time-consuming and costly process. Third-party payers routinely limit the products that they will cover and the amount of money that they will pay and, in many instances, are exerting significant pressure on medical suppliers to lower their prices.

Payers frequently employ a tiered system in reimbursing end users for pharmaceutical products, with tier designation affecting copay or deductible amounts. The only approved product for treating HSDD is flibanserin, sold under the trade name Addyi®. There is significant uncertainty concerning the extent and scope of third-party reimbursement for products treating HSDD. Based on third-party reimbursement for approved products treating ED, we believe bremelanotide will be classified as a Tier 3 drug, so that reimbursement will be limited for bremelanotide for treatment of premenopausal women with HSDD, assuming the product is approved by the FDA. Less than full reimbursement by governmental and other third-party payers may adversely affect the market acceptance of bremelanotide. Further, healthcare reimbursement systems vary from country to country, and third-party reimbursement might not be made available for bremelanotide for HSDD under any other reimbursement system.

Manufacturing and Marketing

To be successful, our proposed products will need to be manufactured in commercial quantities under GMP prescribed by the FDA and at acceptable costs. We do not have the facilities to manufacture any of our proposed products under GMP. We intend to rely on collaborators, licensees or contract manufacturers for the commercial manufacture of our proposed products.

Our bremelanotide product candidate is a synthetic peptide. While the production process involves well-established technology, there are few manufacturers capable of scaling up to commercial quantities under GMP at acceptable costs. We identified one third-party manufacturer for the production of bremelanotide, Lonza Ltd., and have validated manufacturing of the bremelanotide drug substance under GMP with that manufacturer. AMAG, as the exclusive licensee for North America, has assumed responsibility for manufacturing bremelanotide drug substance.

Our bremelanotide product candidate will be a combination product, incorporating both the bremelanotide drug substance and a delivery device. AMAG, as the exclusive licensee for North America, has assumed responsibility for manufacturing the bremelanotide combination product. We relied on a third-party manufacturer, Ypsomed AG, to make the selected autoinjector pen delivery device. A third-party contract manufacturer, Catalent Belgium S.A., performs fill, finish and packaging of our bremelanotide product candidate. We negotiated a long-term commercial supply agreement with Catalent Belgium S.A., and have assigned this agreement to AMAG.

Our PL-3994 product candidate is a peptide mimetic molecule, incorporating a proprietary amino acid mimetic structure and amino acids. We identified a manufacturer that made the product in quantities sufficient for Phase 1 and Phase 2, and are evaluating commercial-scale manufacturers. Scaling up to commercial quantities may involve production, purification, formulation and other problems not present in the scale of manufacturing done to date.

Our MC1r and MC4r agonist product candidates are synthetic peptides, which we have manufactured only at laboratory scale. We have not contracted with a third-party manufacturer to produce these synthetic peptides for either clinical trials or commercial purposes. While the production process involves well-established technology, there are few manufacturers capable of scaling up to commercial quantities under GMP at acceptable costs. Additionally, scaling up to commercial quantities may involve production, purification, formulation and other problems not present in the scale of manufacturing done to date.

The failure of any manufacturer or supplier to comply with FDA regulations, including GMP or medical device quality systems regulations (“QSR”), or to supply the device component or drug substance and services as agreed, would force us or our licensees to seek alternative sources of supply and could interfere with our and our licensees’ ability to deliver product on a timely and cost effective basis or at all. Establishing relationships with new manufacturers or suppliers, any of whom must be FDA-approved, is a time-consuming and costly process.

Product Liability and Insurance

Our business may be affected by potential product liability risks that are inherent in the testing, manufacturing, marketing and use of our proposed products. We have liability insurance providing $10 million coverage in the aggregate as to certain clinical trial risks.

Employees

As of September 21, 2017, we employed 22 people full time, of whom 16 are engaged in research and development activities and 6 are engaged in administration and management, and did not have any part-time employees. While we have been successful in attracting skilled and experienced scientific personnel, competition for personnel in our industry is intense. None of our employees are covered by a collective bargaining agreement. All of our employees have executed confidentiality and intellectual property agreements. We consider relations with our employees to be good.

We rely on contractors and scientific consultants to work on specific research and development programs. We also rely on independent organizations, advisors and consultants to provide services, including aspects of manufacturing, testing, preclinical evaluation, clinical management, regulatory strategy and market research. Our independent advisors, contractors and consultants sign agreements that provide for confidentiality of our proprietary information and that we have the rights to any intellectual property developed while working for us.

Corporate Information

We were incorporated under the laws of the State of Delaware on November 21, 1986 and commenced operations in the biopharmaceutical area in 1996. Our corporate offices are located at 4B Cedar Brook Drive, Cranbury, New Jersey 08512 and our telephone number is (609) 495-2200. We maintain an Internet site at www.palatin.com, where among other things, we make available free of charge on and through this website our Forms 3, 4 and 5, annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) and Section 16 of the Exchange Act as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. Our website and the information contained in it or connected to it are not incorporated into this Annual Report. The reference to our website is an inactive textual reference only.

Item 1A. Risk Factors.

Risks Related to Our Financial Results and Need for Financing

We have a history of substantial net losses, and expect to continue to incur substantial net losses over the next few years, and we may never achieve or maintain profitability.

As of June 30, 2017, we had an accumulated deficit of $356. 7 million and incurred a net loss for the year ended June 30, 2017 of $13.3 million. We may not achieve or sustain profitability in future years, which is dependent on numerous factors, including whether and when development and sales milestones are met, regulatory actions by the FDA and other regulatory bodies, the performance of our licensees, and market acceptance of our products. If we attain sustained profitability, it will not be until the fiscal year ending June 30, 2019 at the earliest.

We expect to incur additional losses as we continue our development of natriuretic peptide and MC1r products. These losses, among other things, have had and will continue to have an adverse effect on our stockholders' equity, total assets and working capital.

Since 2005 we have not had any products available for commercial sale and have not received any revenues from the sale of our product candidates. For the foreseeable future, we will have to fund all of our operations and capital expenditures from license and contract revenue under collaborative development agreements, existing cash balances and outside sources of financing, which may not be available on acceptable terms, if at all. Unless and until we receive approval from the FDA or other equivalent regulatory authorities outside the United States, we cannot sell our products and will not have product revenues from them. We have devoted substantially all of our efforts to research and development, including preclinical and clinical trials. Because of the numerous risks associated with developing drugs, we are unable to predict the extent of future losses, whether or when any of our product candidates will become commercially available, or when we will become profitable, if at all.

We will need additional funding, including funding to complete clinical trials for our product candidates other than bremelanotide, which may not be available on acceptable terms, if at all.

Under the license agreement with AMAG, we are contractually required to complete development and regulatory activities necessary to file an NDA for bremelanotide for HSDD in the United States. AMAG will reimburse us for up to an aggregate amount of $25 million for all reasonable, documented, direct out-of-pocket expenses we incur in completing these development and regulatory activities. To the extent that our expenses exceed this amount, we will be responsible for the required additional funding.

In addition to our responsibilities under the license agreement with AMAG, we intend to focus efforts on our other product candidates, including our natriuretic peptide and MC1r programs. As of June 30, 2017, we had cash, cash equivalents, accounts receivable and investments of $55.6 million, with current liabilities of $19.9 million, net of deferred revenue of $35.1 million. After giving effect to the proceeds from our license agreements with AMAG and Fosun and the proceeds from the financing transactions on August 4, 2016 and December 6, 2016, we believe we currently have sufficient existing capital resources to fund our planned operations through at least the 2018 calendar year. We will need additional funding to complete development activities and required clinical trials for our other product candidates and development programs and, if those clinical trials are successful (which we cannot predict), to complete submission of required regulatory applications to the FDA.

Until the FDA approves bremelanotide for HSDD and marketing commences, if at all, we will not have any recurring revenue. Even if bremelanotide is approved and marketing commences, we cannot predict product sales or our resulting royalties, so we may not have any source of significant recurring revenue and may need to depend on financing or partnering to sustain our operations. We may raise additional funds through public or private equity or debt financings, collaborative arrangements on our product candidates, or other sources. However, such financing arrangements may not be available on acceptable terms, or at all. To obtain additional funding, we may need to enter into arrangements that require us to develop only certain of our product candidates or relinquish rights to certain technologies, product candidates and/or potential markets.

If we are unable to raise sufficient additional funds when needed, we may be required to curtail operations significantly, cease clinical trials and decrease staffing levels. We may seek to license, sell or otherwise dispose of our product candidates, technologies and contractual rights on the best possible terms available. Even if we are able to license, sell or otherwise dispose of our product candidates, technologies and contractual rights, it is likely to be on unfavorable terms and for less value than if we had the financial resources to develop or otherwise advance our product candidates, technologies and contractual rights ourselves.

Our future capital requirements depend on many factors, including:

our ability to enter into one or more licensing or similar agreements for bremelanotide outside of North America and China;

the timing of, and the costs involved in, obtaining regulatory approvals for bremelanotide for HSDD and our other product candidates;

the number and characteristics of any additional product candidates we develop or acquire;

the scope, progress, results and costs of researching and developing our future product candidates, and conducting preclinical and clinical trials;

the cost of commercialization activities if any future product candidates are approved for sale, including marketing, sales and distribution costs;

the cost of manufacturing any future product candidates and any products we successfully commercialize;

our ability to establish and maintain strategic collaborations, licensing or other arrangements and the terms and timing of such arrangements;

the degree and rate of market acceptance of any future approved products;

the emergence, approval, availability, perceived advantages, relative cost, relative safety and relative efficacy of alternative and competing products or treatments;

any product liability or other lawsuits related to our products;

the expenses needed to attract and retain skilled personnel;

the costs involved in preparing, filing, prosecuting, maintaining, defending and enforcing patent claims, including litigation costs and the outcome of such litigation; and

the timing, receipt and amount of sales of, or royalties on, future approved products, if any.

We have a limited operating history upon which to base an investment decision.

Our operations are primarily focused on acquiring, developing and securing our proprietary technology, conducting preclinical and clinical studies and formulating and manufacturing on a small-scale basis our principal product candidates. These operations provide a limited basis for stockholders to assess our ability to commercialize our product candidates.

We have not yet demonstrated our ability to perform the functions necessary for the successful commercialization of any of our current product candidates. The successful commercialization of our product candidates will require us to perform a variety of functions, including:

continuing to conduct preclinical development and clinical trials;

participating in regulatory approval processes;

formulating and manufacturing products, or having third parties formulate and manufacture products;

post-approval monitoring and surveillance of our products;

conducting sales and marketing activities, either alone or with a partner; and

obtaining additional capital.

If we are unable to obtain regulatory approval of any of our product candidates, to successfully commercialize any products for which we receive regulatory approval or to obtain additional capital, we may not be able to recover our investment in our development efforts.

The clinical and commercial success of our product candidates will depend on a number of factors, including the following:

the ability to raise additional capital on acceptable terms, or at all;

timely completion of our clinical trials, which may be significantly slower or cost more than we currently anticipate and will depend substantially upon the performance of third-party contractors;

whether we are required by the FDA or similar foreign regulatory agencies to conduct additional clinical trials beyond those planned to support the approval and commercialization of our product candidates or any future product candidates;

acceptance of our proposed indications and primary endpoint assessments relating to the proposed indications of our product candidates by the FDA and similar foreign regulatory authorities;

our ability to demonstrate to the satisfaction of the FDA and similar foreign regulatory authorities, the safety and efficacy of our product candidates or any future product candidates;

the prevalence, duration and severity of potential side effects experienced with our product candidates or future approved products, if any;

the timely receipt of necessary marketing approvals from the FDA and similar foreign regulatory authorities;

achieving and maintaining, and, where applicable, ensuring that our third-party contractors achieve and maintain, compliance with our contractual obligations and with all regulatory requirements applicable to our product candidates or any future product candidates or approved products, if any;

the ability of third parties with whom we contract to manufacture clinical trial and commercial supplies of our product candidates or any future product candidates, remain in good standing with regulatory agencies and develop, validate and maintain commercially viable manufacturing processes that are compliant with GMP;

a continued acceptable safety profile and efficacy during clinical development and following approval of our product candidates or any future product candidates;

our ability to successfully commercialize our product candidates or any future product candidates in the United States and internationally, if approved for marketing, sale and distribution in such countries and territories, whether alone or in collaboration with others;

acceptance by physicians and patients of the benefits, safety and efficacy of our product candidates or any future product candidates, if approved, including relative to alternative and competing treatments;

our and our partners' ability to establish and enforce intellectual property rights in and to our product candidates or any future product candidates;

our and our partners' ability to avoid third-party patent interference or intellectual property infringement claims; and

our ability to in-license or acquire additional product candidates or commercial-stage products that we believe can be successfully developed and commercialized.

If we do not achieve one or more of these factors, many of which are beyond our control, in a timely manner or at all, we could experience significant delays or an inability to obtain regulatory approvals or commercialize our product candidates. Even if regulatory approvals are obtained, we may never be able to successfully commercialize any of our product candidates. Accordingly, we cannot assure you that we will be able to generate sufficient revenue through the sale of our product candidates or any future product candidates to continue our business.

Raising additional capital may cause dilution to existing shareholders, restrict our operations or require us to relinquish rights.

We may seek the additional capital necessary to fund our operations through public or private equity offerings, collaboration agreements, debt financings or licensing arrangements. To the extent that we raise additional capital through the sale of equity or convertible debt securities, existing shareholders' ownership interests will be diluted and the terms may include liquidation or other preferences that adversely affect their rights as a shareholder. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions such as incurring additional debt, making capital expenditures or declaring dividends. If we raise additional funds through collaborations and licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies or product candidates, or grant licenses on terms that are not favorable to us.

Risks Related to Our Business, Strategy and Industry

We are substantially dependent on the clinical and commercial success of our product candidates, primarily our lead product candidate, bremelanotide for HSDD, but we and our licensees may never obtain regulatory approval for or successfully commercialize bremelanotide for HSDD or any of our product candidates.

To date, we have invested most of our efforts and financial resources in the research and development of bremelanotide for HSDD, which is currently our lead product candidate. We licensed to AMAG all rights to bremelanotide in North America, but are contractually obligated to complete development and regulatory activities necessary to file an NDA for bremelanotide for HSDD in the United States, with AMAG reimbursing us for up to $25 million for reasonable, documented, out-of-pocket expenses we incur. We licensed to Fosun rights to bremelanotide for China, but depending on the regulatory approval pathway utilized in China, approval in China may be contingent on approval of an NDA for bremelanotide for HSDD in the United States.

Our near-term prospects, including our ability to finance our company and generate revenue, will depend heavily on the successful development, regulatory approval and commercialization of bremelanotide for HSDD, as well as any future product candidates. The clinical and commercial success of our product candidates will depend on a number of factors, including the following:

timely completion of, or need to conduct additional clinical trials and studies, including for bremelanotide for HSDD, which may be significantly slower or cost more than we currently anticipate and will depend substantially upon the accurate and satisfactory performance of third-party contractors;

the ability to demonstrate to the satisfaction of the FDA the safety and efficacy of bremelanotide for HSDD or any future product candidates through clinical trials;

whether we or our licensees are required by the FDA or other similar foreign regulatory agencies to conduct additional clinical trials to support the approval of bremelanotide for HSDD or any future product candidates;

the acceptance of parameters for regulatory approval, including our proposed indication, primary endpoint assessment and primary endpoint measurement, relating to our lead indications of bremelanotide for HSDD;

the success of our licensees in educating physicians and patients about the benefits, administration and use of bremelanotide for HSDD, if approved;

the prevalence and severity of adverse events experienced with bremelanotide for HSDD or any future product candidates or approved products;

the adequacy and regulatory compliance of the autoinjector device, supplied by an unaffiliated third party, to be used as part of the bremelanotide combination product;

the timely receipt of necessary marketing approvals from the FDA and similar foreign regulatory authorities;

our ability to raise additional capital on acceptable terms to achieve our goals;

achieving and maintaining compliance with all regulatory requirements applicable to bremelanotide for HSDD or any future product candidates or approved products;

the availability, perceived advantages, relative cost, relative safety and relative efficacy of alternative and competing treatments;

the effectiveness of our own or our future potential strategic collaborators' marketing, sales and distribution strategy and operations;

the ability to manufacture clinical trial supplies of bremelanotide for HSDD or any future product candidates and to develop, validate and maintain a commercially viable manufacturing process that is compliant with current GMP;

the ability of AMAG to successfully commercialize bremelanotide for HSDD;

our ability to successfully commercialize any future product candidates, if approved for marketing and sale, whether alone or in collaboration with others;

our ability to enforce our intellectual property rights in and to bremelanotide for HSDD or any future product candidates;

our ability to avoid third-party patent interference or intellectual property infringement claims;

acceptance of bremelanotide for HSDD or any future product candidates, if approved, as safe and effective by patients and the medical community; and

a continued acceptable safety profile and efficacy of bremelanotide for HSDD or any future product candidates following approval.

If we fail to satisfy any one of these prerequisites to our commercial success, many of which are beyond our control, in a timely manner or at all, we could experience significant delays or an inability to successfully commercialize our product candidates. Accordingly, we cannot assure you that we will be able to generate sufficient revenue through the sale of bremelanotide for HSDD by AMAG and Fosun or through the sale of any future product candidate to continue our business. In addition to preventing us from executing our current business plan, any delays in our clinical trials, or inability to successfully commercialize our products could impair our reputation in the industry and the investment community, and could hinder our ability to fulfill our existing contractual commitments. As a result, our share price would likely decline significantly, and we would have difficulty raising necessary capital for future projects.

We do not control the development or commercialization of bremelanotide in North America, which is licensed to AMAG, and as a result we may not realize a significant portion of the potential value of the license arrangement with AMAG.

Although we will conduct all development work to support an NDA for bremelanotide in HSDD, the license agreement with AMAG for bremelanotide in North America limits our control over development activities, including regulatory approvals, and we do not have any direct control over commercialization efforts. AMAG may abandon further development of bremelanotide in its licensed territory, including terminating the agreement, for any reason, including a change of priorities within AMAG or lack of success in ancillary clinical trials necessary to obtain regulatory approvals. Because the potential value of the license arrangement with AMAG is contingent upon the successful development and commercialization of bremelanotide in the United States and other countries in the licensed territory, the ultimate value of this license will depend on the efforts of AMAG. If AMAG does not succeed in obtaining regulatory approval of bremelanotide in the United States for any reason, does not succeed in securing market acceptance of bremelanotide in the United States, or elects for any reason to discontinue development of bremelanotide, we will be unable to realize the potential value of this arrangement and would experience significant delays or an inability to successfully commercialize bremelanotide.

Production and supply of bremelanotide depend on contract manufacturers over whom neither we nor AMAG have any control, and we may not have adequate supplies of bremelanotide.

We do not have the facilities to manufacture the bremelanotide active drug ingredient or the autoinjector pen component of the bremelanotide combination product, or to fill, assemble and package the bremelanotide combination product. AMAG, our exclusive licensee for North America for bremelanotide, has assumed responsibility for contract manufacturing. The contract manufacturers must perform these manufacturing activities in a manner that complies with FDA regulations. AMAG's ability to control third-party compliance with FDA requirements is limited to contractual remedies and rights of inspection. The manufacturers of approved products and their manufacturing facilities will be subject to ongoing review and periodic inspections by the FDA and other authorities where applicable, and must comply with regulatory requirements, including FDA regulations concerning GMP. Failure of third-party manufacturers to comply with GMP, medical device quality system regulations, or other FDA requirements may result in enforcement action by the FDA. Failure to conduct their activities in compliance with FDA regulations could delay bremelanotide development programs or negatively impact AMAG's ability to receive FDA approval of the bremelanotide potential products or continue marketing bremelanotide products if they are approved. Establishing relationships with new suppliers, who must be FDA-approved, is a time-consuming and costly process. If AMAG is not able to obtain adequate supplies of bremelanotide, it will be difficult for AMAG to develop bremelanotide and compete effectively.

Most of our product candidates are still in the early stages of development, and all of our product candidates remain subject to clinical testing and regulatory approval. If we are unable to successfully develop and test our product candidates, we will not be successful.

Our product candidates are at various stages of research and development, will require regulatory approval, and may never be successfully developed or commercialized. Our product candidates will require significant further research, development and testing before we can seek regulatory approval to market and sell them. We must demonstrate that our product candidates are safe and effective for use in patients in order to receive regulatory approval for commercial sale. Preclinical studies in animals, using various doses and formulations, must be performed before we can begin human clinical trials. Even if we obtain favorable results in the preclinical studies, the results in humans may be different. Numerous small-scale human clinical trials may be necessary to obtain initial data on a product candidate's safety and efficacy in humans before advancing to large scale human clinical trials. We face the risk that the results of our trials in later phases of clinical trials may be inconsistent with those obtained in earlier phases. Adverse or inconclusive results could delay the progress of our development programs and may prevent us from filing for regulatory approval of our product candidates. Additional factors that could inhibit the successful development of our product candidates include:

lack of effectiveness of any product candidate during clinical trials or the failure of our product candidates to meet specified endpoints;

failure to design appropriate clinical trial protocols;

uncertainty regarding proper dosing;

inability to develop or obtain a supplier for an autoinjector device that meets the FDA's medical device requirements;

insufficient data to support regulatory approval;

inability or unwillingness of medical investigators to follow our clinical protocols;

inability to add a sufficient number of clinical trial sites; or

the availability of sufficient capital to sustain operations and clinical trials.

You should evaluate us in light of these uncertainties, difficulties and expenses commonly experienced by early stage biopharmaceutical companies, as well as unanticipated problems and additional costs relating to:

product approval or clearance;

regulatory compliance;

good manufacturing practices;

intellectual property rights;

product introduction; and

marketing and competition.

If clinical trials for our product candidates are prolonged or delayed, we may be unable to commercialize our product candidates on a timely basis, which would require us to incur additional costs and delay our receipt of any revenue from potential product sales.

We may be unable to commercialize our product candidates on a timely basis due to unexpected delays in our human clinical trials. Potential delaying events include:

discovery of serious or unexpected toxicities or side effects experienced by study participants or other safety issues;

slower than expected rates of subject recruitment and enrollment rates in clinical trials resulting from numerous factors, including the prevalence of other companies' clinical trials for their product candidates for the same indication, or clinical trials for indications for which patients do not as commonly seek treatment;

difficulty in retaining subjects who have initiated a clinical trial but may withdraw at any time due to adverse side effects from the therapy, insufficient efficacy, fatigue with the clinical trial process or for any other reason;

difficulty in obtaining IRB approval for studies to be conducted at each site;

delays in manufacturing or obtaining, or inability to manufacture or obtain, sufficient quantities of materials for use in clinical trials;

inadequacy of or changes in our manufacturing process or the product formulation or method of delivery;

changes in applicable laws, regulations and regulatory policies;

delays or failure in reaching agreement on acceptable terms in clinical trial contracts or protocols with prospective contract research organizations ("CROs"), clinical trial sites and other third-party contractors;

failure of our CROs or other third-party contractors to comply with contractual and regulatory requirements or to perform their services in a timely or acceptable manner;

failure by us, our employees, our CROs or their employees or any partner with which we may collaborate or the